EXPLORING PRELICENSURE BSN STUDENTS' KNOWLEDGE OF MINDFULNESS MEDITATION USING A SMARTPHONE APP TO MANAGE STRESS AND PROMOTE RESILIENCE: A QUALITATIVE SINGLE CASE STUDY

by

Beth Ann Kelley

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy: Nursing: Nursing Education

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ABSTRACT

The purpose of this qualitative single case study was to explore pre-licensure Bachelor of Science in Nursing (BSN) students' knowledge of mindfulness meditation (MM) using a smartphone app (SMA) to manage stress and promote resilience. Guiding this study was the transactional model of stress, adaptation, and coping by Lazarus and Folkman (1984) and the zone of proximal development (ZPD) educational theory by Vygotsky. The study asked the following questions: What was pre-licensure Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation (MM) using a smartphone app (SMA) to manage stress and promote resilience? What had the prelicensure BSN student experienced regarding MM with an SMA? What did prelicensure BSN students know about MM using an SMA to manage stress? What did prelicensure BSN students know about MM using an SMA to promote resilience? A sample of 91 students was obtained to answer the demographic questionnaire and three surveys. From those students, 25 volunteered for interviews and focus groups with 14 BSN students for interviews and 11 students split into two focus groups. The data were collected from surveys, interviews, and focus groups, and themes were developed. Data obtained contributes to current knowledge, and recommendations for further research are given.

Keywords: mindfulness meditation, stress, resilience, BSN students, case study

Dedication

This manuscript is dedicated to all the student nurses who struggle with stress during and after the academic process. Carry through with your dreams; it's worth it!

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I would never have been able to complete this manuscript and dissertation process without the help of God. He has blessed me greatly and continues to sustain me through the trials and successes of life. God is good!

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List of Abbreviations

Mindfulness Meditation (MM)

Smartphone Application (SMA)

Zone of Proximal Development (ZPD)

United States (U.S.)

Mindfulness-Based Stress Reduction (MBSR)

American Nurses Association Enterprise (ANAE)

American Association of Collegiate Nursing (AACN)

Bachelor of Science in Nursing (BSN)

Perceived Stress Scale (PSS)

Brief Resilience Scale (BRS)

National League for Nurses (NLN)

National Center for Health Statistics (NCHS)

Default Mode Network (DMN)

Randomized Controlled Trial (RCT)

Registered Nurse (RN)

Boards of Nursing (BON)

National Certified Licensing Exam for Registered Nurses (NCLEX-RN)

Associate degree nurse (AND)

Doctor of Philosophy (Ph.D.)

Resilience Enhancing Stress Model (RESM)

World Health Organization (WHO)

Traditionally Delivered Mindfulness (TDM)

Smartphone Delivered Mindfulness (SDM)

Emergency Department (ED)

National Institute of Health (NIH)

Analysis of variance (ANOVA)

Analysis of covariance (ANCOVA)

Multiple analysis of variance (MANOVA)

CHAPTER ONE: INTRODUCTION

Overview

Stress is a detrimental factor in nursing school. Stress can lead to side effects that negatively impact students, faculty, patients, and families (McVeigh et al., 2021). Side effects include poor concentration, anxiety, depression, and other physical, mental, and emotional problems (Monat & Lazarus, 1985). Nursing students have busy lives and often do not take time for self-care (McVeigh et al., 2021). However, self-care in the form of mindfulness meditation (MM) has been shown to reduce stress levels (Spadaro & Hunker, 2021). Nursing students have very little free time, so a readily accessible method that guides the student in MM is preferable (McVeigh et al., 2021). Vygotsky's (1978) zone of proximal development (ZPD) educational theory addresses how technology can assist in learning new things. However, there is a gap in the research, as indicated by McVeigh et al. (2021), Spadaro and Hunker (2021), and Vidic (2021), of a need to explore prelicensure BSN students' knowledge of MM using a smartphone application (SMA) to manage stress and promote resilience. This qualitative case study addressed the discovered gap in the literature to understand how much knowledge pre-licensure BSN students have regarding the use of MM using an SMA to reduce perceived stress and increase resilience. Chapter One outlines the background of the research study, problem statement, purpose statement, significance of the study, research questions, and definitions.

Background

Stress has been around since Adam and Eve sinned in the Garden of Eden (New International Version Bible, 2011). Matthew 6:34 states: "Therefore do not worry about tomorrow, for tomorrow will worry about itself. Each day has enough trouble of its own." The problem for most people is that they know worrying is fruitless and harmful. Yet, the body reacts

independently of the mind through the sympathetic nervous system, enacting the fight or flight response to a perceived threat (Kabat-Zinn, 2013).

Spadaro and Hunker (2021) noted that stress in college is prevalent, and nursing students are particularly susceptible as they experience stress learning complicated new information and skills. In comparison, Franco (2022) focused on nursing students in their last semester due to the stress of organizing new information that had been learned and would be applied in a new and stressful job environment. Additionally, nursing students experience stress from academic and clinical education and the stressors in their lives and environments. These stressors include attending a new clinical site while balancing this with family and financial obligations (Kacan & Pallos, 2021).

Finding effective ways to decrease nursing students' stress is crucial to their physical and mental health and patient safety (Franco, 2022). This decrease in stress can be accomplished through more extensive research to determine effective coping methods. The effects of stress on nurses, such as poor concentration and a lack of self-care, have been linked to patient harm through medication errors (Ekkens & Gordon, 2021). Medication errors occur in 50% of inpatients and have become the third leading cause of death in the United States (U.S.; Xu et al., 2021). With the significant relationship between patient harm and experiences of stress in nurses, ways to mitigate stress must be recognized early on to ensure the well-being of nurses, nursing students, and those who receive nursing care (Ekkens & Gordon, 2021).

Kabat-Zinn originated the Mindfulness-Based Stress Reduction (MBSR) program in 1974 to address stress (Vermeesch & Cox, 2021). MBSR is a structured program with yoga and mindfulness meditation that focuses on the present and cultivates awareness of the present. The

meditator uses this awareness to manage stress, pain, and illness. The MBSR program was a precursor to MM, often used today.

Kabat-Zinn (2013) described MM as intentionally practicing self-awareness. This practice is done by observing the event objectively while experiencing each moment as it occurs. This practice typically occurs with attention to breathing in and out. The practice continues focusing on other areas, such as physical and mental observations, focused muscle relaxation, body scans, and mindful eating and walking. When the mind wanders, the person notes the thought without judgment and gently brings their mind back to the focus of breathing. The findings of Kabat-Zinn's study demonstrated a decrease in chronic pain and other symptoms while recognizing behavioral and attitudinal improvements. McVeigh et al. (2021) and Spadaro and Hunker (2021) completed qualitative studies that indicate MM's usefulness for reducing stress. This qualitative study will differ from current studies by exploring prelicensure BSN students' knowledge of using MM with an SMA to decrease stress and improve resilience by administering surveys and conducting interviews with nursing students and focus groups to explore their knowledge.

Kabat-Zinn performed mixed methods research that has shaped the MM field by providing a technique for practice and support for its benefits (Kabat-Zinn, 2013). By using MM, researchers have documented the benefits of stress reduction. Dutcher et al. (2022) found that the benefits of using MM with an SMA reduced an inflammatory gene for customer service workers and improved stress levels. However, St. Martin et al. (2022) used a semester-long MM course for college students and noted that those who participated in MM had lower stress and a higher quality of life. Further, Ekkens and Gordon (2021) evaluated the benefits of mindfulness thinking in reducing medication errors for nurses. Sarazine et al. (2021) conducted a mindfulness

workshop for nurses who realized it reduces stress. Spadaro and Hunker (2021) administered mindfulness meditation to nursing students online, indicating stress reduction. Cohen-Katz et al. (2004) contend that their study was the first to evaluate a type of MM for practicing nurses. Conversely, Ghawadra et al. (2020) used a mobile app to provide Kabat-Zinn's method of MM for nurses, yet the findings did not reveal stress reduction in nurses who used the mobile app.

Further, McVeigh et al. (2021) conducted a survey study with descriptive statistics and thematic analysis of a convenience sample in one university in the United Kingdom. Students at this university indicated an interest and knowledge in mindfulness meditation in general. The limitations of this study were a lack of triangulation and information from a convenience sample at a single school. Therefore, this study will determine what nursing students know about using MM with an SMA from a Christian university. Surveys were used, but participants also participated in focus groups and interviews. MM research has been explored with many different populations. However, the number of nursing students studied qualitatively is limited to Spadaro and Hunker (2016, 2021), with no identified studies determining what nursing students know about MM with an SMA.

Traditionally, stress has been treated with pharmacological, psychological, or behavioral therapies (Kinchen & Loerzel, 2019). Cochran et al. (2020) noted that nursing students have become accepting of holistic treatments such as meditation to decrease stress and its mental and physical effects. Improving the nursing student's health is imperative so that these students can give patients the best care possible (Ekkens & Gordon, 2021). Implementing these coping strategies early in the student's education will assist them in objectively viewing things that happen in their own lives without being upset and distracted while maintaining a patient-oriented practice (Burner & Spadaro, 2023).

Historical Context

Early definitions of stress, beginning with the Romans, referred to physical pressures (A. M. Robinson, 2018). In the 16th century, distress often meant bodily injury. However, today, the word stress is commonly used with negative connotations for experiences. The progression of the understanding of stress was established through multiple historical researchers' works. Claude Bernard identified stress in 1872 as an internal bodily factor that needed constant attention to maintain equilibrium (B. W. Smith et al., 2008).

Sir William Osler was an influential and early contributor to the research on stress (A. M. Robinson, 2018). Osler's work focused on treating diseases and using symptoms to diagnose the disease. During his research on symptoms, he realized that the body responds to the environment and that there is bodily harm in long-term exposure to poor environments. Osler found that the patient's personality and outlook affected their disease progression. Therefore, cognition affects health.

Walter Cannon must be included when discussing research regarding stress as he described the fight or flight response in 1929 (Henry & Ely, 1980). The fight or flight response describes how the body reacts by activating the "sympathetic adrenal-medullary system" (p. 82) in highly stressful situations. This description enabled future researchers to understand mechanisms in the body that cause physical responses to stress**.**

Stress has long been a facet of nursing school that varying authors have discussed (Katzell, 1968; Mereness, 1952; Sawatzky, 1998; Vermeesch & Cox, 2021). Claude Bernard and Sir William Osler realized that stress was an internal response to the environment (A. M. Robinson, 2018). Mereness (1952) noted that nursing school included more stress than any young woman should handle. It was recommended that nursing faculty should work to meet the

needs of students. Katzell (1968) reported that nursing students who were more pragmatic in their perception or appraisal of nursing school were less likely to quit. Later, McKay (1978) found that little had been done to help students handle stress and suggested that faculty must put the nursing student first and assist in encouraging conflict management.

Vermeesch and Cox (2021) discussed that stress is in everyone's life, but feeling overwhelmed by stress is typical of nursing students. In a cross-sectional correlational descriptive study, Onieva-Zafra et al. (2020) found that nursing students had moderate stress and encouraged nursing educators to include methods to help students cope. Further, Garmaise-Yee and LeBlanc (2022) found in a pilot study that nursing students did not have adequate training to cope with their stress but were helped by an online mindfulness intervention.

Social Context

The American Nurses Association Enterprise (ANAE, 2020) recognizes the ethical and moral stresses of nursing with continuous emotional, physical, and ethical demands. This stress affects nurses' physical and mental health and often patient safety and care. The American Nurses Association Enterprise (2020) developed the Well-being Initiative to assist nurses and nursing students in maintaining and improving mental health, leading to a healthier nation. Multiple offerings include health tips, spiritual health, gratitude, and meditation. Similarly, the American Association of Colleges of Nursing (2020b) endorsed a resolution to protect nurse students' and faculty's health and well-being. A revived focus has been placed on mental and physical health. Faculty and nursing school campuses are encouraged to assist the student by providing methods to reduce the stress that causes these problems and improving their resiliency. Current stress levels and suicide rates of nursing students are higher than those of the general population. The American Association of Colleges of Nursing (2020b) discussed that nursing

student stress is 2.8 times higher than other students' stress and suicide rates are 33/100,000 vs. 27/100,000 for males and 10/100,000 vs. 7/100,000 for females, which initiated this call to action. Additionally, current nursing shortages and stressful working conditions have necessitated adaptive coping mechanisms. Based on these recent directives and programs from national nursing organizations (American Association of Colleges of Nursing, 2020a; American Nurses Association Enterprise, 2020), determining effective coping and stress relief mechanisms is essential (American Association of Colleges of Nursing, 2020b).

Theoretical Context

Lazarus and Folkman's (1984) transactional theory of stress and coping was developed to explain differences in people's responses to stressful circumstances in the same environment. This theory is founded on the idea that every emotion stems from a person's appraisal of the interaction between the individual and their environment. These appraisals help the person adjust to the environment. A crucial aspect of the theory is that the primary role of a person's emotional responses and adaptation to the environment is to prepare the person with the most effective behavior to respond to events. This behavioral response should be in a way that promotes psychological health. People must adapt to stress to survive. This theory was the first stress theory to explain stress in a dynamic environment. Biggs et al. (2017) described Lazarus and Folkman's (1984) theory as especially crucial in shaping the research over the last 50 years regarding stress and coping, making it an obvious choice for this research.

Since the transactional theory of stress and coping development, this theory has become well-known and frequently used in research, such as the study by Franco (2022) and Toniolo-Barrios and ten Brummelhuis (2023). Franco (2022) used Lazarus and Folkman's (1984) theory in a quasi-experimental, pretest-posttest, one-group design to test the impact of an online

mindfulness program on prelicensure nursing students' stress and anxiety. Franco (2022) directed that a person's response to a stressful event could be altered by changing their cognitive appraisal of the situation. This appraisal is described as a single person's interpretation and determination of an event and whether they have adequate resources to deal with the circumstance. The findings of this study indicated a decrease in stress and a general agreement that the intervention of MM was helpful.

Findings supported nursing educators' need for an online MM program to help nursing students manage stress and improve coping mechanisms. Further, Toniolo-Barrios and ten Brummelhuis (2023) conducted two studies that drew on Lazarus and Folkman's transactional theory. Findings indicated that mindfulness is related to lowered stress through a "decreased threat task appraisal" (p. 1). The authors noted that work stress is decreased by mindfulness because workers will view tasks at work as less of a threat.

Research regarding stress commonly uses Lazarus and Folkman's (1984) transactional theory of stress and coping to validate findings. This theory uses three steps to describe how a person conducts innate responses to stress and aids the researcher and reader in understanding how MM can reduce stress for the nursing student (Spadaro & Hunker, 2021). Lazarus and Folkman's (1984) theory involves a preliminary event evaluation followed by a cognitive appraisal that occurs when the person assesses their response to the event. Finally, cognitive reappraisal involves a continual and changing assessment of the event as it develops. The person then experiences stress when they note an inappropriate response to an event.

Manti et al. (2022) used Lazarus and Folkman's (1984) transactional theory of stress and coping in their cross-sectional design study. Manti et al. contended that the concept of this stress theory looked at the interaction of two systems, the internal and the external environment, which

were then mediated by appraisal. This theory aided in analyzing the findings of undergraduate nursing students' stress levels and coping mechanisms.

Vygotsky's (1978) ZPD educational theory was developed because the connection between learning and development was unclear based on previous theories. Vygotsky noted that previous studies utilized theoretically vague solutions, resulting in multiple errors. The zone of proximal development is centered on three significant theoretical positions. The first is that the learner's development occurs independently of learning. The second is that learning is development, and the third position combines learning and development.

Three thoughts are new in this theory (Vygotsky, 1978). First, two opposing viewpoints are joined, which were noted separately in previous research. Additionally, the idea is that these two processes that make development are dependent and interactive. Vygotsky noted that the most important new part of this theory is the elaborated function it assigns to learning in development. Vygotsky noted that learning was developmental and contained two zones: actual and potential (Kantar et al., 2020). Actual learning is what students can learn independently, and potential or proximal learning is what a student can learn with assistance.

Kantar et al. (2020) used the ZPD in their qualitative multiple case study with nursing preceptors teaching clinical courses. The ZPD focuses on what can be learned from others, and Kantar et al. wanted to determine if basing clinical education on the student's own ZPD would improve clinical learning. The second part of the ZPD is what can be used with tools and technology to improve student learning (see Figure 2). This research focused on that portion of the ZPD as MM with an SMA falls under the technology category.

Problem Statement

Mills et al. (2020) noted that pre-licensure BSN students encounter many challenges in academic and clinical performance while balancing family life and responsibilities. Maintaining this balance stresses the student (Mills et al., 2020). Additionally, nursing students experience significant stress from academic classes and learning to apply that information in a fast-paced and distracting new environment (McVeigh et al., 2021). As a result of these stressful environments, nursing students need to develop positive coping mechanisms (Spadaro & Hunker, 2021). High stress levels and poor coping methods have been shown to affect a person mentally and physically, causing depression, anxiety, poor immune function, and decreased concentration (Tang & Tang, 2020).

In addition to the importance of positive coping mechanisms, the development of resilience is essential for these students (Labrague, 2021). Labrague performed a cross-sectional study that surveyed the stress of nursing students during the Coronavirus pandemic. Results indicated that they had moderate stress levels and moderate to high resilience. These results suggested how important it is for faculty to assist students in managing their stress, which parallels Vygotsky's ZPD. Furthermore, Greene et al. (2022) suggested that resilience is described as recovering from stress and returning to normal functioning. Stoliker et al. (2022) used a repeated measures research design and found that online resilience training helped nursing students develop resilience and decrease stress but advised that further studies need to be conducted to determine other effective methods.

Stressors contribute to an unacceptable nursing student attrition rate that has risen from 25% in 1968 to 30% in 2021 (Katzell, 1968; McVeigh et al., 2021). Although research has been conducted on stressors and coping in nursing students, there is a continued need for more

research to discover better practices for coping and stress reduction (Spadaro & Hunker, 2021). In an RCT, Flett et al. (2020) tested an MM SMA for incoming, first-year university students and found that it was helpful in the short term for improving the well-being of university students. Further study was recommended to provide validation of these results.

This study was conducted to bridge the gap in the literature regarding pre-licensure BSN students' knowledge of MM using an SMA to manage stress and promote resilience. Spadaro and Hunker (2021) conducted a qualitative study using an online MM course with nursing students. Recommendations from their study were to explore other modalities, such as SMAs, and the need to recruit students from more than one university. Further, Vidic (2021) conducted a quantitative study using relaxation techniques, which included MM. Vidic's study recommended further research using qualitative techniques. However, McVeigh et al. (2021) conducted a study with nursing students to determine their knowledge of MM but only used surveys and recommended further studies that included interviews.

Information from these studies provided background for further research directed at helping nursing students handle stress and improve resilience for better student outcomes. Windle and Musselman (2022) recommended incorporating MM early in the student nurses' careers for improved coping. To enhance this process, the student nurse's familiarity with MM using an SMA was determined. Additionally, Vidic (2021), in a quantitative, multi-year, pre-test/post-test non-randomized design, recommended further qualitative research regarding MM for university students.

The problem is that prelicensure, Bachelor of Science of Nursing (BSN) students' knowledge is of mindfulness meditation using a smartphone app to manage stress and promote resilience is not known. Thus, while researchers have examined the stress reduction benefits of

MM for nursing students, the benefits of an SMA for other populations, and a single university survey regarding knowledge of MM for nursing student use, there was a lack of qualitative research about pre-licensure, BSN students' knowledge of MM using an SMA to manage stress and promote resilience (McVeigh et al., 2021; Spadaro & Hunker, 2021).

Few studies have been conducted to determine the usefulness of MM for nursing students. Spadaro and Hunker's (2021) qualitative study using an online presentation of MM is one example. Additionally, Burner and Spadaro (2023) conducted a pilot study of self-care skills, which included mindfulness, to prevent burnout. However, McVeigh et al. (2021) noted that further qualitative research was needed to determine what knowledge BSN students have of MM with an SMA.

Purpose Statement

The purpose of this qualitative case study was to explore pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience. For the purposes of this study, mindfulness is described as "the self-regulation of attention…adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance" (Bishop et al., 2004, p. 232). Stress is described by Selye (1976) as the common bodily reaction to anything. Finally, resilience was defined using the resilience-enhancing stress model (RESM) of Greene et al. (2022). The RESM model contains several beliefs, including the following: it occurs naturally for all humans, humans have an inborn capacity to strengthen their lives when confronted with stress, and people have different responses to stress.

This study involved the survey of BSN students utilizing the Perceived Stress Scale (PSS), the Mindfulness Attention Awareness Scale (MAAS), the brief resilience scale (BRS),

and a demographic survey to gain knowledge of nursing students' stress, resilience and mindfulness before interviews and focus groups. Following the survey of 91 participants, 14 of the BSN students were interviewed, and 11 participants were divided into two focus groups. The focus was to understand pre-licensure, BSN students' knowledge regarding using MM SMAs to manage perceived stress and promote resilience.

Significance of the Study

This study's acquisition of BSN student knowledge of the use of MM with SMA for stress management and the promotion of resilience further showed how the appraisal to coping process can be positively changed. Lazarus and Folkman's transactional theory of stress and coping discussed the process of appraisal, reappraisal, and coping (Lazarus & Folkman, 1984). MM has been found to change the reappraisal and coping process to a positive process by Kabat-Zinn (2013) and others (Bartlett et al., 2022; Bostock et al., 2019; Brouwer et al., 2023). MM can provide a person with an alternative method of coping while changing processes in the brain to view threatening situations differently (Tang & Tang, 2020). Still, findings from this research furthered Vygotsky's (1978) ZPD by giving preliminary information for further study into the use of an SMA, a technological tool, to improve student learning.

Therefore, determining students' knowledge of MM SMAs provided further knowledge for future research regarding decreasing students' stress and improving resilience through MM. This study contributed to the current body of knowledge. The foundation for this study was based on the problem and discovered gap, as Spadaro and Hunker (2021) revealed regarding further research utilizing multiple locations and exploring SMAs. Additionally, Snyder (2020) called for future research to determine the challenges to implementing MM for nursing students. Further, Vidic (2021) recommended additional qualitative research regarding MM.

Reducing stress in nursing has far-reaching benefits (Alvarez et al., 2019). It was recommended that health and stress relationships be evaluated and included in curricula development for these students. MM was found to improve compassion, decrease stress, and help nursing students evaluate a situation objectively before reacting (Spadaro & Hunker, 2021). The American Association of Colleges of Nursing (2020b) noted in the call to action for nurse well-being that academic leaders need to promote optimal well-being and resilience in nursing schools and that evidence-based interventions such as MM could help students' well-being. Additionally, the findings of this study provided knowledge to advance further studies on the use of MM with an SMA to improve nursing students' emotional health through decreased stress and improved physical and mental health (Lazarus & Folkman, 1984). Health improvement through student nurse stress management and resilience improvement would benefit the patient population with improved care (Xu et al., 2021).

Research Questions

The research questions were designed based on Lazarus and Folkman's (1984) transactional theory of stress and coping. The questions are further designed to be answered through surveys, interviews, and focus groups, based on the qualitative, single case study design. Therefore, this design was chosen to answer questions through thorough investigation. The questions, sub-questions, and meanings are discussed.

Central Research Question

What is pre-licensure Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience?

This research question was developed using Lazarus and Folkman's (1984) transactional stress and coping theory. This theory includes the elements of appraisal, reappraisal, and coping.

The question was designed to answer the research's central theme: to determine what the pre-licensure BSN student knows about MM with an SMA for managing stress and improving resilience (Sifat et al., 2022). MM can be included in the “best practices in healthcare” sequence and would be valuable in nursing student education (McVeigh et al., 2021, p. 2).

The development of the central question was further developed with Vygotsky’s (1978) ZPD educational theory. Vygotsky’s theory includes furthering students' knowledge with knowledge from another person, technology, and tools. Determining what students know about MM with an SMA to manage stress and promote resilience leads to further research on implementing this technological tool.

Sub-Question One

What have prelicensure, BSN students experienced regarding MM with an SMA?

This sub question was designed to determine BSN student experiences with MM using an SMA, which guides future research. It gained information to inform future research of what methods of MM students respond to (Spadaro & Hunker, 2021), further validating present research that only used survey questions (McVeigh et al., 2021).

Sub-Question Two

What do prelicensure BSN students know about MM using an SMA to manage stress?

There are millions of users of health apps, but it was unknown what BSN students use them for or even know about them (Szinay et al., 2021). McVeigh et al. (2021) used a survey designed study with college students and determined that they liked MM and wanted it in the classroom. However, there was no study that explores the nursing student’s knowledge of MM with an SMA to manage stress.

Sub-Question Three

What do prelicensure BSN students know about MM using an SMA to promote resilience?

Spurr et al. (2021) suggested that MM be included in educational classes. Learning what students know about methods can make this addition easier. Additionally, McVeigh et al. (2021) recommended that MM should be incorporated into classrooms. However, further investigation is needed to determine the best way to incorporate MM into students' lives.

Identification of the Gap

Through a thorough exploration of existing research on stress, resilience, MM, and the use of an app for health and well-being for pre-licensure, BSN students, a gap in the literature was identified based on recommendations from studies by McVeigh et al. (2021), Spadaro and Hunker (2021), Ibrahim and Qalawa (2022), and Vidic (2021). This qualitative case study explored pre-licensure, BSN students' knowledge of MM using an SMA to manage stress and promote resilience. Additionally, the findings helped to bridge the gap found in the literature. With the current attrition rates of greater than 30% for nursing students and novice nurses combined with the additional stresses of academic and clinical demands, there is a crucial need to determine an effective way to help them alleviate stress and improve resilience (McVeigh et al., 2021; Windle & Musselman, 2022). The existing research was evaluated.

Spadaro and Hunker (2021) identified four themes in the qualitative portion of their mixed methods study using an online form of administering MM for nursing students. These themes included improved focus, taking time for mindfulness, high self-awareness, and enhanced coping. Additionally, recommendations for future studies included using different modalities, such as an SMA or recruiting students from more than one university. Furthermore, Spadaro and

Hunker utilized an eight-week program but suggested research to determine student engagement methods. With these suggestions, a gap was discovered in the literature, which was bridged within this qualitative case study.

McVeigh et al. (2021) conducted a similar study to this research; however, it included surveys but no interviews. Recommendations from this previous study indicated that nursing students in the United Kingdom were familiar with MM, but further qualitative research was needed. Likewise, Ibrahim and Qalawa (2022) conducted a cross-sectional study of nursing students in Saudi Arabia with chronic diseases during the pandemic and found that anxiety levels increased. Recommendations for further research included evaluating techniques for lowering student anxiety levels. Additionally, Vidic (2021) used quantitative research to evaluate the effects of a relaxation course that included a mindfulness meditation component on college students' stress, resilience, coping, and mindfulness. Vidic (2021) noted that stress is the biggest issue for college students and recommended further evaluation with qualitative research studies.

National nursing groups such as American Nurses Association Enterprise (2020) and American Association of Colleges of Nursing (2020b) have identified the need for faculty and students to have stress relief methods and ways to increase resilience readily available to combat the multiple stressors experienced today in education. The American Association of Colleges of Nursing (2020b) call to action stated: "Given the need to protect the health and well-being of nursing students and faculty, this resolution calls for a renewed focus on programs and resources that promote sound mental health, physical health, healthy lifestyle behaviors, and well-being" (p. 1). The American Nurses Association Enterprise (2020) includes a mindfulness app in a nurse toolkit, yet studies need to be performed to determine how much students know about these apps and if they are willing to use them (Spadaro & Hunker, 2021).

Definitions

1. *Body scans* - This type of MM focuses on each part of your body separately and in sequence. The meditator starts by paying attention to breathing, then the body as a whole. As the practice continues, the meditator begins at the toes and works the focus up the body, one part at a time. This scan is typically done while lying down and staying awake (Kabat-Zinn, 2013).
2. *Cognitive* - This term refers to conscious brain-related activities, which include thinking, remembering, or reasoning (Merriam-Webster, n.d.).
3. *Cognitive appraisal* - This type of appraisal describes how a person determines an event to be threatening. The person decides if it will change their future based on past experiences and beliefs (Lazarus, 2016).
4. *Cognitive reappraisal* - An individual continually evaluates an event with cognitive reappraisal and gives meaning to it (Lazarus & Folkman, 1984).
5. *Emotional intelligence* - Emotional intelligence refers to a person's ability to use self-awareness, social awareness, self-management, and relationship management. These abilities are essential in responding to other people and handling feelings (Huber, 2017).
6. *Emotion-focused coping* - This coping style involves paying attention to feelings (Kabat-Zinn, 2013).
7. *Mindfulness* - Kabat-Zinn (2013) defined mindfulness as "paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally" (p. 4). It is noted that it is awareness and knowing what you are doing at the time that it occurs.

8. *Mindfulness-Based Stress Reduction* - Kabat-Zinn (2013) developed this eight-week, in-person program for stress reduction. It has been used for anxiety, chronic disease, and pain management.
9. *Physical and mental observations* - These observations are used in each mindfulness activity. When a person eats or walks, the practitioner notes physical sensations and mental observations of what is happening during the practice (Kabat-Zinn, 2013).
10. *Stress* - Stress is defined as a bodily state that comes from an actual or perceived incongruence between a person's perceived demand and the ability or inability to meet this demand (Monat & Lazarus, 1985).
11. *Resilience* - Greene et al. (2022) noted that resilience refers to balancing risks to well-being and resilience factors when experiencing stress. Resilience also refers to a person's innate aptitude for self-change.
12. *Smartphone health and wellbeing applications* - Smartphone applications are often called "apps," which are communication technologies used on smartphones with mobile internet connections for health and well-being improvement (Sifat et al., 2022).

Summary

Within Chapter One, the research proposal has been outlined as follows. Stress has been present from the early days of history, with the meaning changing. Early stress researchers such as Claude Barnard, Sir William Osler, and Walter Cannon were instrumental in recognizing and defining the concept. Richard Lazarus wrote his dissertation on stress and continued his research to form the transactional stress and coping theory with Susan Folkman (Lazarus & Folkman, 1984). Nursing students have long been under stress in their learning and professional work from different things throughout history. The mental and physical toll that they have experienced

needs to be managed healthily. Lazarus and Folkman's (1984) transactional theory of stress and coping explains how a person manages stress. Applying this theory to nursing students to determine if MM with an SMA would be a suitable method for stress management could improve their education and future careers. The American Nurses Association Enterprise (2020) called for action to reduce stress along with the American Association of Colleges of Nursing (2020b). The problem was that it was not known what prelicensure Bachelor of Science of Nursing (BSN) students' knowledge is of mindfulness meditation using a smartphone app to manage stress and promote resilience. This research study sought participants' answers to the problem. This chapter further reviewed the situation to self, the philosophical assumptions of ontology and epistemology, research questions, and the literature gap that led to this proposal.

CHAPTER TWO: LITERATURE REVIEW

Overview

Nursing educators and researchers should continually search for better ways to help students do well in school and become competent practitioners (American Association of Colleges of Nursing, 2020b; Vermeesch & Cox, 2021; Zeb et al., 2022). Stressors from nursing school may have physical and mental effects, decreasing performance through a lack of nurse self-care (Spadaro & Hunker, 2021). The purpose of this qualitative case study was to explore what pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge was about using MM with an SMA for perceived stress and resilience. There is a need to provide stress relief measures to nursing students to decrease attrition and improve practice while addressing physical and mental health (American Association of Colleges of Nursing, 2020a, 2020b). To provide support for the necessity of this study, a thorough review was conducted utilizing the following databases to retrieve data: Academic Search Complete, ABI/INFORM Global, eBook collection, EBSCO, ERIC, Dissertations & Theses: The Psychology Collection, Google Scholar, ProQuest Central, Sage Research Methods, PubMed, CINAHL Ultimate, APA PsychNet, and MEDLINE Ultimate. Additionally, themes were highlighted within this review to ensure the focus of the study remained consistent. Search terms and phrases utilized included: “mindfulness meditation,” “stress,” “resilience,” “pre-licensure BSN students,” “meditation and nursing,” “stress and nursing students,” “resilience and nursing students,” “mindfulness meditation and stress and college students,” and “mindfulness meditation and resilience.” The gaps discussed in this chapter included the need for qualitative research to explore pre-licensure BSN students’ knowledge of MM using an SMA to manage stress and promote resilience. A summary confirmed these elements and offered methods to approach the closure of the gaps determined

from the research within this review. Further, it attained themes developed throughout the chapter and the relevance of these themes to the study of the topic. The associations were used to support the applicability of the research and how it contributes to the practice of stress reduction for pre-licensure BSN students.

Theoretical Framework

This study adopted two theories as its theoretical framework for the purpose of exploring pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience. First, Lazarus and Folkman's 1984 transactional theory of stress and coping, a theory related to stress and coping applied to the educational setting, is presented below. Second, Vygotsky's (1978) zone of proximal development theory, sometimes referred to as social constructivism and a widely accepted educational theory, is detailed below.

Transactional Model of Stress and Coping

Lazarus and Folkman's (1984) transactional theory of stress and coping was first presented in their book *Stress, Appraisal, and Coping* and was utilized as the theoretical framework for this study. Stress is defined as: "any event in which environmental demands, internal demands, or both tax and exceed the adaptive resources of an individual" (Monat & Lazarus, 1985, p. 3). Lazarus and Folkman developed this theory in response to the varying reactions of individuals to the same stressful events (Lazarus & Folkman, 1984; O'Brien & Cooper, 2022). Lazarus and Folkman's stress model differed from earlier models, arguing that considering people's differing responses to the same events must include cognitive processes and how an individual moves from an event to a reaction (Lazarus & Folkman, 1984). However, before Lazarus and Folkman, stress theories did not explain why some people responded with

anger and some with guilt. Still, some individuals experience depression and differ in the intensity of reactions and methods of coping. Lazarus and Folkman addressed these deficits with their three-part theory: appraisal, reappraisal, and coping.

Appraisal

The first step in Lazarus and Folkman's (1984) theory is cognitive appraisal, which indicates how a person determines an event to be threatening. Cognitive appraisal happens immediately and without thinking. Additionally, Lazarus and Folkman (1984) noted that cognitive appraisal determines emotions, which depend on the interaction between personal attributes and the environment. Individuals decide if the event will change their future based on past experiences and beliefs and consider what is at stake (Lazarus & Folkman, 1984). It is necessary to consider individuals' different responses under the same conditions. The cognitive processes that occur between appraisal and coping affect the mediation. Considering these differences allowed the researcher to understand the differences in people's appraisal when external conditions are similar.

Lazarus and Folkman (1984) noted three kinds of primary appraisal. These include "irrelevant, benign-positive, and stressful" (p. 32). The irrelevant appraisal is any interaction between a person and the environment that will not affect well-being. It is demonstrated in a conditioned response to something that is not an actual threat. If a door slams frequently, a person is first startled but quickly becomes conditioned to the noise and ignores it. A benign-positive appraisal happens if the encounter is perceived as positive and will improve well-being, such as a happy event. The person experiences joy, happiness, love, or peacefulness. Finally, the stress appraisal refers to challenge, threat, harm, and loss. Harm and loss events indicate that the

person has already experienced some damage, such as someone with a chronic illness. Cognitive reappraisal happens simultaneously.

Reappraisal

The second step in Lazarus and Folkman's (1984) theory is cognitive reappraisal, which occurs when an individual continually evaluates and gives meaning to an event. When an individual is challenged or threatened, this crucial step determines the outcome by exploring all possible options for response to the event. This step includes the individual's determination of the expected response to the selected behavior. This process further includes reviewing unique coping possibilities dependent on available internal and external resources. Mindfulness meditation would be a resource for nursing students to improve coping.

Coping

Finally, coping is complex and involves determining and using a method (Lazarus & Folkman, 1984). This framework consists of problem-focused coping methods and emotion-focused coping. Problem-focused coping methods include confrontation or information gathering, and emotion-focused methods involve seeking emotional support, both used to return to normal equilibrium. Lazarus (2013) argued that cognitive functions form the strength and quality of the emotional reaction to a stressful event and are the foundation for coping methods. Further, the chosen coping method affects the emotional response, changing the interaction between an individual and the environment. Every person has their own beliefs, abilities, and incentives, known as antecedents, that form coping methods that likewise affect the reaction to the environment. MM can positively affect how a person chooses their coping method. It allows the brain to look at threats differently, such as seeing an event occurring but not happening directly to the person (Kabat-Zinn, 2013).

Antecedents to the person and environment relationship that cause a stressful event include social, physiological, and psychological attributes (Lazarus & Folkman, 1984). These antecedents are different for each person depending on personal "demands and resources" (p. 114) and must be considered together to identify predictors for appraisal correctly. Still, the perception of stress is individualized and directly related to personal life experiences, self-efficacy, environmental factors, scholarship, and individual characteristics. The person and the environment lend different qualities in each situation, leading to a personal relationship divided into three forms.

Further, Lazarus (1993) distinguished between three forms of stress: harm, threat, and challenge, which were brought on by the social, physiological, and psychological antecedents. Harm includes psychological damage done in the past, causing permanent loss. Threat refers to potential future harm that has not yet occurred. Challenge includes demanding circumstances that a person has confidence in meeting. Therefore, stress cannot be viewed as occurring in a single realm. This framework has been well-established in research.

Richard Lazarus brought a foundation of cognitive functioning to stress theory (Lazarus & Folkman, 1984; O'Brien & Cooper, 2022). Lazarus and Folkman believed that cognitive function must come before emotion. This means that people perceive an event and know they have been conditioned to a response. The change from emotion to cognitive function allowed researchers to view thoughts about a problem as an adaptation (C. A. Smith & Lazarus, 1990).

Richard Lazarus (2016) began research in the 1970s with three extensive cross-sectional studies of stress and coping in adults. This work suggested that stress is the interaction between the person and the environment, with emotions being the response. Lazarus and Folkman's theory included both positive and negative emotions. The transactional portion of the theory

describes the person's interaction between emotions and the environment. Additionally, the focus of research when developing the theory was to determine if an individual's reaction to daily stress mirrors that of reactions to significant life stressors. Until this evaluation occurred, major life events were viewed as the only stressors humans experienced.

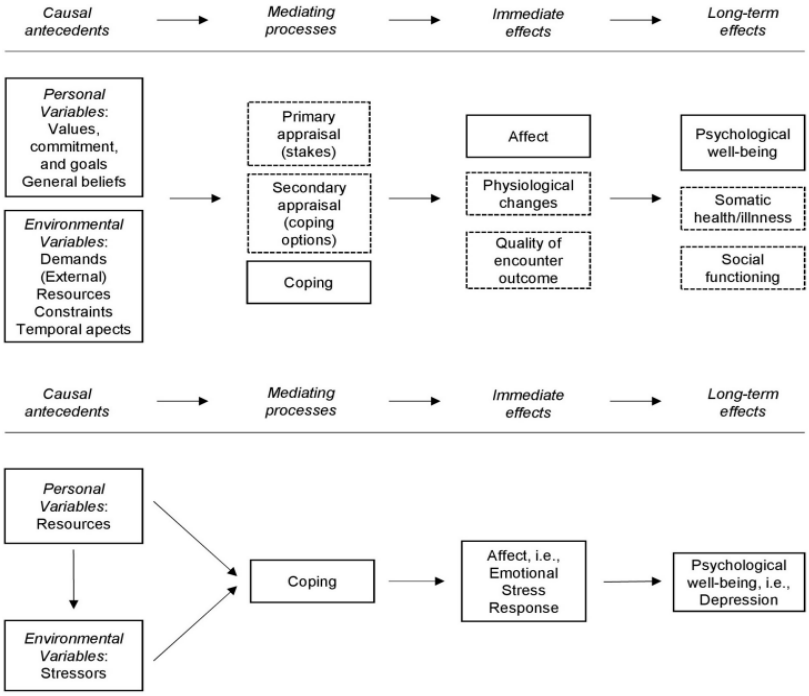
Lazarus and Folkman's (1984) transactional model of stress and coping has had widespread use in research studies. Franco (2022) conducted a quasi-experimental pretest/posttest one-group design study to test the effect of online mindfulness use on prelicensure nursing students' stress and anxiety. This study used Lazarus and Folkman's (1984) transactional stress and coping theory as a framework. Similarly, Garmaise-Yee and LeBlanc (2022) conducted a pilot study in which nursing students completed pretests and posttests after using MM with an SMA for five weeks. An online psychoeducational component was completed, and findings were analyzed with descriptive statistics. Lazarus and Folkman's transactional theory of stress and coping was used to underpin this study.

Lazarus and Folkman's (1984) transactional theory of stress and coping is a middle-range theory that was used for this qualitative case study. Nursing students have many factors that cause them stress, and the need for methods to enhance coping has been identified (Onieva-Zafra et al., 2020; Spadaro & Hunker, 2021). Lazarus and Folkman posit that an individual cannot successfully adapt to stress until appraisal and cognitive reappraisal have occurred. Additionally, this model asserts that stress is experienced differently by each person. This difference is recognized in the appraisal process when one person may feel an event is stressful and another may not. Lazarus (2016) directed that the meaning of an event is complex and must include "personal stakes, beliefs, situational opportunities, constraints and intentions, and interpretations of what the other person is up to in the transaction" (p. 397).

A student's relationship with the environment can harm their well-being through psychological stress (Franco, 2022). The transactional theory of stress and coping was used to develop interview and focus group questions to learn how students experience the stress of nursing school and what they know about using MM with an SMA to manage stress and promote resilience. Determining what nursing students know about the use of MM with an SMA for perceived stress and resilience will further support the theory by gaining knowledge for future research into the use of MM with an SMA for prelicensure BSN students. Moreover, Lazarus (1993) noted that attention could be diverted from a distressing relationship with an environmental factor for a brief time, such as with an MM intervention. Problem-solving coping mechanisms that change the environment or an individual part of the relationship can change conditions that cause goal incongruence and negative emotions. The transactional theory of stress and coping is presented on page 41.

Figure 1

Transactional Model of Stress, Adaptation, and Coping



Note. This figure visually represents the transactional model of stress, adaptation, and coping. Reprinted from "A modified version of the transactional stress concept according to Lazarus and Folkman was confirmed in a psychosomatic inpatient sample," by N. Obbarius, F. Fischer, G. Liegl, A. Obbarius, and M. Rose, 2021, *Frontiers in Psychology, 12*, 1-12. Reprinted with permission (see Appendix A).

The transactional model presented in Figure 1 highlights the transaction between a person and the environment (Obbarius et al., 2021). It depicts that a stress response is dependent on a personal appraisal process. Primary appraisal occurs when the person evaluates the occurring stressor and determines its importance; secondary appraisal happens when determining a coping mechanism. Coping affects the initial stress response, health, well-being, and social functioning. Lazarus and Folkman's (1984) transactional theory of stress and coping was chosen as the

theoretical foundation for this qualitative study. The theory explains the progression from appraisal to coping. It guides the understanding that finding pre-licensure BSN students' knowledge of MM's use with an SMA to manage stress and promote resilience will provide information for further research to enhance their quality of education.

Lazarus and Folkman's (1984) transactional model of stress and coping aligns with the stress variable. This model is appropriate because it includes the interaction of internal and external variables with the environment and aligns with the PSS to assess prelicensure, BSN nursing student stress. Multiple stress theories were available to underpin this qualitative case study; however, a well-validated and applicable theory was found in Lazarus and Folkman's transactional model of stress and coping (Franco, 2022). Additionally, Piotrowski et al. (2022) used Lazarus and Folkman's (1984) stress model in their qualitative study to address stress and resilience for nurses and midwives. Resilience was found to be a partial intercessor for stress. The theory has further been adapted for various populations and contexts to determine links between stress and coping, making it a primary choice.

Zone of Proximal Development

Vygotsky's (1978) zone of proximal development was first coined in his text *Mind in Society*, where he detailed the social interactions surrounding learning and development. Vygotsky cited numerous problems in the psychology and education fields concerning the relationship between learning and development. He presented the flawed assumptions of student learning as including unclear methodology because research has included assumed theoretically vague and crucially unstudied premises and strange solutions to these problems, thereby resulting in errors. Accordingly, Vygotsky named three theoretical positions that underlie the zone of proximal development.

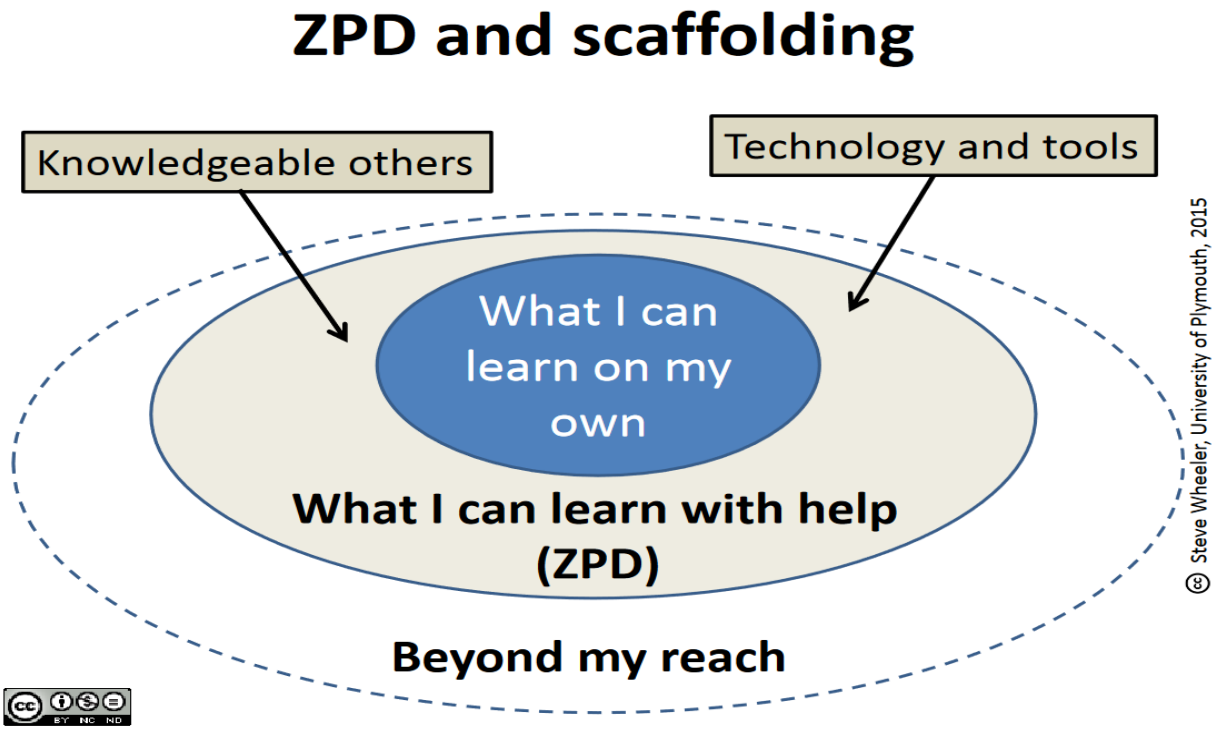
The three theoretical positions are further reviewed. The first position relies on the presumption that student development happens independently of learning (Vygotsky, 1978). Further, he postulated that processes such as understanding, logical thinking, and deduction form by themselves without any assistance from education. The development of a student always happens first before learning, making it a precondition. The second primary theoretical position varies from the first, which holds that learning is development. These processes are believed to be inseparable.

Additionally, the second view differs from the first in that the processes are believed to happen simultaneously. The third position tries to bridge the gap between the first two by combining them. This position holds that once a student has learned something new, it is assimilated into similar operations. Therefore, one advancement in learning constitutes two advancements in development.

From these theoretical positions, Vygotsky (1978) crafted a new approach to understanding student learning called the zone of proximal development. This theory includes three major elements. First, there is what can be learned on one's own. For instance, when a baby learns to walk. Second is the zone of proximal development, where one may learn with help. For example, any learning taught in classes, videos, or demonstrations requires another person who knows how and what to teach the student. These helpers may include other human beings, technology, and tools. Finally, there is what is not within the learning possibility of the student—for example, complicated information beyond the person's IQ or capabilities. Wheeler (2015) conceptualized this theory into the following figure.

Figure 2

Wheeler's Conceptualization of Vygotsky's Zone of Proximal Development



Note. This model visualizes Vygotsky's zone of proximal development under Creative Commons licensing that permits copying and distribution in original format and for noncommercial use only. Reprinted from *Learning with E's* by S. Wheeler, 2015, Crownhouse Publishing. Reprinted with permission.

By applying the ZPD theory to this study, the researcher was interested in how students learn on their own in their BSN programs amidst stress. For example, Bultas et al. (2021) used a brief mindfulness tool before taking exams, reducing student stress. Second, the researcher was interested in how students can learn with the help of technology and tools concerning mindfulness meditation. This type of learning is demonstrated in Sifat et al.'s (2022) study that

found that university students were open to using MM with an SMA. Further, the researcher was interested in the knowledge of others concerning mindfulness meditation. For instance, Hagerman et al. (2023) conducted a narrative inquiry with faculty members and found that support from the administration was necessary for use. Finally, the researcher was interested in what students perceive as beyond their reach while learning under stress.

Related Literature

The purpose of performing a literature review was to examine past and current research to determine the need for this study. Additionally, through the literature review, supporting information such as stress, resilience, mindfulness meditation and smartphone apps were explored. Further, gaps in the literature were noted. This discussion of the literature will begin with stress.

This literature review served as the foundation for this qualitative study to explore pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience. Later sections concentrate on stress, resilience, mindfulness meditation and smartphone apps and concludes with a discussion of the identified gap in the literature. Additionally, relevant literature for these four sections was reviewed.

Stress

Stress is "any event in which environmental demands, internal demands, or both tax or exceed the adaptive resources of an individual" (Monat & Lazarus, 1985, p. 3). Over half of all prelicensure, BSN students admit that their health has declined since starting nursing school due to stress (Martin et al., 2022). However, meditation and exercise were found in this survey-based cross-sectional study to decrease stress. Current stress research will be discussed.

Stress Research

Stress research began during World War I and has experienced an extremely rapid growth rate (O'Connor et al., 2021). The word stress is part of everyday conversations and is noted worldwide to be a leading cause of illness. Stress affects health by causing physical changes in the body's neurologic and endocrine systems while causing changes in health behavior such as poor coping responses. Some researchers argue that the term stress has become too commonly used, and others propose that stress measurement requires better instruments. However, all agree that research findings indicate a strong relationship between stress and poor health outcomes.

Simmons et al. (2021) further discussed that stressors need to be clarified. They noted that stressors are indiscriminate and encompass a wide range of experiences; therefore, outcomes are varied. Including a wide variety of variables when researching stress is crucial. Further, including stress moderators and mediators is imperative when developing interventions for stress reduction. Considering this instruction when evaluating the stress BSN students experience led to improved recommendations for valuable interventions.

Stress for BSN Students

BSN student stress has been reviewed and studied for many years (Katzell, 1968; McKay, 1978; Mereness, 1952; Pagana, 1990; Yilmaz et al., 2022). These studies were focused on determining why student nurses experience increased stress and what factors may mitigate it. Martin et al. (2022) noted that 56.6% of nursing students indicated that their health had worsened since beginning their nursing education. Adverse outcomes such as these led the American Association of Colleges of Nursing (2020b) to call for methods to manage stress for students and

the American Nurses Association Enterprise (2020) to launch the Well-being Initiative. Yilmaz et al. (2022) suggested that proper preparation for the nursing role is critical in reducing stress.

A descriptive cross-sectional study by Yilmaz et al. (2022) was conducted to determine the stress levels of first-year nursing students and what factors affected them. Findings revealed that students who chose the profession and felt prepared for clinical practice experienced less stress. Student nurses' feelings of inadequacy and perceptions of stress from nursing faculty and staff nurses were found to cause much stress (Stinson et al., 2020). Additionally, emotional intelligence and self-leadership can alleviate stress for nursing students (Yildirim-Hamurcu & Terzioglu, 2021).

Yildirim-Hamurcu and Terzioglu (2021) conducted a descriptive, correlational study to evaluate the effects of emotional intelligence and self-leadership on the perceived stress of nursing students. Nursing students indicated that the most perceived stress came from a large workload and taking care of patients. Additionally, it was found that stress levels were highest in students with low levels of emotional intelligence and leadership skills, so it was recommended to include skill-building in the classroom. An additional quasi-experimental study by Torne-Ruiz et al. (2023) included a course on MM for students before clinical classes. BSN students were noted to experience a great deal of stress during these courses, and educators are called upon to help the students decrease stress. Findings indicated that this method was helpful and reduced stress, evident through survey results and physiological testing.

Additionally, Bultas et al. (2021) introduced a brief MM exercise just before exams for nursing students in their mixed-methods experimental design with a random assignment study. Findings indicated that the brief exercise in MM was helpful to students in reducing stress and

reducing anxiety before an exam. However, the researchers noted that regular practice would produce more accurate results.

In a cross-sectional study, Martin et al. (2022) found that nursing students involved in self-reported health behaviors, such as exercise or MM, had better well-being. Martin et al. concluded that targeted interventions to improve well-being should follow national recommendations (American Association of Colleges of Nursing, 2020b) and be included in nursing education. Further, resiliency training with mindfulness is a helpful method to decrease stress-related illness and improve well-being. An alternative qualitative study by Kaur et al. (2020) was conducted to determine nursing students' perceptions of stress, coping, and the clinical site. Findings indicated that nursing students perceived their clinical classes as stressful and used different coping methods. Interview findings showed that when students were optimistic and used reflection to learn how to improve practice, they perceived less stress. Still, students noted that having a supportive clinical instructor who was well-informed about stress and helpful with open communication decreased stress. A visual representation of BSN student stress is given below.

Figure 3

Sources of BSN Student Stress

Note. This diagram visually represents everyday stressors in nursing students' lives.

To further support an exploration of the stress of BSN students, the following section talks about stress research in working professionals. This literature review will conclude with a section describing the gaps in the literature presented through this exploration.

Stress in Professions

Stress is frequently addressed in association with careers in healthcare (Kacan & Pallos, 2021). Bartlett et al. (2022) noted that more than $11 billion a year is lost due to work absenteeism caused by poor mental health in Australia. Mental health problems are frequently noted in the working population, including depression, phobias, and anxiety (Bartlett et al., 2022). These mental health problems and subclinical mental issues are prevalent in the population and not consistently detectable by testing. Secondly, Lahtinen et al. (2023) noted that the COVID-19 pandemic has caused a rapid increase in stress, anxiety, and mental health

problems worldwide. More than 30% of Americans report these problems. Bartlett et al. (2022) suggested that many things contribute to stress, including bullying, poor social support on the job, job insecurity, and effort and reward imbalance, which can all be experienced simultaneously. Bartlett et al. noted that mindfulness can provide employees with coping skills mediating stress on their mental health and welfare.

Bartlett et al. (2022) also suggested that mindfulness can affect the employee in multiple ways, such as improving attentional function, promoting interpersonal relationships, and decreasing aggression. In addition, Lahtinen et al. (2023) found in an RCT that mindfulness meditation did not lower cortisol levels, likely due to the small sample size, but did improve the well-being of university students and staff. MM was used by Lahtinen et al. and noted to improve the participant's self-efficacy, which is a personal belief that actions can change outcomes. A further RCT by Ghawadra et al. (2020) showed a small to medium significant effect for nurses who utilized MM and improved job satisfaction. Stress increases when workers feel pressed into an unchosen profession (Kacan & Pallos, 2021).

Finally, Kacan and Pallos (2021) found in a descriptive, cross-sectional study that willingly choosing a profession is a primary condition to promote reduced work and school stress. Selecting a desired career was found to contribute to increased success and enjoyment and improved work quality even when job demands were not changed (Kacan & Pallos, 2021). Therefore, stress occurs when job demands do not equal control (Kacan & Pallos, 2021). Yet Kacan and Pallos failed to support this in their research findings. Findings indicated that being a woman, finding nursing stressful, and willingly choosing the profession increased the stress scores. Further research is recommended by Lahtinen et al. (2023) as increased use of MM with an SMA is likely to rise; therefore, more quality studies are needed. Establishing an effective

stress relief measure will allow a person to develop adaptive coping skills (Lazarus & Folkman, 1984).

Coping With Stress

The discussion of stress includes any event where environmental, internal, or a combination of demands rise above what the individual can handle (Monat & Lazarus, 1985). The inability to adjust and cope effectively with stress causes many adverse effects for the individual, including physical and mental problems such as high blood pressure and anxiety (Kumar et al., 2022; Monat & Lazarus, 1985). Morales-Rodriguez (2021) noted that positive coping mechanisms, such as reframing negative thinking, provide greater psychological well-being.

In an ex-post facto, transversal study, Morales-Rodriguez (2021) found that multiple, positive coping methods are associated with students with a higher self-concept and emotional intelligence. When a positive self-concept is combined with resilience, improved college adaptation is realized for students. Likewise, cognitive restructuring, reframing negative emotions into positive ones, is commonly used by students to deal with academic stress effectively. A cross-sectional study by McVeigh et al. (2021) found that MM supported the development of cognitive restructuring and was shown to increase in nursing students who practiced MM.

Moreover, Bultas et al. (2021) found in their mixed-methods experimental design with randomization that stress and resilience are closely related in nursing students. Further, nurse educators were found to have a responsibility to help students develop practical coping skills, manage stress, and promote resilience. Additional studies are recommended by Bultas et al. to give nursing students a chance to learn about MM and use it in education to strengthen coping

and resilience. Overbaugh et al. (2022) reported findings from a descriptive, mixed-methods study that analyzed student coping skills during COVID-19 to handle the additional environmental stresses students experienced. Findings indicated that faculty support, resources, and positive reappraisal assisted coping skills. Further, nursing students experience stress from the environment in which they learn (Rodríguez-García et al., 2021).

Stress in the Environment

Nursing students must become adept at coping with all stressors to maintain good mental health (Bultas et al., 2021). However, environmental stress differs from the stress experienced with life-change events because there is no distinct beginning and end (Laczko et al., 2022). Rodríguez-García et al. (2021) conducted a cross-sectional, correlational study evaluating stress in the clinical learning environment. Students were more likely to stay at a hospital and work if they felt it was a good environment with adequate supervision. Environmental strengths include social support (Franco, 2022).

Furthermore, missing out on family and leisure activities causes the student to lack the social support to create a balanced life (Franco, 2022). Additionally, environmental stressors affect nursing students, including those in the clinical environment, such as speaking to doctors, disrespect from nurses, and fear of making mistakes. Rodríguez-Garcia et al. (2021) noted that a good relationship between the student, teacher, and nurse was critical to a helpful learning environment.

Decreasing stress for nurses has become a crucial focus of the American Association of Colleges of Nursing (2020b) in the call to action for educators to help nursing students practice methods that increase well-being and resilience. The American Association of Colleges of Nursing (2020b) discussed that the health and welfare of nursing students and faculty members

are being addressed with support to help them achieve good mental and physical health by implementing beneficial lifestyle changes. The American Association of Colleges of Nursing (2020b) suggested that this directive is a move from crisis intervention to prevention. Similarly, the American Nurses Association Enterprise (2020) launched a well-being initiative to promote well-being and resilience by providing support through a toolkit offering health tips, meditation, exercise tips, and more. The American Association of Colleges of Nursing encourages research and promotion of stress-relieving methods as a nationwide change in how the profession approaches stress and develops resilience. Considering life stress factors gives a more complete picture of nursing students' stress.

Life Stress Factors

Life stress factors include any events in personal or career life that cause stress and anxiety (Laczko et al., 2022). Student nurses experience more stress than the typical university student due to a demanding curriculum and personal life factors (Stinson et al., 2020). Mills et al. (2020) found that nursing students had to learn to manage challenging courses and care for their families. Holistic therapies such as MM have also been found helpful to nursing students in managing stress from life and education (Kinchen & Loerzel, 2019).

Laczko et al. (2022) conducted a qualitative study after the COVID-19 pandemic to determine how life stressors affected nursing students. Findings suggested that students experience disconnection, worry, and environmental stress compared to a traumatic event. Laczko et al. recommended that these findings should direct future nursing education. Furthermore, it was noted that future learning environments should consist of a supportive atmosphere in which students may discuss stressors that they are experiencing. Mills et al. (2020) suggested that faculty and administration must work to understand student experiences and

stressors. One qualitative study participant included all factors the student had to manage, such as work, adjusting to a new routine, running a household, keeping up financially, and finishing daily tasks, which affected physical and mental health (Mills et al., 2020).

Additionally, Mills et al. (2020) conducted a qualitative study examining first-year students and how they managed nursing school with their busy family lives. Participants in the Mills et al. study noted that redefining priorities was necessary to adjust to student life but caused additional stress. Maintaining personal health and well-being was found to be a priority for success in nursing school. Furthermore, student participants noted that support was imperative to their success. Mills et al. recommended that faculty work to support students and find ways to help them succeed through the transitions to nursing school.

Transitioning to the nursing student role involves many changes, such as challenging college courses that can cause students trouble escaping their worries (Mills et al., 2020). In survey responses from their cross-sectional study, Reuter et al. (2021) found that holistic therapies are becoming more mainstream. Student responses show they are open to trying these therapies that have been shown effective (Bultas et al., 2021; Reuter et al., 2021; Spadaro & Hunker, 2021). Educators can even include some of these strategies in the classroom to allow students to participate without wasting time in their already busy schedules (Bultas et al., 2021; Reuter et al., 2021). Reuter et al. (2021) recommended further studies to determine ways to educate student nurses so that they can advise their patients. Meeting the needs of the nursing student stressed by academics and life factors is essential to their success.

Stress and Attrition

Losing nursing students through attrition is a serious problem that the American Association of Colleges of Nursing (2020b) addressed with a call to action for student nurse

well-being. Within this call to action, the issue of nursing student depression, stress, and anxiety is addressed with a recommendation for programs within nursing education that support the entire campus in maintaining good mental health. By promoting well-being and stress reduction, attrition rates are speculated to drop, and the student can achieve improved resilience. McVeigh et al. (2021) cited current nursing student attrition rates at over 30 %, an increase from the 25% reported by Katzell (1968) in a survey study. This increase indicates a lack of an effective method to decrease these rates. Recent research by Zeb et al. (2022) was conducted to determine reasons for nursing student attrition.

Zeb et al. (2022) used semi-structured interviews in a phenomenological study to determine that nursing student attrition rates are attributed to several things. The factors that promoted stress for nursing students included learning complex materials and performing in the clinical setting while experiencing human suffering. The stressors of clinical situations cause students to drop out, leading to increased stress from feelings of failure, debt, and unhappiness. Labrague et al. (2020) conducted a cross-sectional study, and Stubin (2020) gathered qualitative information that concluded the same findings. Both studies found that high attrition rates indicated that nursing students were unprepared for what was required of them in school, creating stress.

In a descriptive qualitative study, Soerensen et al. (2023) evaluated nursing students' experiences that led to attrition. However, findings revealed multiple reasons for student drop-out rates. One reason that appeared upon analysis was that nursing students chose the profession to help others. Still, they did not have the personal coping resources required to deal with healthcare situations. Vidic (2021) implemented a course that included a mindfulness component

for university students. Students complete pre- and post-questionnaires with findings indicating that students who took the course decreased their maladaptive coping mechanisms.

Stress negatively affects attrition rates in nursing students with test anxiety (Bultas et al., 2021). Bultas et al. conducted a mixed-methods, experimental design study with randomized assignment. Self-report tools were used to measure stress, resilience, and mindfulness, and findings showed that students reported improved calm and stress relief. The intervention used consisted of a brief in-classroom meditation before exams. Further evaluation has been done to determine reasons nursing students are stressed and methods to help them improve coping.

Canzan et al. (2022) suggested that students often do not understand what is required to succeed in nursing. In addition to a lack of understanding of what is necessary for success, they may also not be prepared to handle stressors related to the clinical setting, such as patients with deteriorating health or terminal illnesses (Canzan et al., 2022; Soerensen et al., 2023). Soerensen et al. advised nursing educators to tailor student assistance to students' needs. Nursing programs and faculty can incorporate short, self-care interventions that students can use independently (Mills et al., 2020). These self-care interventions, such as MM with an SMA, can assist the nursing student in dealing with life stress factors.

Conversely, Kox et al. (2022) performed a prospective cohort study to determine whether musculoskeletal problems contributed to nursing student dropout rates. Of 711 third-year students, 79% had musculoskeletal complaints. Even though this is a high percentage, the findings did not fulfill the hypothesis that these complaints contributed to attrition rates.

Stress and Mindfulness Meditation

Stress and well-being have long been a research interest (McVeigh et al., 2021). Kabat-Zinn (2013) described MM as a method of healing the body from the impact of stress to prevent

it from becoming a chronic problem that would cause multiple health problems. When left untreated, stress can cause adverse immunologic and mental health reactions such as physical illness, anxiety, and depression (Kabat-Zinn, 2013; Spielman et al., 2021; Uysal & Caliskan, 2022). These health risks must be addressed to maintain the population's health, particularly nursing students. Nursing students have been shown to have higher stress levels than other student populations (Dye et al., 2020).

Numerous studies can be found regarding using MM for stress. However, qualitative studies addressing MM for nursing students are sparse (Spadaro & Hunker, 2021). Uysal and Caliskan (2022) utilized MM for nursing students entering clinical training. This quasi-experimental, pretest-posttest control group design used MM for eight sessions over one month. Findings from this study showed that the intervention group experienced decreased stress and improved mindfulness.

Qualitative study findings from Franco (2022) and Burgstahler and Stenson (2020) indicated that MM helped nursing students to feel better, decreased their stress, and promoted their calmness. Ekkens and Gordon (2021) performed a quasi-experimental study that found that mindfulness reduced medication administration errors by 73.3% through decreased stress and distraction. Conversely, Burner and Spadaro (2023) conducted a pilot study that utilized MM for nursing students who did not find a decrease in perceived stress scores (PSS). The authors attributed this to the rising stress levels as the semester progressed, showing that more research must be done to determine what is true. Researchers recommend future studies that include less homogeneity in the sample.

Mindfulness Meditation Impacts on Stress and Well-being

The well-being of nurses has become of national interest since the American Nurses Association Enterprise started its well-being initiative for nurses in 2020 in response to the stress of working in healthcare during the COVID-19 pandemic. The American Nurses Association Enterprise (2020) offers multiple tools to nurses for dealing with stress. These tools include expressive narrative writing, the Moodfit mobile app that helps set goals for a healthy lifestyle, the Happy app that monitors well-being, and other self-assessment tools. Managing stress and its side effects contributes to a person's well-being and improves their quality of life (Burner & Spadaro, 2023).

Scientific research has connected MM to various psychological, physical, and cognitive benefits that work to improve quality of life (Dye et al., 2020). Early analysis by Goleman and Schwartz (1976) indicated that meditation induced a relaxation response when evaluating autonomic measures such as blood pressure. Continued research supported the theory of MM improving the participant's well-being (Bostock et al., 2019). Bostock et al. conducted an RCT to determine if MM with an SMA decreased workers' stress and reduced healthcare costs for stress-related illnesses. Participants were given access to an SMA and instructed to meditate for 10 to 20 minutes for 45 days. Well-being was significantly improved. This study marked the first application of MM using an SMA for a healthy population. Current research has focused on stress relief for university students to improve their well-being (Galante et al., 2021; Sensiper, 2022).

Galante et al. (2021) conducted an RCT named the Mindful Student Study. These authors recommended that university students use MM and other preventive measures to enhance their well-being. Most recently, Sensiper (2022) obtained undergraduate student narrative findings about a seminar discussing how meditation became part of the mainstream. These findings were

comparable to the effects of systematic meditation protocols in which students indicated better well-being. The findings of this study suggested that the study of MM assists students just as the practice has done. Future research is generally recommended to increase the diversity in the participant population and explore other ways that MM works for nursing students (Sensiper, 2022; Spadaro & Hunker, 2021). Nursing students often experience anxiety from stress and need methods to alleviate this process (Uysal & Caliskan, 2022).

Mindfulness Meditation Impacts on Stress with Anxiety

Nursing students frequently experience stress and anxiety related to their heavy academic load, clinical rotations, expectations placed upon them, and family obligations (McVeigh et al., 2021; Spadaro & Hunker, 2021). Maladaptive coping mechanisms such as alcohol use increase the risks of anxiety (Yuksel & Yilmaz, 2020). Current research studies by McVeigh et al. and Yuksel and Yilmaz offer findings that MM may be a potential aid to assist these students in mediating their anxious thoughts and coping with stress. Success with examinations is one stressful component of nursing school that causes students anxiety (Bultas et al., 2021).

Bultas et al. (2021) incorporated a brief mindfulness activity in the classroom before examinations in their mixed-methods experimental design study. Students in the intervention group had improved anxiety levels before and after testing. Burgstahler and Stenson (2020) reported that just five to 12 minutes per day of meditation could decrease stress and anxiety, showing more significant improvements with more time spent meditating. McVeigh et al. (2021) found in their mixed methods study that nursing students who had previously practiced meditation reported that it provided relaxation that improved well-being by reducing stress and anxiety.

Further, Ghawadra et al. (2020) performed a study that included two hours of in-person, MM training followed by four weeks of self-guided practice for nurses with mild to moderate anxiety levels, stress, and depression. This randomized, controlled trial (RCT) compared time and group and showed an effect on participants' anxiety. These authors gave findings from this study that revealed MM was more effective for anxiety than stress or job satisfaction. Spadaro and Hunker's (2021) qualitative study of MM in an online format revealed findings that indicated a decrease in pre-licensure, BSN students' stress and anxiety, with recommendations for faculty to remind students that interventions such as MM can assist them in maintaining focus on schoolwork.

Resilience

Resilience has become a research focus in the last two decades (Greene et al., 2022). Labrague (2021) suggested that resilience research has become more popular due to adversity and adaptation, which is critical for youth. Determining coping strategies in adolescents can allow assistance in promoting positive adaptation and therefore, mental health promotion. Current research on resilience will be discussed. Fostering resilience in nursing education can lead to lower attrition rates and improved job satisfaction (Stoliker et al., 2022).

Fostering Resilience in Education

Nurse educators can empower nursing students in a way that builds resilience and manages stress, thereby improving their well-being (Spurr et al., 2021). Spurr et al. conducted a quantitative, survey design study to determine what BSN students thought of their health, well-being, and resilience. Many students were happy and had a positive resilience. However, the youngest students felt more stressed and less resilient. This study's findings support the importance of nursing educators, including health and wellness support in nursing education.

Still, Stoliker et al. (2022) suggested that the growing shortage of nurses shifted the focus to the retention of nurses and nursing students. High attrition rates have caused educators to concentrate on students' susceptibility to stress and how to help them improve their resilience and coping skills. Moreover, Wilson et al. (2021) completed a descriptive, cross-sectional study and found that faculty and students' resilience levels were like the middle range of the population's resilience. When evaluating the stress levels of nursing students, Kumar et al. (2022) found in a descriptive, cross-sectional study that lower-class students have higher stress levels. These findings indicate a need for a research-proven method to help this vulnerable population develop coping strategies and resilience to handle distressing situations effectively (Stoliker et al., 2022).

Hou and Skovholt (2020) advised educators and policymakers to work to develop guidelines for education, research, and institutional change when discussing findings from their qualitative study. van Kessel et al. (2022) developed the graduate resilience curriculum framework, which includes students at every level and addresses the intrapsychic, interpersonal, and contextual domains of learning. Educators are encouraged to use the framework to incorporate resilience learning in all aspects of curriculums and programs. Stoliker et al. (2022)

found that resilience education using an online class helped increase students' resilience and decrease anxiety. Resilience education can teach students to assess personal resilience attributes and evaluate situations that threaten resilience or cause maladaptive coping.

Stoliker et al. (2022) recommended further studies to determine the most effective methods for offering resilience education to nursing students to persevere in a stressful environment. Hou and Skovholt (2020) argued that standards for proper education must be established. In response to the discovered gap in the literature, this qualitative study assessed the knowledge of BSN students regarding the usefulness of MM for increasing resilience. Many factors affect resilience, including self-care, which makes self-care education essential for nursing students (Wilson et al., 2021).

Self-Care to Improve Resilience

Wilson et al. (2021) found in their descriptive, cross-sectional study that teaching nursing students the importance of self-care and how to do it is essential for their resilience as they move through their educational program and into the workforce. The source of challenges experienced does not matter, but the necessity of resilience is apparent for healthcare professionals. Piotrowski et al. (2022) reported findings in their qualitative study that a quarter of the sample of healthcare workers indicated a high intention to leave the profession and poor job satisfaction. However, resilience was found to be a vital factor that influenced job satisfaction. Healthcare workers, especially new workers, must dedicate themselves to resilience through self-care (Edwards et al., 2022; Wilson et al., 2021). van Kessel et al. (2022) discussed that universities have an increasing responsibility to advance the well-being of students. Therefore, assisting nursing students in utilizing self-care methods can prepare them for stress now and in the future (Brommelsiek & Peterson, 2022).

Brommelsiek and Peterson (2022) conducted a qualitative study that found self-care done by students improved self-awareness, which is a key to resilience. Additionally, findings from the study further indicated that handling stressors through self-care can prevent burnout and improve communication and confidence. Another single-group pretest/posttest study by Kwon (2023) found that meditation benefited nurses with increased resilience and decreased depression. Kwon's findings indicated that meditation should be included earlier in the nurse's career. Further, Edwards et al. (2022) argued that nursing students had increased stress, and universities are responsible for providing methods to decrease stress and improve resilience. Additionally, Wilson et al. (2021) noted that research about stress and resilience, including how they are connected, is crucial to helping nursing students and faculty.

Yet, introducing new nursing student health and wellness programs is difficult to imagine with the current nursing faculty shortage (American Association of Colleges of Nursing, 2022). A reported nursing faculty shortage by American Association of Colleges of Nursing of 8.8% indicates that current faculty are already working more than planned to help universities through the shortage. Starting new programs will require more faculty work.

Resilience and Stress

Stress and resilience are often discussed together (American Association of Colleges of Nursing, 2020b; Bostock et al., 2019; Ching et al., 2020). Ching et al. conducted a qualitative, descriptive study with final-year nursing students. Findings included two main themes. Students experienced stress from their expectations of the clinical environment and the demands. Secondly, coping helped the student fit into the culture of hospital nursing. Therefore, students with high resilience and low burnout use effective coping mechanisms and self-regulation methods.

Further, students with low resilience used self-blame strategies. Recommendations were to facilitate the student in methods that will encourage resilience. Kumar et al. (2022) also found in their online survey that student nurses with higher resilience experienced lower fatigue levels during the COVID-19 pandemic. It was recommended that nursing students have periodical psychosocial evaluations and be required to participate in stress-relieving measures.

Bostock et al. (2019) conducted an RCT and found that psychological well-being affected psychological resilience. The American Nurses Association Enterprise (2020) determined the need for stress relief and began a program called Healthy Nurse, Healthy Nation (HNHN), which provides tools and information for nurses' physical and mental health. The American Nurses Association Enterprise (2020) offers one free year of access to the Headspace MM SMA for those participating in the HNHN program.

McVeigh et al. (2021) recommended that a well-being program be offered to students to help them deal with the increased stress of the nursing program and become more resilient for current and future events. Additionally, Ching et al. (2020) performed a qualitative study evaluating the stressors and coping of nursing students with different levels of resilience in clinical rotations. Findings showed that students with high resilience scores were skilled in self-awareness. These students knew their limitations and stressors but practiced self-regulation and used resilience skills. Ching et al. recommended further research that conducts interviews individually instead of in groups to enhance the student’s comfort in describing experiences. Within this qualitative, exploratory single case study, interviews and focus groups were used for data collection. Understanding resilience promotion factors is essential to educators when planning to include resilience training in the curriculum (Wilson et al., 2021).

Promoting Factors of Resilience

Resilience has been established as a unique mechanism that allows a person to adapt to adversity and bounce back to normal functioning (Stoliker et al., 2022). Understanding the promoting factors of resilience is essential for the physical and mental health of the nursing student (Wilson et al., 2021). Chow et al. (2020) conducted a mixed-methods study that utilized a resilience-building module for nursing students. The module included education on coping and mindfulness. Quantitative results did not indicate a significant difference in resilience following the module; however, the qualitative results showed that the students found it helpful in increasing their knowledge of resilience, and the module had beneficial side effects if included in the curricula. Therefore, these results strengthen the knowledge for including mindfulness training for nursing students.

Further, Janzarik et al. (2022) utilized an RCT pre-test/post-test, follow-up design to test an eight-week program that targeted resilience factors, including coping, self-care, and mindfulness for nurses. The personal stressor load was measured for participants, and follow-up data indicated that resilience was improved, and stress levels were decreased. Janzarik et al. determined that an intervention that included mindfulness decreased the mental burden for these professionals, thereby suggesting that the mindfulness for those in nursing has useful benefits.

Wilson et al. (2021) encouraged faculty to assist nursing students in reframing a negative experience as part of resilience training. Wilson et al. (2021) suggested using resilience training to assist students in developing coping skills. Morales-Rodriguez (2021) invited future studies to investigate ways to build student coping skills. Additionally, Kumar et al. (2022) gathered data from online surveys and analyzed them with descriptive statistics regarding coping and resilience. Kumar et al. argued that it is essential to develop ways in which nursing students can

gain coping and resilience skills. In response to Kumar et al.'s recommendations, the student nurses' knowledge of using MM with an SMA was evaluated within this qualitative case study for direction in future research regarding its efficacy in improving coping and resilience.

A further cross-sectional survey study by Leng et al. (2020) was conducted to determine nurses' resilience and what factors promoted resilience. Participants reported that there were five main ways that resilience was promoted. Improving work benefits was noted by over 90% of participants. Additionally, participants noted providing flexible scheduling, offering psychological counseling, and providing more opportunities for professional training. It was further noted that resilience training can change a person's behavior and attitudes.

Additional discussion regarding smartphone health and well-being, app history, and current use provided additional information regarding BSN students' knowledge of MM using an SMA in this qualitative case study.

Resilience and Mindfulness Meditation

Cultivating resilience in nursing students is imperative to improve their success (Chun-Chih et al., 2023). Educators are urged to assist student nurses in enhancing their resilience to the stress of the nursing curriculum, clinical rotations, and life factors. Kwak et al. (2019) conducted an RCT that utilized a high-intensity, four-day intervention of MM and tested findings with functional magnetic resonance imaging (fMRI) to view changes in the brain. These changes correlated with changes in resilience in the short-term and three-month follow-up times while reinforcing findings in earlier studies. These findings indicate that MM may be a promising treatment for those with psychiatric disorders. Additional studies suggest that MM assisted students in decreasing stress and improving resilience to stress (Galante et al., 2021; Vidic, 2021).

Galante et al. (2021) conducted a pragmatic RCT showing that the effect of MM is more assertive at stressful times. Findings from this study revealed that MM intervention participants are less distressed than the support-as-usual group. It was noted to be related to improved resilience during the stress of exams. Additionally, Vidic (2021), with a two-group pretest-posttest study design, evaluated the effects of a relaxation course with an MM component on the resilience of university students and found improved resilience. Furthermore, Franco (2022) found in a mixed methods study that problem-focused coping, which is related to resilience, improved significantly after the MM intervention.

Chun-Chih et al. (2023) discussed that resilience could be learned or cultivated, indicating that nursing students would benefit from activities and mentorships that improve their resilience. The qualitative study findings by Chun-Chih et al. indicated that further training for student nurses with workshops on mindfulness and coping skills would assist them when under challenging circumstances.

A cross-sectional study by Mitchell (2021) was conducted to see the relationship between resilience and mindfulness in a BSN nursing program. Findings indicated that mindfulness factors such as acceptance and attention contributed positively toward resilience. Furthermore, results showed that mindfulness is associated with perseverance, a resilience factor.

Additionally, Galante et al. (2021) demonstrated MM benefits on resilience that continued for a year with effect sizes larger at stressful times. Further, this moderate effect size was slightly less after a year, indicating resilience to stress. In their pilot study, Edwards et al. (2022) found that students showed improved resilience when supported by their mentoring peers. Enhancing nursing students' coping skills assists them in becoming more resilient when facing the stressors of beginning clinical rotations. Rink et al. (2021) analyzed baseline data from

healthcare workers enrolled in a more extensive study to determine associations between self-care behaviors, meditation, and resilience. Recommendations for further research include "refining and validating brief well-being interventions for health care workers" (Rink et al., 2021, p. 9).

Smartphone Health and Wellbeing Applications

Smartphone applications, including meditation, have become standard for many uses (Marshall et al., 2020). Webb et al. (2022) reported over 13 million active monthly users of mindfulness and meditation apps. As of September of 2023, one of the top 100 iPhone free applications was a meditation and mindfulness app (Webb et al., 2022). Headspace, a widely used mindfulness application, has been downloaded by over 70 million users (Headspace, 2023). These statistics indicate that the population is familiar with the availability of apps for health and well-being. A brief history of SMA for health and well-being is discussed, followed by current research. Applicable studies with SMAs are used in this discussion.

A Brief History of Smartphone Health and Well-being Applications

Reid (2018) indicated that the smartphone became available 15 years ago, although the exact time is difficult to determine because it advanced from different technologies. This development occurred when society was ready to improve communication, networking, and entertainment. The public quickly settled into the availability that the smartphone offered.

Marshall et al. (2020) noted that since the ownership of tablets and smartphones has become universally popular, governmental strategies led by the World Health Organization (WHO) directives advocated for digital healthcare services to become widely available. This encouragement includes mental health apps. The benefits of these apps involve the ability to seek help anonymously, quickly, and efficiently.

Current Research of Smartphone Health and Wellbeing Applications

Mindfulness effectively reduces stress (Franco, 2022; Spadaro & Hunker, 2021). Sifat et al. (2022) conducted a qualitative study with university students to determine their reactions to an SMA for MM. Findings indicated that the students found mindfulness exercises beneficial and appreciated the ability to access them on an SMA. Moreover, students indicated that they would recommend them to friends. Flett et al. (2020) performed an RCT with first-year university students and found that using an MM SMA through the first academic year showed small improvements in distress and academic adjustment. Recommendations included beginning early in the first semester for improved engagement.

Xu et al. (2021) conducted a descriptive, qualitative study using a mindfulness app for Emergency Department personnel. Xu et al. directed that successful implementation of an MM SMA called for consideration of both barriers and aids when mindfulness interventions are planned. Likewise, Szinay et al. (2021) conducted a qualitative study to determine reasons that keep people from using MM SMAs. It was noted that 20% use the app after downloading it and only 3.3% after 30 days. This qualitative case study research gathered information that may explain why students may or may not use an MM SMA. Szinay et al. found that people want apps to have clear guidance, support easy self-monitoring, and require a decreased cognitive load.

Alternatively, Lahtinen et al. (2023) conducted an RCT with university students and an MM SMA. After using an app for four weeks, a small (d = .16) decrease in stress was noted. Yet, in the analysis, cortisol, a stress hormone, did not decrease. Lahtinen et al. suggested that the drop-out rate of 28%, although lower than many studies, might have limited findings. Further, expectations were that results would improve with more practice, but this was not the case.

Additionally, Rich et al. (2021), in a randomized waitlist-controlled trial using an MM SMA, found that participants may need an employee incentive to improve and continue participation with the app.

Xu et al. (2021) found that SMA's have become more popular and common in health care, including MM. The benefits of an SMA include cost-effectiveness, availability, and portability. Additionally, smartphones are often the only connection to the internet that some people may have. This descriptive qualitative study is the second stage in the SMART (uSing Meditation App to Reduce emergency department occupational sTress) study. Findings indicated that many nurses enjoyed doing a brief, three- to five-minute meditation in a quiet place and returned to work feeling refreshed. These findings show that the portability of an MM SMA is helpful. Finally, Xu et al. directed that an in-person delivery of MM is likely more effective. Still, the SMA methods can reach more people, are immediately available, and are low-cost or free. College students experience stress and are more likely to use an immediately available method to reduce it (Huberty et al., 2022).

Further, Huberty et al. (2022) tested a popular MM SMA in the workplace with an RCT to determine its effectiveness in reducing health problems, improving sleep, decreasing stress, and improving resilience and productivity. Findings were significant for an improvement in depression, anxiety, stress, insomnia, sleepiness, resilience, presenteeism, work impairment, and productivity. This governmental clinical trial found that future studies should determine the best methods of implementation due to the benefits the MM SMA offers.

In contrast, another research avenue to explore is whether participants will continue to use smartphone apps after the research study. Cho et al. (2020) determined that more research is needed to determine why people decide to use these apps and continue to use them. Current

research findings show they are helpful but will not continue if people are not engaged for longer than the study. Flett et al. (2020) demonstrated the problem of poor engagement in their pragmatic, randomized waitlist-controlled study with three testing points. University students were given an evaluation at the beginning of semester one, the beginning of semester two, and the end of the year. App use dropped dramatically; however, students who used the app showed significantly decreased stress.

Conversely to most research on MM, Britton et al. (2021) conducted a mixed-methods study to look for adverse outcomes in those who used MM. It was noted that there is a lack of literature regarding adverse event monitoring. Findings indicated that MM, as with any other psychological treatment, can have poor outcomes: short-lived distress and longer-lasting negative life impacts and functioning. Harm rates are defined as having worse stress levels than if the subject had not completed any treatment, and these rates were 4% to 7%. These findings indicate that any interventional research must be sure to use informed consent and offer a way to help participants if MM is causing difficulties.

Huberty et al. (2019) conducted an RCT for MM with an SMA and college student participants at one state university. Findings from this RCT indicated an improvement in stress. Although studies have been conducted on smartphone app use and mindfulness meditation, no studies have been found to determine what knowledge prelicensure, BSN students have regarding using MM with an SMA to manage stress and promote resilience. Through this qualitative case study, the discovered gap in the literature was bridged.

Summary

Through a review of the literature, it has become evident that stress has adverse outcomes for pre-licensure, BSN students, and educators are encouraged to find effective ways to assist the

student nurse in mediating stress and enhancing resilience (Torne-Ruiz et al., 2023; Yilmaz et al., 2022). Research for BSN students is limited (McVeigh et al., 2021; Spadaro & Hunker, 2021). However, research with other populations, including adults (Kabat-Zinn, 2013), university students (Yuksel & Yilmaz, 2020), nurses (Ghawadra et al., 2020), and counselors in training (Dye et al., 2020), can help inform this case study. Current research on MM for various uses, including chronic pain (Case et al., 2021) and resilience (Galante et al., 2021; Vidic, 2021), indicates its versatility and usefulness in the classroom for students who often leave due to stress (Bultas et al., 2021). Better treatment will decrease side effects, such as worrisome attrition and poor mental health (American Association of Colleges of Nursing, 2020b).

Because of high attrition levels for student nurses (Katzell, 1968; McVeigh et al., 2021) and American Association of Colleges of Nursing (2020b) directives, educators must work to promote resilience (Wilson et al., 2021). Moreover, by using MM, the nursing student may develop positive coping mechanisms (Kumar et al., 2022), remain in the profession (Zeb et al., 2022), and provide better patient care (Ekkens & Gordon, 2021). The use of MM to improve coping mechanisms for the nursing student is based on Lazarus and Folkman's (1984) transactional theory of stress and coping and Vygotsky's (1978) ZPD educational theory in this study. This qualitative case study addressed the literature gaps by exploring pre-licensure, BSN students' knowledge regarding using mindfulness meditation with a smartphone app to manage perceived stress and improve resilience.

CHAPTER THREE: RESEARCH DESIGN

Overview

Stress is a detrimental factor in nursing school. Stress can lead to side effects that negatively impact students, faculty, patients, and families (McVeigh et al., 2021). The American Nurses Association Enterprise (ANAE, 2021) and numerous scholars recognize the ethical and moral stresses of nursing with continuous emotional, physical, and ethical demands (Canzan et al., 2022; McVeigh et al., 2021; Zeb et al., 2022). The problem concerns pre-licensure, BSN students' knowledge of mindfulness meditation (MM) using a smartphone application (SMA) to manage stress and promote resilience. The purpose of this qualitative case study was to explore what knowledge pre-licensure, BSN students have of MM using an SMA to manage perceived stress and promote resilience. Chapter Three will review participants and settings while describing the instruments that were employed. Research procedures such as recruitment, data collection, instruments, interviews, and focus groups are discussed in detail. Data analysis is further discussed with trustworthiness, ethical considerations, and reflexivity. Research questions begin the discussion in Chapter Three.

Design

A qualitative, exploratory, single case study design was chosen for this study. Qualitative research generally seeks to provide a view of events in the world through naturalistic interpretation (J. W. Creswell & Poth, 2018). J. W. Creswell and Poth noted that the aims of qualitative research are to start with suppositions and the use of theoretical and interpretive frameworks that advise the study of research problems while contending with the meaning people give to a social or human problem. Additionally, a qualitative approach is used to gather information from people in an organic setting while being perceptive of the studied participants.

Aspers and Corte (2021) added that qualitative research is a repetitive process in which enhanced comprehension for the scientific community is realized by making noteworthy new discriminations resulting from moving toward the phenomenon studied. Although quantitative and qualitative research have the same goal of understanding the world better, quantitative research contrasts qualitative by seeking to explain a phenomenon through variables that can be addressed numerically. Quantitative research is also based on the belief that the social environment is objective but remains stable over time (Gall et al., 2007). This study uses qualitative methods.

There are numerous forms of qualitative research. Phenomenology illustrates the general meaning for a small group of individuals of their lived experiences of an event or concept (J. W. Creswell & Poth, 2018). Further, phenomenology inspects the varying viewpoints of participants regarding a specific phenomenon (Tomaszewski et al., 2020). The what and how of the experience is the main focus of this type of qualitative study. However, it was not a good choice for this study because phenomenology deals with lived experiences, and this proposal is designed to determine knowledge.

Grounded theory design seeks to advance beyond the descriptions and formulate a theory (J. W. Creswell & Poth, 2018). The grounded theory design provides the researcher with a universal and speculative approach to an experience grounded in the participant's views (J. W. Creswell & J. D. Creswell, 2023). Grounded theory did not support the study either, because it involves the researcher generating a general theory based on the participant’s views. This research did not generate an abstract theory. Further, ethnography, another form of qualitative research, was noted by Tomaszewski et al. (2020) as exploring the essence of the culture within a specific group of people. Ethnography involves observing participants in their natural settings

over a long period (J. W. Creswell & J. D. Creswell, 2023). Unlike case studies, ethnography is grounded in the observational skills of the researcher. This qualitative research method would not fit this research because data was best gathered from surveys, interviews, and focus groups to answer the question of participants' knowledge of using MM with an SMA to manage stress and promote resilience.

Yin (2018) described case study research as focusing on a decision or group of decisions and wishing to explain why they were used, how they were put into action, and the generally recognized results. Case studies are noted to have many variables of interest that result from multiple data sources. Initial research was used to search current data and determine a gap in the literature. Many sources of data were obtained, including a demographic questionnaire, the Perceived Stress Survey (PSS), the Brief Resilience Scale (BRS), the Mindfulness-Awareness Assessment Survey (MAAS), interviews, and focus groups within this case study.

Yin (2018) described six steps of case study research. The following describes this study's undertaking of a case study research design. In the first step, the researcher must determine if a case study is an appropriate method for the planned research. A case study is suitable for this study because a case study aims to describe cases to gain a deep understanding of the environment in which they occur (Tomaszewski et al., 2020). This study explored pre-licensure, BSN students' knowledge of mindfulness meditation with a smartphone app to manage perceived stress and improve resilience by drawing a sample from the population of interest. Additionally, data were gathered with interviews, focus groups, and surveys, which are appropriate for case study research. The collected data were gathered to gain a deeper understanding of the context of the research's stated purpose, making an exploratory case study a perfect fit.

Second, the researcher identified the case and established the logic. The case was identified by conducting a thorough search of the literature and finding a gap regarding BSN use and knowledge of MM with an SMA to manage stress and promote resilience. Yet, much literature was found regarding the stress that BSN students experience, which causes many problems (Kaur et al., 2020; Labrague et al., 2020; Shapiro et al., 2023). This information from the literature review provided the information needed to determine that the case study could provide valuable data for BSN students to manage stress and improve resilience.

Lazarus and Folkman's (1984) transactional theory of stress, adaptation, and coping and Vygotsky's zone of proximal development educational theory were recognized as standard guiding theories for research regarding MM with an SMA and used in this study. Reliability was established by studying the same case repeatedly. Internal validity was maintained by asking the participants to review the interview transcripts for accuracy.

Third, the researcher had to know what needed to be done before collecting case study data. Relevant surveys were chosen, and permission was obtained while appropriate interview questions were designed (Yin, 2018). Further, the researcher was required to protect the participants by guarding privacy, preventing harm and deception, and choosing participants equitably. The researcher understood the phenomenon being studied and had well-developed questions while listening appropriately (Yin, 2018). Over a year has been spent by this researcher reading information and research data regarding the researched topics. Questions were developed utilizing Yin's recommendations, and interviews and focus groups were conducted.

Fourth, the researcher was aware of the principles of good data collection. Multiple sources of evidence, known as triangulation, were used while creating a case study database, and a chain of evidence was maintained. Data were collected from the demographic questionnaire,

PSS, BRS, MAAS, interviews, and focus groups. Table 1 below demonstrates how the surveys, interviews, and focus groups address specific research questions.

Table 1

Triangulation of RQs and Sources of Data

Research Question	PSS	BRS	MAAS	Interviews	Focus group
RQ1				X	X
RQ2	X		X	X	X
RQ3		X	X	X	X

Note. This table demonstrates which methods of gathering data answer the research questions. It is shown to give the reader an easy visual of how each research question were answered.

Fifth, case study evidence should be analyzed following recommended techniques. Pattern matching and explanation building were used when analyzing the obtained data. Further, a triangulation table was completed to show which data source contributed to the data for each research question (see Appendix B). Sixth, and finally, the case study was reported. Yin (2018) provided exemplary instruction in chapter six of the text regarding all aspects of writing the case study. This information was studied and followed.

This case study used an exploratory case study method. Researchers who use an exploratory case study aim to explain a phenomenon in a specific context while explaining the how and why (Yin, 2018). This study focused on understanding the phenomenon of MM use with an SMA to manage perceived stress and improve resilience. The exploratory, single case study approach was chosen for this research study because it provides an in-depth understanding of the data using multiple methods of gaining data (J. W. Creswell & Poth, 2018). Additionally, the single exploratory case study provided a deeper understanding of the case. This method

differs from a descriptive case study, which seeks to describe an event over time, and an exploratory case study, which focuses on a concern and uses one case to highlight the issues.

Research Questions

The research questions include a central question with three sub questions. These questions were answered through survey information, interviews, and focus group data. The questions were designed using Lazarus and Folkman's (1984) transactional theory of stress and coping and Vygotsky's (1978) zone of proximal development to answer the problem of not knowing prelicensure, Bachelor of Science of Nursing (BSN) students' knowledge is of mindfulness meditation using a smartphone app to manage stress and promote resilience.

Central Research Question: What is pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation (MM) using a smartphone app (SMA) to manage stress and promote resilience?

SQ1: What have prelicensure, BSN students experienced regarding MM with an SMA?

SQ2: What do prelicensure, BSN students know about MM using an SMA to manage stress?

SQ3: What do prelicensure, BSN students know about MM using an SMA to promote resilience?

The following presents the study's design, setting, participants, and instrumentation. This chapter includes the data collection and analysis procedures along with information about the trustworthiness of this study.

Setting

This study recruited 91 participants for the surveys from one university offering a BSN degree, and from those, 25 volunteered for participation in surveys and focus groups. Pseudonyms were used to identify the schools to protect their identity and ensure participant confidentiality. The university is a not-for-profit Christian university. The university has well-established BSN program. Generally, BSN programs are four years long, involving 120 to 130 credit hours, leading to the National Council Licensing Exam for Registered Nurses (NCLEX-RN®) (Jividen, 2023; National Council of State Boards of Nursing, 2024). The university was chosen based on several criteria. The conclusion criteria were the students' diversity with similarities of demographic makeup to the national average of BSN students as given by the American Nurses Association Enterprise (2020) and the researcher's ability to obtain permission to conduct research with students.

The research site's web page noted 48,135 undergraduate students, with 1,130 enrolled in the on-campus nursing school. This university reported that 15% of students in the on-campus nursing school are minority students. Additionally, 126 credit hours are required for graduation from the BSN program. This non-profit university noted that they offer a challenging education that is based on a Christian worldview.

Participants

Nationally, BSN students are reported by the American Association of Colleges of Nursing (2022) as White – 61.8%, Black – 11.2%, Hispanic – 13.9%, Asian – 9%, Native American – 0.5%, and two or more races – 3.5%. The American Association of Colleges of Nursing (2022) published in April of 2022 that there were 251,145 baccalaureate nursing students in the U.S. Convenience sampling was used to select the study participants. Participants

were recruited by personally visiting classrooms, discussing the study, and inviting students to sign up by scanning a QR code. When scanned, this took the student to surveys and a demographic questionnaire. Those students who indicated an interest in participating were asked to volunteer to participate in an interview, focus group, or both. Twenty-five participants participated. Two focus groups had six and five participants, respectively, (Gundumogula & Gundumogula, 2020) and 14 interviews were conducted (Hennink & Kaiser, 2022), making 30 a sufficient sample size.

Sources of Data

This study involved two primary data collection phases. Students who read the consent and continued to the surveys were indicating assent to participate (see informed consent, Appendix C). BSN students completed the demographic questionnaire (see Appendix D), the PSS (see Appendix E and Appendix F for permission), the BRS (see Appendix G and Appendix H for permission), and the MAAS (see Appendix I and Appendix J for permission). The researcher designed a demographic questionnaire based on the 2020 U.S. Census form questions. This data was gathered to ensure that the sample was representative of the target population to reach the goal of transferability. The brief resilience scale (BRS) was chosen to obtain participants' perceived resilience levels, the perceived stress scale (PSS) was chosen to measure participants' perceived stress, and the mindfulness-awareness assessment scale (MAAS) measured participants' level of mindfulness. Data from the questionnaire and surveys was reported only in means and percentages to gauge the participants stress, resilience, and mindfulness awareness. Second, 14 students engaged in qualitative interviews, which provided a thick and rich description of the participant's knowledge of MM using an SMA to manage stress and promote resilience (Hennink & Kaiser, 2022). Third, two focus groups of five and six

participants each were conducted to provide descriptive data in a group setting (Gundumogula & Gundumogula, 2020). The following describes each data collection instrument, describes validity measures, and gives supporting literature that shows uses in empirical studies.

Perceived Stress Scale

The ten-item perceived stress scale (PSS; see Appendix E and Appendix F for permission) was used for this study. Priya (2021) suggested that case study research is in-depth and allows the researcher to use multiple data collection methods, including surveys. Yin (2018) further suggested that case study databases may include surveys and other quantitative data. The study was unbiased and sound by using this practice. Cohen et al. (1983) developed and published the PSS as a 14-item scale using two groups of college students and one heterogeneous group. When tested in 1983, this scale was noted to have a coefficient alpha reliability of 0.85 in the college sample after two days and 0.55 after six weeks in a community sample. However, using exploratory factor analysis, Cohen and Williamson (1988) determined that four items did not perform well. They dropped them to make the 10-item scale used in this study; yet the 14-item scale has been revised and is used today. This initial testing showed that the PSS-10 was a concise measurement with a wide range of populations. Still, Roberti et al. (2006) noted that no evaluation had been developed to show theoretical assumptions of perceived stress and the ability to predict risk behaviors for college students. There is a four-item version, but that has a lower reliability of alpha = 0.60, making the 10-item scale the best choice for this study and the one that Cohen and Williamson recommended in 1988 (Taylor, 2014). Multiple researchers after 1988 used the PSS-10 and found scores to have convergent validity and some concurrent validity. Furthermore, studies performed were noted to use aggregate levels only.

Roberti et al. (2006) determined that more psychometrics testing of the PSS-10 was necessary because of the increase in stress for college students. It was noted that a stressful event is defined by the person's perception of it and the coping processes available to deal with it. It was further noted that few instruments accurately measure perceived stress. The findings from Roberti et al.'s study indicated that the PSS-10 is reliable, with a Cronbach's alpha of .85, and valid in measuring perceived stress in a broad range of college students using self-report. The sample of students was further noted to be a non-clinical sample.

Additionally, convergent reliability was established by associations between the PSS-10 score, the State-Trait Anxiety Inventory score, the State-Trait Anxiety Inventory Anxiety factor score, and the State-Trait Anxiety Inventory Depression factor score and lower correlations with the Multidimensional Health Locus of Control. Divergent validity was endorsed with slight correlations "with indices measuring conceptually distinct constructs" (Roberti et al., 2006, p. 143). Roberti et al. determined from these findings that it is imperative to use "psychometrically sound" (p. 144) assessment with college students to determine what is needed to help these students maintain good mental health.

Taylor (2014) performed a study to fill the determined gaps in what is known about the PSS, including a debate about whether the PSS-10 is a one or two-factor model, potential gender bias, and scant information regarding the performance of the scale items. Findings indicated that the PSS scores are valid if the survey is used correctly and were not changed with gender bias. Still, findings also gave knowledge regarding the performance of scale items, showing that they became undefendable when the amount of helplessness was relatively low and perceived self-efficacy was very high.

The survey asks participants questions that are to be answered regarding feelings and thoughts within the last month. Answers are given on a zero to four, Likert-type measurement scale, with zero being never and four being very often. The scale determines how stressful people perceive their lives to be and whether life has been unpredictable, out of control, and overwhelming. For example, one item asks how often the participant has felt nervous or stressed in the last month. Yet, recent study results will further the validation of the PSS-10.

Support for the PSS-10 is noted in the current literature. Vidic (2021) used this scale in their mixed methods study that presented an online version of MM for nursing students to use for eight weeks. The use of the PSS to analyze stress in the students showed a decrease in those who used the MM online with a $p < 0.001$. Knabb et al. (2020) also conducted a pilot study to compare meditation, Christian meditation, walking, and yoga for stress relief. The PSS-10 instrument was administered to all participants at weeks one and four. Cronbach's alpha was 0.74 for the first week and 0.93 for all participants who completed the study in the fourth week.

Additionally, Weis et al. (2020) utilized the PSS-10 in their quasi-experimental, parallel cohort design. Evidence of reliability was reported as an internal consistency from 0.77 to 0.89. Based on comprehensive research validating this scale, this researcher will administer it to all participants in this study.

Brief Resilience Scale

The BRS (see Appendix G and Appendix H for permission) was developed by B. W. B. W. Smith et al. (2008) in response to increasing interest in resilience and the lack of an adequate tool to measure the phenomenon. Tools available before the BRS did not measure the ability to recover from stress but factors that made "bouncing back" possible (p. 194). Earlier measures were found to assess resources or protective elements that included coping styles and individual

characteristics. The purpose of the BRS was noted by B. W. Smith et al. (2008) to be a scale to measure the most fundamental meaning of resilience, which is the ability to recover from stress. The aim was noted not to include “psychosocial resources and protective factors” that enhance the ability to bounce back (B. W. Smith et al., 2023; p. 4). After the beginning of a chronic stressor, resilience means the individual’s ability to return to normal functioning even though stress continues. The Connor Davidson Resilience Scale assesses patience, faith, hopefulness, and self-efficacy (B. W. Smith et al., 2008). B. W. Smith et al. further noted that their strategy in developing the BRS was to keep the scale as short as possible but a trustworthy measure of bouncing back from stress independent of its relationship to autonomous resources or health outcomes.

Additionally, B. W. Smith et al. (2023) suggested that the BRS is valuable in mindfulness research. It can evaluate resilience in its most essential and accurate form to help others understand more clearly how mindfulness can be helpful. This statement gives meaning to using the BRS in this qualitative case study. Further, using the BRS in future studies that use mindfulness, health, and well-being measures may give critical information regarding improvements in mindfulness and its relationship to improvements in resilience.

The BRS was noted to be a reliable instrument for assessing resilience to stress, with coefficient alphas reported from 0.80 to 0.91 between the four groups of participants (B. W. Smith et al., 2008). Two groups were undergraduate students, one was cardiac rehab patients, and one was 50 women with fibromyalgia. Further, concurrent and discriminant validity was established by comparing the BRSs' protective and risk factors. Criterion validity, which is described as the extent to which a survey instrument agrees with other top-quality measures of the construct, indicated that the BRS was favorably related to the positive effect and negatively

corresponded with the items of poor mental health (J. W. Creswell & J. D. Creswell, 2023; B. W. Smith et al., 2023).

The BRS consists of six items, both positively and negatively worded (B. W. Smith et al., 2023). The reverse wording was done to reduce the occurrence of positive response bias, which can occur when a participant desires to give a response that is socially acceptable or based on the sequence of questions (P. B. Smith, 2014). P. B. Smith (2014) further explains that designing the questions so that half are worded in the opposite direction can decrease this chance of bias. Responses are measured on a Likert-type scale with five choices ranging from one meaning strongly disagree to four representing strongly agree. Brouwer et al. (2023) utilized the BRS in their pilot study to determine if a mindfulness based SMA could decrease acute care nursing staff burnout. However, the BRS showed no changes in repeated analysis over time to promote resilience with $p = 0.49$.

Further, Çuhadar et al. (2022) performed a descriptive, cross-sectional study that used the BRS to determine resilience and stress levels for nurses in Turkey. These authors reported that this study's internal coefficient of consistency was 0.77. Çuhadar et al. also defined psychological resilience as an individual’s ability to adapt to stress and recover through a process. These examples indicate that the BRS fits this qualitative case study well.

Mindfulness Awareness Assessment Scale

The MAAS (see Appendix I and Appendix J for permission) was developed by Brown et al. (2007) to provide theoretical and empirical information on how mindfulness plays a role in psychological well-being. The authors noted that in 2003, there was an increase in research about mindfulness training and well-being outcomes; however, not much work looked at mindfulness as a natural attribute. Because of this lack of information, Brown et al. directed their research and

the MAAS to identify the interpersonal and intrapersonal differences in an individual's mindfulness capacities. Brown and Ryan described mindfulness as consciousness that includes awareness of the present surroundings and attention to the current moment. These qualities can vary from high levels of clarity and sensitivity to low levels, shown in automatic thought and action.

Brown et al.'s (2007) research aimed to analyze empirical connections between well-being and mindfulness. They started with assessing if mindfulness is connected to increased awareness of internal states. At the same time, Brown et al. examined the MAAS measures of well-being and self-regulation. Experience sampling methods, which mean that the participant is assessed many times and provides real-world measurement, were used to analyze predictive relations among trait and MAAS mindfulness and indicators of self-regulated functioning and emotional well-being (Augustine, 2014; Brown et al., 2007). Finally, these authors used a population of cancer patients trained in mindfulness to evaluate which changes in "MAAS-measured mindfulness" could predict changes in mood and stress (Brown & Ryan, 2003, p. 825).

Confirmatory factor analysis was performed on a different sample from the first study of 327 university students (Brown & Ryan, 2003). Cronbach's alpha indicated that the internal consistency was 0.82, and all scale items were "significantly related to the latent factor" with all p values < 0.001 (Brown & Ryan, 2003, p. 828). Next, these authors conducted cross-validation in a second independent sample of adults to improve the plausibility that the model represents a population. Cronbach's alpha was 0.87, and all items were "significantly related to the latent factor," with all p values being < 0.001 (p. 828). All findings from this study showed that mindfulness measured by the MAAS widely encompassed well-being.

Recent research supports using the MAAS for measuring mindfulness (Li et al., 2023). This cross-sectional study explored the connection between a lack of mindfulness and procrastination among nursing school students. The MAAS was used to assess participants' levels of mindfulness. Correlation coefficients, which provide a "numerical expression of the strength of a relationship between two variables," were used (Gall et al., 2007; p. 127). A positive correlation was found between future time perception and mindfulness. Additionally, negative correlations were noted between mindfulness and the frequency and degree of procrastination and academic procrastination, with all p values being < 0.01. Therefore, lower procrastination was bound to a higher degree of mindfulness because it is positive for individuals.

Further research by Vitale (2021) was conducted in a descriptive correlational study with Italian nurses during the coronavirus pandemic to determine their mindfulness and emotional regulation skills. This study aimed to analyze differences in emotional regulation skills and mindfulness levels through cognitive reappraisal and "expressive suppression subdimensions" related to age and work experience (Vitale, 2021, p. 349). Findings indicated that basic mindfulness training should be a priority for nurses to self-modulate emotions.

An additional study by Egami and Farrar Highfield (2023) used the MAAS when assessing the effect of a mindfulness SMA on neonatal intensive care unit nurses' professional quality of life. This study was limited to nine nurses who submitted post-study questionnaires after using the SMA for three weeks. The Wilcoxon signed-rank test showed that the scores for the nine participants, both pre-test and post-test, were unchanged for the MAAS. The authors indicated that future research is needed.

The MAAS consists of 15 items on a Likert-type scale of six choices ranging from one representing “almost always” to six for “almost never.” The internal consistency was noted to be 0.82 alpha. Brown and Ryan noted that this instrument reports a theoretical and empirical measure of mindfulness related to well-being. As part of the data triangulation, the MAAS gave the researcher a measure of students’ everyday mindfulness that will correlate with perceived stress and resilience. An example question includes, “I forget a person’s name almost as soon as soon as I’ve been told it for the first time.”

Demographic Questionnaire

The demographic questionnaire (see Appendix D) was used to allow a description and understanding of the sample’s characteristics. This information provided context for the collected data and helped the researcher understand and interpret the findings. The surveys were given to all students who consented to participate. The questionnaire asks about gender, ethnicity, and age. The items presented in the demographic questionnaire are chosen from those found in the U.S. census form 2020 to be consistent with those data points gathered by the federal government.

Jones et al. (2020) argued that demographic variables are essential in research data. If these variables are not reported, the potential impacts of the variables on “behavioral outcomes” (p. 2) are hard to explore. However, they noted that demographic variables were underreported. Jones et al. defined demographic variables that include gender/sex, age, and race/ethnicity, which are included in this study. The age variable refers to the time in years a participant has lived. The gender/sex variable speaks to a biological sex or gender but does not include gender names and pronouns. Finally, race and ethnicity can mean sociocultural group, national origin, or race. It

was determined in Jones et al.'s study that further exploration is needed to determine what variables should be included.

Weis et al. (2020) conducted a quasi-experimental cohort design study to evaluate two methods of mindfulness training in college students. This study measured demographics for age, race, and gender as planned for this study. Weis et al.'s study merely reported the demographic information and did not tie it into the study results. Once the participants completed the three survey instruments and demographic questionnaire, they signed up for a one-on-one interview or focus group on the final screen for the online surveys. Students provided their name, phone number, and email address. Interviews and focus groups were conducted via Zoom or in person, with the participant's permission, to avoid disrupting the student's busy schedule. The interview protocol (see Appendix K) and the focus group protocol (see Appendix L) were followed.

Interview and Focus Group Protocols

Yin (2018) noted that "one of the most important sources of case study evidence is the interview" (p.56). J. W. Creswell and Poth (2018) stated that interviews are a conversational social interaction where knowledge is gained. The interviews were with 14 participants The interviews were conversational and conducted over approximately 45-60 minutes. Each interview session was conducted via Zoom or in person and recorded within the Zoom platform or Rev. This was done with the participant's permission. The questions began with basic background information, such as perceptions of stress and resilience, and proceeded to questions regarding what is known about MM and using an SMA (see Appendices K and L).

O. C. Robinson (2023) noted that probing has been addressed in the literature to gain further information from a participant. O. C. Robinson discussed four ways that probing supports quality in qualitative research. First is sensitivity to context. The interviewees believe they are

being heard and listened to when the interviewer uses sensitivity. Second is commitment and rigor. When conducting semi-structured interviews, probing helps move the interview into a more in-depth discussion of the topic. Third, choosing this approach allows an explanation of the questioning process to the interviewee. Finally, probing is described as having the power to open layers of memory which allows a more in-depth interview.

The interview protocol consisted of 14 questions. For each question, the relevant constructs of the conceptual framework are named. All concepts of the research question are addressed. Further, questions include probes to elicit more information from the participants (O. C. Robinson, 2023).

Standardized Open-Ended Questions for Interviews

Icebreaker Questions

1. Tell me about yourself and why you chose nursing. (ice breaker)

Probes: Tell me more. Please explain.

Stress Questions

2. How do you experience stress in nursing school?

Probes: Tell me more. Please explain.

3. How would you describe stress?

Probes: When you experience stress, what does that feel like? Look like?

4. What are the sources of stress in nursing school?

Probes: Stresses regarding your relationships? Stresses regarding the program? Stresses regarding the field? Stresses regarding your time? Stress regarding your emotions?

Resilience Questions

Greene et al. (2022) noted that resilience refers to balancing risks to well-being and resilience factors when experiencing stress. Resilience also refers to a person's innate aptitude for self-change.

5. How do you define resilience?

Probes: Tell me more. Please explain.

6. How would you experience resilience in nursing school?

Probes: When you experience resilience, what does that feel like? Look like?

7. What promotes resilience in nursing school?

Probes: Resilience in your relationships? Resilience in the program? Resilience regarding the field? Resilience regarding your time? Resilience regarding your emotions?

Mindfulness Meditation with a Smartphone App Questions

8. How would you define mindfulness meditation?

9. What is your experience with mindfulness meditation?

10. How would you describe mindfulness meditation with a smartphone app?

11. What is your experience with mindfulness meditation with a smartphone app?

MM with an SMA + Stress and Resilience

12. How has MM with an SMA affected your stress in nursing school?

13. How has MM with an SMA affected your resilience in nursing school?

Closing Question

14. What else would you like to share with me today on this topic?

Standardized Open-Ended Questions for Focus Groups

Icebreaker Questions

1. Why did you choose nursing? Please go around the group and give everyone a turn to speak. (ice breaker)

Stress Questions

2. Let's discuss how everyone experiences stress in nursing school.

3. Please discuss how you would describe stress.

4. How does everyone describe sources of stress in nursing school?

Resilience Questions

Greene et al. (2022) noted that resilience refers to balancing risks to well-being and resilience factors when experiencing stress. Resilience also refers to a person's innate aptitude for self-change.

5. How does everyone define resilience?

6. How has everyone experienced resilience in nursing school?

7. What does everyone think promotes resilience in nursing school?

Mindfulness Meditation with a Smartphone App Questions

8. How would you all describe mindfulness meditation?

9. Does anyone have experience with mindfulness meditation?

10. What does the group know about mindfulness meditation with a smartphone app?

11. Please discuss where you got your information from? Has anyone personally used it?

MM with an SMA + Stress and Resilience

12. How has MM with an SMA affected anyone's stress in nursing school?

13. How has MM with an SMA affected anyone's resilience in nursing school?

Closing Question

14. Would anyone like to add anything about our discussion topic today?

For each protocol, all 14 questions were reviewed and critiqued by an expert in case study methodology. This process ensured that the questions are easy to understand and targeted toward the needed information. Still, they were examined to be sure they are designed to meet their purpose based on the wording.

Question one was an orienting question designed to learn about the participants' backgrounds and make them comfortable speaking in the interview or focus group (Roberts, 2020). Roberts recommends briefly talking with the interviewee to make them comfortable. The interviewer showed an interest in what is being said to demonstrate respect for their point of view and communicate understanding. Further, Roberts (2020) recommends/.>>> starting with an easy-to-answer question to establish confidence and trust with the participant.

Questions two through four were designed to explore the participants' experiences with stress and the factors that cause them stress. These are tour questions noted by Roberts (2020) to help the researcher better understand parts of the whole question. The questions explore the experience of stress for a nursing student and include probes for questions two and three to further illicit information. Additionally, Roberts emphasized the significance of understanding context when approaching qualitative research and data analysis. Questions one through four provided the contextual information needed to instruct the research procedures related to relevance and validity.

Questions five through seven are tour questions designed to seek out the participants' regarding resilience (Roberts (2020). Understanding how the student sees and experiences resilience assisted the researcher in further understanding the fundamental question. Experiences with resilience and factors that influence resilience for the student provided context for this research.

The American Association of Colleges of Nursing (2020b) calls for action by nursing educators to address the well-being of nursing students. Investigating and proving effective methods for stress relief is a central part of a response to this call. Questions 8-13 explored the nursing student participant's views of the effectiveness of MM with an SMA for stress relief. Moreover, they were designed to capture the participants' experiences (Castillo-Montoya, 2016).

Lastly, questions 8-13 address related literature exploring contexts and impressions of meditation interventions and how they affected stress and resilience. The questions were designed to seek the current realized effects of the intervention. From these questions, research can start to develop and distinguish common themes between participant responses.

Procedures

Three universities were contacted, and permission was obtained from two universities to contact students contingent upon IRB approval from Liberty University for this study (See Appendices N and O). Institutional Review Board (IRB) approval for the research and methodology was obtained. One of the two universities did not yield participants, so only one university was used. Following IRB approval, a visit by the researcher occurred to speak directly to students in several classes. Students were given a brief presentation of the study and what participation entailed. A QR code was given to students on a handout so they could scan it with their phones if they want to participate in the study. The code took the student to informed consent (see Appendix C), followed by a demographic questionnaire (see Appendix D), the Perceived Stress Scale (see Appendix E), the Brief Resilience Scale (see Appendix G), and the Mindfulness Awareness Assessment Survey (see Appendix I).

Further, the surveys were not for statistical analysis but rather to provide triangulation with interview data and focus group data leading to the study's purpose of finding what

knowledge pre-licensure, BSN students have regarding the use of MM with an SMA to manage perceived stress and promote resilience. Students were then asked to sign up for an interview and/or a focus group participation. Focus groups were conducted on site to obtain participants. Demographic data (see Appendix D) were used to identify and define the study's population of participants.

Interviews and focus groups followed a questions template (see Appendix K), lasted approximately 60 minutes, and were conducted through Zoom or in person. Interviews were recorded with the student's permission and later analyzed with observations written into a narrative. Focus groups explored the knowledge of pre-licensure BSN students' knowledge of MM using an SMA to manage stress and promote resilience. These group sessions were recorded with the participant's permission and analyzed when the researcher completed each group session. A script was followed. The plan set forth for data analysis was followed.

The Researcher's Positionality

This researcher's positionality is described below. The interpretive framework is based on social constructivism. The philosophical assumption is based on an ontological, epistemological, and axiological assumption. Finally, the position of the researcher is reviewed in the following section.

Interpretive Framework

This researcher approached this study from the social constructivist approach, as discussed by J. W. Creswell and Poth (2018). This approach involved interpretation within qualitative research using flexible guidelines. A focus was placed on understanding the experience fixed in situations and relationships through communication and opportunity. Further, the values of individuals are of great importance. This study obtained participants' knowledge

and views regarding MM with an SMA. Social constructivism fits the researcher's intent to obtain this knowledge as the focus of the study.

Philosophical Assumptions

Researcher's philosophical assumptions must be confronted and related to the social constructivism perspective (J. W. Creswell & Poth, 2018). The researcher brought a viewpoint and beliefs to the research process that enlightened how the study was conducted (J. W. Creswell & J. D. Creswell, 2023). Maintaining these assumptions was imperative to gathering and analyzing data. Additionally, these assumptions provided the lens the researcher used to interpret data. Philosophical assumptions are developed from experience, field of study, and a person's culture. The assumptions further provided the reader with information on the researcher's positionality.

Ontological Assumption

The ontological assumption was that the student participants have different realities affected by their social interactions (J. W. Creswell & Poth, 2018). This research was conducted with the premise that participants and this researcher have different realities. While conducting the study and interpreting the data, an intent was maintained that finding these varying viewpoints and reporting them is essential. Reporting was done through the development of themes.

Epistemological Assumption

The epistemological assumption holds that the researcher tries to get as close to the participants as possible to understand their viewpoints better (J. W. Creswell & Poth, 2018). I conducted Zoom and in person interviews and focus groups. However, I also visited participants'

classrooms to gain participation and administer the demographic questionnaire and three surveys. This in-person visit allowed close contact with students.

Axiological Assumption

The axiological assumption is representative of qualitative research (J. W. Creswell & Poth, 2018). This researcher brought assumptions to the study, which were reported as biases. The assumptions are valuable. Further, the participants' assumptions granted rich meaning to the data. Axiological assumptions can be from personal experiences, gender, race, and political beliefs.

Role of the Researcher

As a student and user of MM with an SMA, I am closely involved with nursing students' issues and interested in methods to help them cope with everyday stressors. I believe the nursing profession needs to take care of those studying to join the workforce and provide skills that will allow them to progress in their careers successfully. The student participants provided valuable information regarding their knowledge of using MM with an SMA to manage stress and promote resilience.

The participants recruited for this study were unknown to this researcher. Data were obtained from them on an individual basis. Depending on previous experience, the participant may have preconceived ideas about MM with an SMA. However, the purpose of this study was to determine what knowledge students' already have about the topic.

Maintaining perspective from preconceived ideas based on personal experiences was crucial. This perspective was kept in a journal, and perceptions were written and compared to the participants' perceptions. This practice helped avoid bias and prevent it from affecting the research data. It was crucial to remain aware of preconceived ideas when collecting data from the

interviews and focus groups. Care was taken not to share the interviewer's opinions, making the interview and focus group protocol a critical guide to follow. Additionally, I kept a journal with entries before and after each student interaction. Reviewing this allowed me to maintain objectivity during interviews, focus groups, and data analysis.

Recruitment

In advance of submission to the IRB, the researcher obtained a letter of cooperation for IRB approval as decided by the institution. This letter served as the research sites permission (see Appendix M). This letter of cooperation included expectations regarding a parameter of how and when students can be approached and how to obtain signed consent to participate. Email and online video chat contacts have been made with one Christian university.

After securing IRB approval from Liberty University, the researcher had permission to visit several classes at the research university to recruit students. Permission was obtained from a faculty member at the site to attend several classes and personally address students. The study was briefly explained, and a QR code was given to students to scan if they were interested in participating. Upon scanning the QR code, the students were directed to an online consent document (see Appendix N). To participate in the study, the student continued past the consent page and began surveys due to exempt status assigned by Liberty IRB. Following consent, students completed three short surveys and a demographic questionnaire of three questions.

Data Collection

Once the researcher received IRB approval from Liberty University, data collection was completed at the approved institution. The data collection activities described by J. W. Creswell and Poth (2018) were followed. A crucial step was to find a university to study, gain access, and establish rapport. One university was found and contacted by email and Microsoft Teams to

enhance a meaningful relationship. Permission was received (see Appendix M), and this researcher visited classrooms in person to speak to potential participants (see Appendix N). Next, the researcher developed protocols for collecting data, such as the interview and focus group protocol found in Appendix K and Appendix L.

After these first steps, the researcher considered the primary step of maintaining ethical research. J. W. Creswell and Poth (2018) noted that these issues involve respect for participants by maintaining privacy as was planned by keeping identifiers confidential, concern for welfare by minimizing harm such as this study did by not implementing a treatment, and justice by providing fair and equal treatment to all.

J. W. Creswell and Poth (2018) encourage the researcher to plan different data collection modalities to create interest. This study included surveys, interviews, and focus groups to provide encompassing and varied research data. The surveys found in Appendices E, G, and I are reported in means and percentages to gauge participants' stress, resilience, and mindfulness awareness. This data from surveys were used to complement the data collected through interviews and focus groups.

Demographic Questionnaire

The participants were first given a four-item demographic questionnaire (see Appendix D) to complete in Qualtrics. This questionnaire included questions about age, gender, and ethnicity. Questions were designed by the researcher and based on questions the government asks on the U.S. census. These questions are descriptive and designed to provide information on the participants. Once this survey was completed, the participants were presented with the PSS.

Perceived Stress Scale

Second, the PSS (see Appendix E) contained 10 questions assessing the participants' stress levels in the last month. Permission for this survey can be found in Appendix F. Cohen et al. (1983) designed this survey to evaluate a participant's stress level. This survey was used for descriptive data about the participant's stress within the last month and administered through Qualtrics. The PSS has been shown to have a reliability alpha of .78 and correlates with other stress measures in a predicted way (Cohen et al., 1983). After completing this survey, the participant gained access to the BRS.

Brief Resilience Scale

The BRS, as shown in Appendix G, was completed next by the participants through Qualtrics. Permission to use this survey can be found in Appendix H. The six questions in this brief survey obtained information by asking how well the participant felt they can bounce back after a stressful event. The BRS has been shown to have a reliability of Cronbach's alpha .80-.91 (B. W. Smith et al., 2008). Results served to provide descriptive data about the participant. Finally, the MAAS was presented to the participant.

Mindful Awareness Assessment Survey

The MAAS (see Appendix I) was the final survey presented to the participants in Qualtrics. Permission to use the MAAS can be found in Appendix J. Information from this scale was used as descriptive data about the participants. The MAAS, a 15-item scale, assesses mindfulness with questions about performing tasks without paying attention to determine mindfulness. The scale was validated by Carlson and Brown (2005) with a Cronbach's alpha of .86. After 91 students completed the demographic questionnaire and surveys, participants were asked to volunteer to be interviewed and participate in focus groups. From the 91, 25 volunteered for focus groups and interviews.

Interviews

Interviews, which are described by Busetto et al. (2020) as a "conversation with a goal" (p. 3), were conducted using a semi-structured format. The topics discussed have been developed from the study of documents regarding the proposal's purpose statement. The focus of the question is directed singularly at each part of the purpose and finally on the pieces altogether. The benefits of interviews include an interactive quality, which is why they were chosen for this study. Additional subjects may be discovered to be assessed by the researcher.

Ortiz (2016) covered essential steps to conducting a qualitative interview that were followed in this study. Permission of the institution and participants must be obtained. Campus visits were conducted to help build a relationship with the participants. Building trust with the participants is essential in obtaining good information from interviews. Next, convenience sampling was utilized for the interviews.

Additionally, the interviewer maintained an equal relationship with the interviewee when conducting interviews. Participants were made to feel comfortable with equitable treatment. Next, the sample size, which was 14 participants, was gained. The interview protocol was used for the interviews and focus groups (see Appendix K & L). An opening question was used to make the interviewer more comfortable, and the questions were followed as listed. Participants were reminded that information would be kept confidential and that they were entered into a drawing for an Amazon gift card.

Further, de Villiers et al. (2021) discussed the importance of the interviewer and interviewee being comfortable with the video equipment necessary for online interviews. Like many pre-licensure BSN students, younger participants should be Internet savvy. Additionally, communication has changed since the Coronavirus pandemic to frequently include video

communication. It is further recommended that the interviewer practice before conducting actual interviews. This researcher practiced with equipment prior to the interviews.

Additionally, Hanna and Mwale (2017) noted that virtual interviews offer an alternative way to conduct interviews that allows flexibility in scheduling and virtual and visual connections. Data is easily captured by recording through Zoom. The interview schedule of questions developed for interviews can be found in Appendix K.

The interviews began with an icebreaker question followed by three questions regarding stress. Additionally, three questions about resilience followed. Next, the students answered four questions regarding MM with an SMA. These questions were followed by four more questions addressing MM with an SMA for stress and resilience. Finally, a closing question was answered. The reason for a protocol of questions is to keep the interview on track (Yin, 2018). Next, the participant was reassured that the information is stored securely and will remain confidential and then the participant was thanked for participation.

Further, data obtained from the questions in the interview protocol were analyzed in the typical, inductive manner. Qualitative researchers build patterns, groups, and themes from the bottom up. Data becomes more abstract, and the researcher worked back and forth between the data and themes until an encompassing set of themes was developed (J. W. Creswell & J. D. Creswell, 2023).

Focus Groups

Focus groups involved bringing participants together to answer questions in a group forum (de Villiers et al., 2021). The focus groups used the questions in the focus group protocol (see Appendix L). Two focus groups that included six and five participants, respectively, were conducted in person due to participant availability following class. The benefits of focus groups

included the ability of participants to share their answers with the group. Tümen-Akyıldız and Ahmed (2021) discussed that focus groups are well suited to knowing because of the focus on the thoughts, experiences, and feelings of the group members. However, the researcher must remember that the discussion should remain focused on the questions (de Villiers et al., 2021). The researcher was aware of the dynamics within the group to realize when the conversation had changed by anyone who wished to project views that were not part of the study.

Tümen-Akyıldız and Ahmed (2021) reviewed the suggested steps that were necessary to follow when conducting focus group research. The topic and goals were decided, and participants were identified. Focus group questions were developed, such as in Appendix K. A location was chosen, which was an in-person meeting with students due to schedule availability. Next, 11 students volunteered for focus groups and participated in one of two groups. A conference room was used to provide privacy. The session lasted 60 minutes and then was transcribed, analyzed for codes and themes, and written into Chapter Four of the dissertation.

Focus groups were conducted on campus as were some interviews due to participant availability. The remainder of the interviews were conducted via Zoom with the participant's permission. Zoom was used to decrease schedule interruption for the students and because they were from areas far from the researcher. Focus groups used the script in Appendix L and interviews used the script in Appendix K.

Data Analysis

Three forms of data were obtained in this case study, demographic and survey data, interviews, and focus groups. Different methods of analysis were used for demographic data and survey data than for interview and focus group responses. The analysis shows that all data has been addressed (Yin, 2018).

Demographic Data

Demographic data were obtained with the demographic questionnaire. Demographic questionnaire questions are as up to date as possible to ensure that current and inclusive terminology is being used to represent a person's identity correctly (Hughes et al., 2022). Demographic data is used in qualitative research to describe the participating population. This data allowed the researcher to describe the transferability of results. Demographic data are reported narratively and in Table 2.

Table 2

Descriptive Data from Questionnaire Participants

Participant	Gender	Age	Ethnicity
Participant A			
Participant B			
Participant C			

Note: This data was used to sort and report.

Table 2 is a representative of how data were organized and presented to the reader to give an understanding of the participants gender, age, and ethnicity.

Survey Data

Each survey has separate instructions for scoring data. First, the PSS contains 10 items with several reverse-scored items. The items are totaled with a possible score of 40, indicating the participant is highly stressed. Secondly, the BRS consists of six items scored one through five. The total is divided by six and matched to low, normal, and high resilience definitions. Third, the MAAS consists of 15 questions with Likert-type scored answers. The total is summed and then divided by 15. Those with higher scores have higher levels of mindfulness.

Yin (2018) discussed that case studies may include surveys and other quantitative data. Additionally, Priya (2021) noted that case studies are in-depth, allowing the researcher to use

data collection methods that fulfill the purpose of collecting the required data. Surveys were used in this qualitative, exploratory, single case study to provide descriptive information on the participants. The surveys were analyzed for means and percentages to describe the participants' perceived stress, resilience, and mindfulness levels. They provided another level of information for triangulation which gives strength to the research. This information is reported narratively and in tables, as shown in Table 3.

Table 3

Descriptive Data from Survey Participants

Participant	Survey Used	Date and time of survey completion	*M*
Participant A			
Participant B			
Participant C			

Note: This table was used to report the means and percentages obtained when analyzing the survey data.

Further, this information ensured transferability by determining that the sample group provides information that represents the general population (J. W. Creswell & J. D. Creswell, 2023). An in-depth understanding of an issue that a case study provides must be achieved through multiple sources of information, which may include surveys (Schoch, 2020). Stahl and King (2020) recommend that a detailed description of the participants be included, and the survey information worked towards this goal by providing a picture of the participants' current stress, resilience, and mindfulness awareness.

Interview and Focus Group Data

Interviews and focus groups were conducted in person or recorded on Zoom and transcribed by Rev, a service that transcribes using humans to produce a written copy of data

obtained during these forums. Transcription was done manually using the orthographic method discussed by Braun and Clarke (2013). Orthographic transcription is described as “verbatim” (p. 161). A good-quality transcript must indicate what was said and who was speaking. The task is to include a straightforward transcript of what was said. Braun and Clarke additionally recommend using very little or no punctuation. Care was taken to avoid omissions and misunderstood words. These directives were followed in this research study for transcribing interviews and focus groups. This step was included in the research plan before data were reported to enhance the accuracy of results.

Moreover, Guest et al. (2012) suggested that transcription from focus groups should include which member is speaking and how much of the group agrees with these comments. Additionally, three levels must be considered in transcription: the individual participant, the group, and the relationship between them. These levels can be achieved by documenting several interactions. These methods were employed in this research study.

Member checking is a method of quality assurance in qualitative research (Braun & Clarke, 2013). The interview participants were emailed a typed copy of the transcription from their interview, along with the researcher's interpretation of themes developed from the interview. The participants were given one week to respond via email. Participants were asked to respond if there were changes to their transcript or in the included researcher coding. This method involved having the participant review the analysis and interpretation of the obtained data. The participants did not return any comments on the trustworthiness of the researcher’s interpretation. Member checking was used to avoid misrepresenting participants’ views and experiences.

Descriptive Data

Descriptive data were analyzed for each method of gathering data. First, the demographic data were analyzed to obtain means and percentages for gender, ethnicity, and age. This analysis gave information on the average participant. Next, the BRS, PSS, and MAAS were scored as previously discussed and analyzed for means and percentages. This information added to the descriptive data and described the participant's average perceived stress, resilience, and mindfulness. Next, the diagram in Appendix Q was used to view how the data collected answers specific interview and focus group questions. Finally, as seen below, data was tracked for participants who completed an interview or focus group.

Table 4

Descriptive Data from Interview and Focus Group Participants

Participant	Mode of data collection	Date and time of meeting	Number of pages of data	Number of codes from data
Participant A				
Participant B				
Participant C				

Note: This table assisted the researcher in keeping track of the data collected from each participant and includes detailed information about the data.

The data analysis process followed for this study corresponded to the work of Braun and Clarke (2013). These authors outlined thematic analysis in a way that had yet to be done previously. Their design utilizes six steps.

Steps in Qualitative Data Analysis

Braun and Clarke (2013) described the process of thematic analysis for qualitative data (see Figure 4 below). Data were first transcribed and read multiple times while noting early ideas. In this study, data were recorded through Rev or Zoom and transcribed by the researcher. Next, coding was done, which involved choosing relevant information from the raw data and

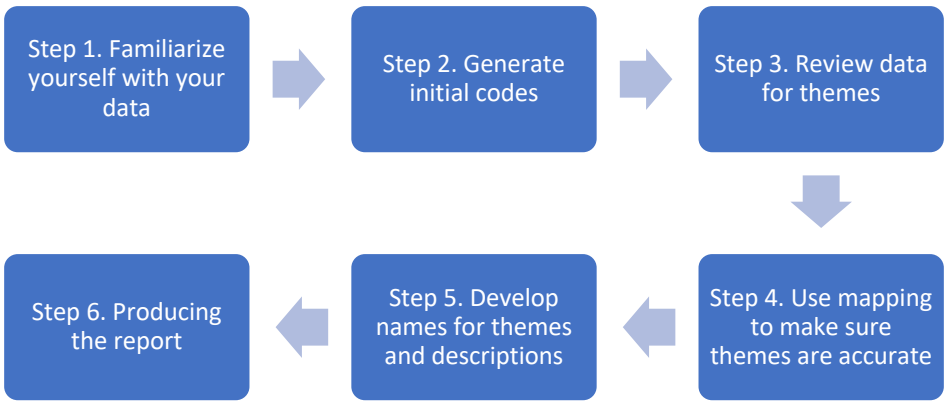
labeling it systematically across all the data. J. W. Creswell and J. D. Creswell (2023) noted steps in coding that start with reading through data, writing notes in the margins, reviewing several participants, and then beginning a list of possible codes to be defined later. Coding was performed by making notes while reading the data multiple times and using the Atlas ti program. A label or code was created to describe what the participant was saying. Codes consisted of more than one word, as Braun and Clarke (2013) recommended. Codes were then listed with data that was relevant.

Additional steps included placing data and codes in two side-by-side columns and color-coding the developed codes. Further, collecting codes and sorting them into possible themes followed. Color coding assisted this process. Braun and Clarke (2013) give a visual representation of this method, which was followed. Additionally, continuing analysis to refine the themes ensured that the complete story was told. Finally, the report was written while performing a final data analysis that included strong examples (see Appendix Q) for a data analysis map.

Further, the analysis was performed through an inductive process. Braun and Clarke (2013) discussed inductive analysis as developing themes firmly connected to the data. Additionally, data were collected to answer the RQs of this study, so developed themes may not always mirror the interview or focus group questions. Still, the themes were not designed based on the researcher's theoretical interests. This study included coding without trying to place it into a previously developed frame and followed the figure below, designed based on Braun and Clarke's work (2013).

Figure 4

Braun and Clarke's (2013) Steps in the Qualitative Thematic Analysis Process



Note. This diagram is a pictorial representation of Braun and Clarke's (2013) thematic process for qualitative data drawn by this researcher.

Triangulation

Qualitative case studies use data triangulation to improve reliability and validity. Triangulation, using multiple data sources, is a strength of case study research, allowing the researcher to gather in-depth data in a real-world context (Yin, 2018). Additionally, it has become more popular over time (Bans-Akutey & Tiimub, 2021). Triangulation improves the study's validity by adding additional data sources that offer several benefits that offset the extra time and work involved for the researcher. Benefits include further confirmation of findings, improved comprehension of the subject, and additional credibility and validity. Furthermore, triangulation was used in this study by incorporating surveys, interviews, and focus groups.

Trustworthiness

Korstjens and Moser (2018) present the factors important to consider regarding the trustworthiness of a research design. The following sections describe each of those factors. Additionally, strategies to ensure trustworthiness for each of these factors are given.

Credibility

Credibility is defined as whether the research findings represent plausible information drawn from the participants' original data and is a correct interpretation of the participants' original views (Korstjens & Moser, 2018). As suggested by Korstjens and Moser, interviews were recorded with the participant's permission, data were interpreted, and the participants were given an opportunity to review the data for accuracy. Additionally, recruitment and interviews were conducted while building rapport with the participants to increase the production of rich data. (Korstjens & Moser, 2018). Further, credibility was established by keeping a written audit trail of the research procedures and decision-making (Ortiz, 2016). J. W. Creswell and Poth (2018) noted that keeping an audit trail throughout the data analysis process was a meaningful use of time. Developing codes and themes were organized to retrieve them easily. The first method used to keep order in this study was using Atlas ti. Member checking was used to verify that the correct interpretations were made through the development themes. A peer was asked to review codes and themes for authenticity.

Dependability and Confirmability

Dependability and confirmability are defined as participants' appraisal of the findings and study recommendations reinforced by the data received (Korstjens & Moser, 2018). Further, the breadth of the findings could be confirmed in other research studies to prove that they are taken from data that addresses confirmability. As suggested by Korstjens and Moser, the plans were followed as described above for data analysis, and a record of these procedures were kept in this study.

Stahl and King (2020) further described dependability as "the trust in trustworthy" (p. 27). Peer debriefing or review is considered trustworthy and able to create trust. Utilizing peer

review will enhance dependability. Further, professional peers communicate credibility. It is also suggested that when the researcher knows that a peer will review the data, she will be more alert to bracket information as fact or interpretation. This researcher had a peer review data.

Confirmability refers to getting close to the objective reality (Stahl & King, 2020). The process of auditing is dependent on the presence of objective reality. Accuracy and preciseness must be present in the research process to accomplish confirmability. This researcher kept a journal through the data collection process and cross-checked opinions with data after analysis to determine if personal opinions have been kept from data analysis.

Transferability

Transferability is defined as how well the findings in qualitative research can be transferred to other studies with different populations and environments (Korstjens & Moser, 2018). As recommended by Korstjens and Moser, this researcher used thick and rich descriptions of participants' behaviors and experiences. These descriptions made the information meaningful to an outsider.

Stahl and King (2020) describe transferability as complex because qualitative research is not designed to be replicated. However, descriptions of participants and patterns developed from data can be applied in a different context. Transferability is only established when a thick and rich description is good enough to portray a circumstance that can be applied to another's situation. Stahl and King (2020) warn that descriptions must include contextual information and detailed descriptions of participants. Further, methods and time frames must be completely defined. These descriptions are not a step-by-step method to reproduce information but a suggestion that should be researched to determine if it applies in another context.

Reflexivity

Yin (2018) discussed that reflexivity can be a problem whether using an interview to validate findings or to find an interviewee's sense of reality and its meaning. Reflexivity can be an undesired influence between the researcher and the participant. The researcher's perspective can influence the interviewee, and the interviewee's responses can influence the researcher's line of questioning. Even shorter interviews can present this problem that may not be eliminated.

Still, Olmos-Vega et al. (2022) developed a definition of reflexivity based on an array of inductively analyzed definitions to locate congruencies, synthesize the congruencies, and produce a comprehensive definition. Olmos-Vega's definition argued that reflexivity is a group of ongoing, collaborative, and complicated practices whereby researchers critique, assess, and evaluate how personal subjectivity and context shape the research process.

J. W. Creswell and Poth (2018) discussed reflexivity in case study research and how to best establish this when evaluating and reporting findings. All writing is positioned within the researcher's beliefs. Qualitative researchers must accept that all research is shaped as it is extracted and be clear about this in their writing. Yet, J. W. Creswell and Poth noted that qualitative researchers should place themselves in writings, which is the concept of reflexivity. Therefore, the writer addressed the values, biases, and experiences that were present. The researcher must be sensitive to this problem, which will allow for better case study interviews (Yin, 2018). This awareness was maintained in this case-study interviews and focus group transactions.

The process of bracketing, a method of reflecting on a researcher's values and beliefs, was used to put aside these personal feelings and biases (Ahern, 1999). The researcher used a journal to record potential areas of role conflict and feelings that may threaten neutrality in data collection and interpretation. The journal was used before interaction with participants and

following interviews and focus groups. Recordings before the encounters contained potential threats to neutrality, and those after will consider new or astonishing things in the data collection.

Ethical Considerations

Sim (2010) reviewed the Belmont Report and the three main principles to protect human subjects in research after atrocities, such as the Tuskegee syphilis study and Nazi research practices, in which participants had no choice and were harmed in studies. Internal Review Boards were designed because of the Belmont Report. The basic principles in the Belmont Report include beneficence, justice, and respect for persons in research.

Beneficence includes efforts to get the best research results while reducing participant risks (Sim, 2010). It is crucial that all researchers, including this researcher, take steps to find potential risks and then reduce them. This research includes surveys, interviews, and focus groups. Participants were informed that they could quit anytime or not answer any uncomfortable questions. Focus group participants were also cautioned to keep any information discussed to themselves.

Additionally, justice describes the risks and benefits equally and cites the research results, whether good or bad (Sim, 2010). Participants in this study were treated equally and fairly. Within this study treatment was not provided, but if it was, a person would not be denied treatment for refusal to participate in the study. Findings from this study were addressed equally.

Finally, people need to be treated with respect (Sim, 2010). Participants were allowed to make their own decisions about participation. Informed consent was provided before any participation, and the participants were reminded that they are allowed to drop out of the study at any time they wish to without any repercussions.

J. W. Creswell and J. D. Creswell (2023) recommended that participants must sign informed consent before data is collected. The informed consent document contains the study's provisions that the participants agreed to. Standard pieces protect the human rights of the participant and include identification of the researcher, sponsoring institution, study purpose, type of involvement, and participant benefits. Further elements are a guarantee of confidentiality, the name of the person to contact for questions, and a promise that participant withdrawal was allowed for any reason. This consent was available for the participant to read when scanning the QR code to enroll in the study. Participants indicated approval by continuing to the questionnaires since this study received exemption status from the IRB.

Confidentiality was addressed by giving the participants and locations pseudonyms for recording and storing the data (J. W. Creswell & J. D. Creswell, 2023). Participants were assigned a pseudonym, and the researcher kept a list in a secure folder on a 256-bit encrypted hard drive on a password-protected, locked laptop only accessible by the researcher. The data obtained from surveys, questionnaires, interviews, and focus groups was redacted such that the participant identifiers are removed. All data during and after the study will be stored for a period of three years, and then all the data will be permanently erased. The researcher ensured that the participants understood that all interview information was used in the final report. Still, the participant's actual identity was not revealed.

Summary

The purpose of this qualitative case study was to explore pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience. Chapter Three included the specific research design and the procedures for conducting the study. Following IRB approval, this qualitative case study

included 14 nursing student participants in interviews to gain perspectives on knowledge regarding using MM with an SMA. Additionally, 11 students divided into two focus groups were included. The PSS, BRS, and MAAS surveys, and demographic questionnaire were given to obtain information on students' stress levels, mindfulness, and resilience. Data were collected with in-person and Zoom interviews and focus groups. The data analysis process provided by (Braun & Clarke, 2013) was used to organize the data and determine meaningful themes and thick and rich descriptions of the participants' experiences. Trustworthiness was addressed with participant evaluation of the interpretation of data to assess accuracy, such as member checking and keeping detailed records. Thick and rich descriptions included behavior and experiences while including the context, so these descriptions are significant to an outsider (Korstjens & Moser, 2018).

CHAPTER FOUR: FINDINGS

Overview

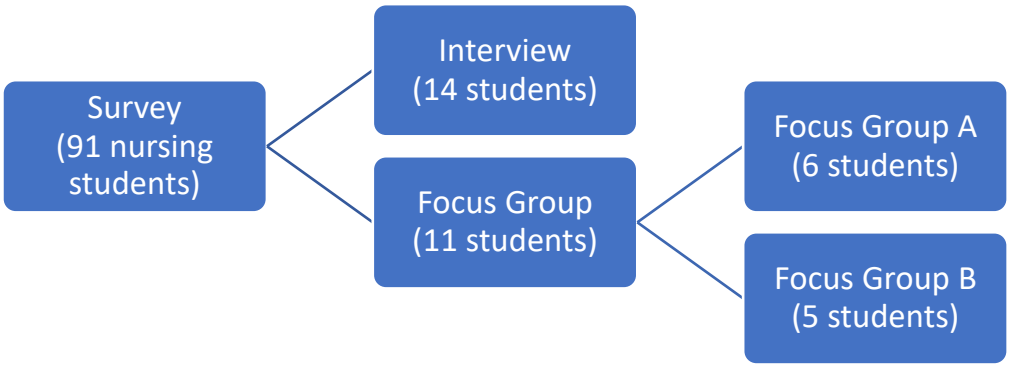
The purpose of this single, qualitative case study was to explore pre-licensure, Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience. This chapter includes detailed information regarding the findings from the study. The detailed information includes participant descriptions, a table describing key information from the document analysis, narrative of the themes that emerged from the study, and direct responses to the central research questions and sub-questions. Chapter Four closes with a summary and synthesis of the findings and the connections between the themes, leading to a later discussion.

Participants

Participants in this study included prelicensure, BSN students from one Christian university. There were 91 students who completed the surveys and 25 who volunteered for interviews and focus groups. The progression of participation in this study was as follows. First, 91 nursing students completed a survey. Second, 14 of the 91 nursing students were interviewed. Finally, 11 nursing students from the original 91 (not those that completed the interview) participated in one of two focus groups. Figure 5 shows this progression.

Figure 5

Progression of Participants



Note. Figure 5 depicts the process of obtaining participants for surveys and then the students who volunteered for interviews and focus groups.

Table 5 summarizes the participants of this study.

Table 5

Descriptive Data from Questionnaire Participants

Participant	Gender	Age	Race
Jaylynn	Female	22	White
Cady	Female	20	White
Katrina	Female	19	White
Delaney	Female	19	White
Kanya	Female	20	White/Asian/Native Hawaiian
Emma	Female	20	White
Sarah	Female	19	White
Erin	Female	20	White
Keisha	Female	22	African American
Eileen	Female	20	White/Asian
Samantha	Female	19	White
Bailey	Female	22	White
Kabir	Male	24	Asian
Sabrina	Female	18	White
Tabatha	Female	20	White
Lynn	Female	19	White
Jaya	Female	20	White
Hannah	Female	19	White
Gemma	Female	20	Asian
Linh	Female	20	Asian
Hope	Female	20	White
Cadence	Female	20	White
Shelby	Female	20	White
Karen	Female	19	White
Ariah	Female	20	White

Note. $n = 25$.

Descriptive data were obtained from participants through the demographic questionnaire. Pseudonyms are used for participant names. All participants in interviews and focus groups were female except one. Ages ranged from 18 to 24. Further, most participants identified their ethnicity as White. African American, Asian, and Native Hawaiian ethnicities were additionally noted. The specific participant demographics are as follows.

The demographic findings were produced through demographic questionnaire analysis. Within this section, a summary of the 91 participants in the study including their age, gender, and ethnicity was obtained. Additionally, within each section, a table is used to display collected data.

Age

The age of participants was collected to assist in describing the sample population. The participants reported ages ranging from 18 at the youngest to 31 at the oldest. There were few students above the age of 22.

Table 6

Participants by Age

Age	*N*	%
18	7	7.7
19	36	39.6
20	32	35.2
21	4	4.4
22	7	7.7
23	2	2.2
24	1	1.1
25	1	1.1
31	1	1.1

Note. $n = 91$. Mean age = 19.93

Table 6 reveals the participant's ages with the largest population (39.6%) of 19-year-olds. The second largest (35.2%) was 20-year-olds. These numbers were expected with the sample population ranging from freshman to seniors with many participants being freshman and sophomores.

Gender

This researcher calculated frequencies to allow for a description of the sample population. First, participants provided their gender as seen in Table 7. There were 84 female participants and seven male participants.

Table 7

Participants by Gender

Gender	*N*	%
Female	84	92.3
Male	7	7.7

Note. $n = 91$

Table 8 shows that all but one participant was female (92.3%). Only 7 (7.7%) of the 91 participants were male. This is lower than the national average gender distribution, which is that 12.6% of nursing students are male (American Association of Colleges of Nursing, 2022).

Ethnicity

The sample population's ethnicities were gathered within the demographic questionnaire. This information gives the reader more descriptive data to describe the sample population. The data indicates a variety of ethnicities involved in the surveys.

Table 8

Participants by Ethnicity

Ethnicity	*N*	%
Asian	5	5.5
Black or African American	1	1.1
Native Hawaiian or Other Pacific Islander, Other	1	1.1
Other	3	3.3
Other, prefer not to say	1	1.1
White or Caucasian	74	81.3
White or Caucasian, Asian	3	3.3
White or Caucasian, Asian, Native Hawaiian or Other Pacific Islander	1	1.1
White or Caucasian, Black or African American	1	1.1
White or Caucasian, Other	1	1.1

Note. $n = 91$

Much of the sample population (81.3%) reported being White or Caucasian. However, multiple other ethnicities were reported. The next most popular ethnicity for participants was Asian, at 5.5%. Other and White or Caucasian/Asian were reported by 3.3% of participants. Additionally, multiple ethnicity categories included 1.1% of the sample population and comprised of Black or African American, Native Hawaiian/ or Other Pacific Islander/Other, Other-prefer not to say, White or Caucasian/Asian/Native Hawaiian or Other/Pacific Islander, White or Caucasian/Black/or African American, White or Caucasian/Other.

Qualitative Findings

Participants answered research questions in personal interviews or focus groups. Focus group participants were divided into two groups. The date and time of the interactions are listed to delineate when each participant was involved in their interview or focus group. The number of quotes from data shows how many quotes were obtained from each participants' transcript.

Further, the number of codes that emerged from participants' quotes is noted to show the depth of data obtained. Table 9 describes descriptive data from interview and focus group participants.

Table 9

Descriptive Data from Interview and Focus Group Participants

Participant	Mode of data collection	Date and time of meeting	Number of quotes from data	Number of codes from data
Jaylynn	Interview	3/1/24-3 PM	49	59
Cady	Interview	2/22/24-2 PM	50	46
Katrina	Interview	2/22/24-2 PM	50	46
Delaney	Interview	2/21/24-3 PM	51	89
Keisha	Interview	2/24/24-10 AM	88	76
Emma	Interview	2/22/24-5 PM	65	70
Sarah	Interview	2/25/24-2 PM	87	82
Erin	Interview	2/25/24-4 PM	50	59
Kanya	Interview	2/20/24-6 PM	57	61
Eileen	Interview	2/20/24-4 PM	29	58
Samantha	Interview	2/26/24-1 PM	77	68
Bailey	Interview	2/26/24-11 AM	54	62
Kabir	Interview	2/20/24-12 PM	30	42
Sabrina	Interview	2/25/24-3 PM	64	56
Linh	Focus Group 1	2/20/24-11 AM	73	73
Hope	Focus Group 1	2/20/24-11 AM	73	73
Cadence	Focus Group 1	2/20/24-11 AM	73	73
Shelby	Focus Group 1	2/20/24-11 AM	73	73
Karen	Focus Group 1	2/20/24-11 AM	73	73
Ariah	Focus Group 1	2/20/24-11 AM	73	73
Tabatha	Focus Group 2	2/22/24-11 AM	106	82
Lynn	Focus Group 2	2/22/24-11 AM	106	82
Jaya	Focus Group 2	2/22/24-11 AM	106	82
Hannah	Focus Group 2	2/22/24-11 AM	106	82
Gemma	Focus Group 2	2/22/24-11 AM	106	82

Note. n =25. Number of quotes from data indicates the number of participant statements coded. Number of codes from data indicates the number of codes obtained from participant statements. All names are pseudonyms.

As displayed in Table 9, 14 students participated in interviews, and 11 participated in one of two focus groups. Date and times are listed. Further the number of quotes per participant are listed along with the number of codes that were developed per participant.

Participants

The participants for this study included pre-licensure BSN students from one Christian university. Using a convenience sampling method, 14 students volunteered for interviews and 11 volunteered and were divided into two focus groups. Surveys were completed by 91 students. The 14 students who participated in interviews were used for this single case study, which is an average size group. Hennink and Kaiser (2022) recommended nine to 17 participants for data saturation in interviews. Common numbers for focus groups are between six and eight participants (Tümen-Akyıldız & Ahmed, 2021).

Each of the 14 participants were interviewed, and 11 additional participants participated in one of two focus groups. The focus groups and some interviews were conducted in person while the researcher was on campus. The remaining interviews were conducted via Zoom due to the location of students. Below is a table that captures an overview of the participants and additional contextual information relevant to their role in this study.

To address the central and sub-questions for this study, participants engaged in individual interviews, focus groups and surveys. During this time, they were asked several questions aligned to the research study, allowing the researcher to gain a deeper understanding of the topic and research connected to its exploration. The open-ended interview questions were used to explore the students' knowledge of mindfulness, mindfulness meditation, resilience, and stress.

Data triangulation between each of the data collection methods created a clear picture of how each of the themes emerged. Each of the nine themes seeks to support the reader's

understanding of the knowledge that pre-licensure, BSN students have and do not have regarding the use of MM with an SMA for stress management and resilience promotion.

Theme Development

This section introduces the results developed from the data collection and data analysis process. Additionally, the results include nine major themes developed from the data shared by each participant and the documents analysis. The data collection methods used for this study included interviews, focus groups, and surveys. In this section, each of the data collection methods were used as evidence to discuss the themes.

This section introduces the findings gathered from the data collection and data analysis process. Additionally, the findings include nine major themes uncovered from the data shared from each participant, the demographic questionnaires, and surveys. The data collection methods used for this study included interviews, focus groups, and surveys. In this section, each of the data collection methods are used as evidence to reveal the themes. A total of 14 interviews were conducted and recorded in which each participant responded to 14 questions. These questions were a series of questions around the stresses of nursing school and the knowledge of MM with an SMA as a coping tool to manage stress and improve resilience. Additionally, two focus groups were conducted with six participants in one group and five in group two. Participants were provided with an opportunity to engage with one another around extended questions regarding this topic. Lastly, to triangulate the narratives and experiences of the participants, surveys were analyzed for the participants level of stress, resilience, and mindfulness.

Through the interviews and focus groups, 305 initial codes were identified using Atlas ti software. Like codes were merged, resulting in 101 codes. Then, the researcher extensively reviewed the transcripts again considering these updated codes. Next, codes were grouped into

27 categories. Finally, these categories were grouped into nine themes. A final codebook was created as displayed in Table 10 below.

Table 10

Finalized Codebook

Codes	Categories	Themes
Mindfulness-reflection, Mindfulness-sharing, Mindfulness promoters, Resilience-Help Others, Resilience-Treat Others Well, Mindfulness as Considerate	Mindful as Attending to Others	Varying Definitions and Perceptions of Mindfulness
Coping Measures, Mindfulness as Being aware of Class Assignments, Mindfulness as paying attention, Coping Using Advice, Mindful-Paying Attention	Mindful as Being Alert	
Doesn't handle stress well, Experiences normal stress, Interest from Experience, Mindfulness-Knowledge of, Stress-Normal, Have Balance, Mindfulness-Aware of Actions, Doesn't Know What MM is, Meditation-Thinking About Something, Meditation-I Don't Know, No Experience with MM, Meditation-Talking to God, Meditation-Knows Someone, Mindfulness-Being Intentional with Your Actions, Meditation-Bible Reading	Limited Understanding of MM	
Coping in Nature, Coping-Self Reliance, Coping-Using Advice, Physical Symptoms, MM-Shared App, Mindfulness-Spiritual Sense, Meditation-I Don't Know	Lack of Awareness of Meditation	Preconceptions About Meditation
Meditation-Buddhist Monks, Meditation-some cultures spiritual, Aunts Use Crystals	Association with Eastern or New Age Religion	
Mindfulness Stopped-Prayer, Mindfulness Meditate on Scripture, Mindfulness-Devotion, Praying, Always Returns to God	Desire to Use Bible Reading and Prayer	
Coping with Guilt, Mindfulness Meditation Skills, Mindfulness Meditation Use, Mindfulness-Mental Health, Mindfulness-Pain Management, Mindfulness-Promoters, Resilience-Therapy, Smartphone App-Benefits, Coping-Trying to get Better Sleep, Mindfulness Makes Me Feel Better, MM-Tried it and Realized Benefits, Tried MM but Didn't Work, Can't Control Mind from Wandering, MM After Exercise Helped	Helpfulness of MM	
Framework-Reappraisal, Health and Wellness App-Faith Based, Smartphone Health and Wellness App, SMA-Uses When Stressed, Tried MM with an SMA	Prior Exposure to Health and Well-being Apps	Attitudes Towards SMAs
Stress, Stress-Smartphone, Break from Phone, My Eyes Get Fixed on the Phone, Reading to Distract, Put Electronics on Do Not Disturb Smartphone Causes Stress, Smartphone-Try to be Off it	Attempts to Not Use Smartphones	
Coping-Mindfulness Meditation, Coping Therapy, High School Program, Meditation Faith Based, People Resistant to MM, High-School Counselors-MM, Advocate for Counseling, MM Study Participant, Used Free SMA, Father Encouraged Christian Meditation	Limited Exposure	Very Little Knowledge of MM Using An SMA
Coping Results, Meditation Drawbacks, Meditation Effects, Mindfulness Barriers, Mindfulness Effects, Emotional Turmoil, Stress	Limited Success	

Relief-Exercise Class, Distracted During MM, When Stressed-App is Burden, Didn't Notice Benefits, Better Sleep with MM SMA		
MM-The Happiness Project, Headspace, Finch App, Hallow App, Me+ App, Uses Bible App	Brand Names	
Used Body Scanning, Used Body Scan, Father Discussed Body Scan	Body Scan	Prior Exposure to Methods Presented in MM SMAs
Coping-Self Care, Mindfulness-Breathing, Stress-Physical, Mindfulness Breathe and Reflect, Mindfulness Breathing Exercises, Recommends Breathing, Four by Four Breathing, Breathing Helps, Meditation-Breathing and Praying	Breathing	
Framework-ZPD-Learn by Teaching, Stress-Emotions, Had Mindful Minutes in Class, Instructor Used Mindful Minutes	Mindful Minutes	
Framework-ZPD-Self, Mindfulness-Faith Based, Stress-Health, Christian Devotion App Better, Praying, Bible App, Appreciate God in the Outdoors, Switched from MM to Prayer	Devotion Time	
Mindfulness, Mindfulness in the Present, Mindfulness Meditation-Experiences, Stress Effects, Stress Management, Therapy, SMA Easy to Access, Taking Time to be Present, Recommends Grounding Skills, Mindfulness Used in Group, Mindfulness Exercise in Class	Exposure to MM	Exposure to MM
Coping-Time Management, Mindfulness-Time Management, Stress is Overwhelming, Stress-Meet Personal Goals, Stress Physical, Stress-Time Management, Stress Can be Debilitating, Studying-Problem Focusing, Pressure from Program and Time Management, Resilience Taking Breaks, Prioritize	Time Management	Challenges of Nursing School
Experiences Normal Stress, Resilience Academics, Resilience Building, Stress-Academics, Stress-Affects Judgment, Stress-Causes of, Stress-Fear of Failure, Stress-Nursing School, Stress-Physical-Brain Fog, Stress-Physical-Weight on Chest, Bigger Assignments, Lower Academic Standards, Learning Techniques, Studying-Practicing Not Memorizing, Test Anxiety, Stress-Not Enough Time Studying, Exams Weekly, Stress-Doesn't Eat, Stress-Heart Racing, Academics Not a Stressor	Difficulty of Coursework	
Coping, Framework-Appraisal, Mindfulness-Self Care, Stress-Bullying, Stress-Caring for Lives, Stress-Clinical Classes, Stress-Confrontation, Stress-Environmental, Stress-External Validation, Stress-Fear of Failure, Stress-From Unknown, Stress-Novice Nurse, Cannot Miss Clinicals, Stress-Critical Thinking, Physical Affect, Stress-Clinical Dress, I Worry, Do I Know Enough	Clinical Experience	
Mindfulness-Misperceptions, Mindfulness-Nature, Mindfulness-Reflection, Mindfulness-Sharing, Personal Health Problems, Stress-Brain Change, Stress Can Change Perception, Preconceptions Stop People from Using MM, SMA Super Helpful, Meditation Based on Man Not God, Mindfulness Perception-Calming, MM SMA-Willing to Try, MM-Peaceful, MM-Useful, Mindfulness as Busy Mind	Perceptions of the Use of Mindfulness	Perceptions of the Use of MM With an SMA
Career-interests, caring for others, care from nurses, Coping Personal, Enjoys All Aspects of Nursing, Family Medical, Family of Nurses, Future Nursing Goals, Ideas About Research, "I Want to do That", Liked Science, Likes Biologic Process, Likes Pathophysiology, Love Helping Others, Modeling a Nurse, Nurses Are Caring, Nursing Good Fit, Nursing is Versatile Profession, Nursing its Own Profession, Observed Nurses, Sick Family Member, Wanted to be in the Medical Field, Worked in Research, Work with People, Resilience-	Relying Upon Reasons for Attending Nursing School	Resilience in Nursing School

Remembering Why Chose Nursing, Resilience-Cannot Cry at Clinicals, Cope Through Experiences	
Coping Measures, Framework-coping, Good Experience, Nurses-Patient Care, Resilience-Time Management, Resilience-Validation, Mindset-It's Going to be Hard, Struggling-Not a Bad Thing, Reminding Myself How Far I've Come, Knowing it Will be Hard, Using Productivity, Handled Stress Well, Stress Can Motivate, Be Well Workshop	Getting Organized, Dedicated and Focused
Career mentors/influencers, Coping-Instructors, Nurses Are a Model for Society, Resilience-Instructors, Resilience-Virtues, Resilience-Weekly Virtues, Professors-Emotions, Clinical Instructor Gave Advice, Willing to Help Students, Stress from Instructor, Wants Grace with Assignments, Test Reviews, Promise Project	Instructor Relationships
Coping by Talking, Coping-Loved Ones, Coping Peers, Coping-Personal Relationships, Living Situation, Mother Influenced, No Family Nursing, Resilience-Peers, Resilience-Personal, Resilience-Relationships, Stress-Peers, Stress-Relationships, Stress-Social Aspects, Stress Management-Friendship, Worry About Others Not Being Stressed, Need Personal Time, Resilience Friend Group	Personal Relationships
Coping-God, Faith, God's Calling, Nursing a Calling, Resilience-God, Resilience-Relying on God, Resilience-God's Calling, Time With God, God Allows Challenges, God has Helped, School Involves Christ, Remember Everyone is Made in God's Image, Uses Morning Prayer Time, Prayer for Christian Meditation, Father Encouraged Christian Meditation, Relationship With God First, Calming-Time With God, God Source of Peace, Prayer for Stress Relief	Relying Upon God
Mindfulness Meditation-SMA, Resilience, Resilience Antagonists, Resilience-Emotions, Resilience Promoters, Resilience-Self Care, Resilience-Self Reliance, Resilience-Stress Effects, Resilience-Strengthened Through Mistakes, Resilience from Mistakes, No Time for MM, Resilience from Pushing Through, Bible App Improves Resilience, Mindfulness After Clinical, Peace with God	Resilience Through Mindfulness

Note. This table gives a visualization of the original codes, sub-themes and nine themes that were developed from repeated analysis and comparison of the data obtained from interviews and focus groups.

Theme: Varying Definitions of Mindfulness

When asking participants for their definition of mindfulness, it became clear that they had varied answers, and most were not aligned with the actual definition of mindfulness. Kabat-Zinn (2013) defined mindfulness as "paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally" (p. 4). Gathering these varying definitions gave insight into what knowledge students were lacking regarding mindfulness. This information provides a direction

for future education of MM using an SMA. Sifat et al. (2022) noted that students who participated in their study that applied MM thought it was helpful to reduce stress.

Participant definitions varied greatly. “Mindful as attending to others,” “mindful as being alert,” and “limited understanding of mindfulness as present awareness” were the subthemes that emerged from data analysis. The subtheme titles demonstrate how little was known about mindfulness.

Subtheme: Mindful as Attending to Others

The first varying definition of mindfulness was noted when four participants gave descriptions of mindfulness as attending to needs of others by showing thoughtfulness. An example was given of holding open a door for someone or giving directions on campus to find a building. Another participant described it as being thoughtful to other’s needs, such as being quiet in the testing center. Participant Sabrina stated: “I would describe mindfulness as thinking carefully, being attentive, and being intentional in how you do things, and thinking about them a lot. So like, thoughtfulness.”

Further descriptions of mindfulness were also unlike Kabat-Zinn’s (2013) description. Kailynn stated: “Mindfulness is being intentional with your actions.” Finally, Samantha referred to mindfulness as “being thoughtful with your actions.” These answers indicate that the students who were interviewed or spoke in a focus group did not have a clear understanding of what mindfulness really is.

Subtheme: Mindful as Being Alert

Five participants relayed the idea that mindfulness is being alert to what is going on around them. This was yet another varying definition of mindfulness that presented itself in data analysis. Being alert was one common definition given by these students. Tabatha mentioned

being aware of aspects of her life to maintain a balance. Whereas Jaya described this alertness to include being aware of everything she needs to accomplish including assignments and rest time. Further, Keisha simply stated that she felt it meant she should be aware of her actions and act with intention. Kanya described being aware of her actions such as not reaching for her phone frequently.

Finally, Jaylynn differed slightly by noting that for her, being mindful is being aware of her mental and physical state while maintaining an awareness of things going on around her. Participant Jaylynn stated:

> I think mindfulness is probably just focusing on the state of your mind and your body and separating yourself from where you actually are and everything that's going around you, and just focusing on your physical state or your mental state and just trying to be aware of where you are and if you're really stressed, trying to relax yourself, if that makes sense.

An additional statement by Jaya demonstrated the thought that mindfulness was being alert and aware of your actions. She stated:

> Mindfulness goes along with responsibility because I have the opposite problem where it's like I know I have a lot of stuff to get done, but because I know that I can't get it done, and so for me it's making sure that while I am enjoying time to rest, I'm also making sure that I get all of my assignments done and that I do it well and that I make sure I plan out my time so that everything gets done, is done well, and it's done by the due date and that I'm ready for my tests, my quizzes, and whatever comes up.

Jaya's comments differed from others who had a limited awareness of mindfulness.

Subtheme: Limited Understanding of Mindfulness as Present Awareness

Finally, six participants had limited understanding of mindfulness as awareness of the present moment providing the third definition of mindfulness noted from participants. Emma noted that she felt it meant being self-aware of where she is at mentally. Denise suggested that it meant taking a break from her life happenings to breathe, reflect, and exist. Additionally, Gemma, Hannah, and Erin noted that it meant keeping their thoughts from wandering and staying focused on what they need to get done at the time. These ideas differ from the meaning of mindfulness in the present moment.

Mindfulness in the present moment refers to sitting quietly and focusing on breathing, sounds or feelings that are currently happening (Kabat-Zinn, 2013). Participant Delaney gave a good definition:

> I think mindfulness really, at least to me when I think about it, I think about just kind of taking a break from whatever's going on in your life and just taking a minute, first of all, to breathe, but second of all, to just think and reflect and just... I always think of it as taking a few minutes to just exist and to stop doing, doing, doing, and to just be for a few, even if it's just a few moments. That's what I've always thought of. I guess I don't have a very formal definition.

Another description that was shared by Erin gave her definition of mindfulness that was somewhat different from the actual definition of mindfulness. She stated:

> You need to do this, you have to do this, or this person said this, this person says this. And it's rising above that. And just being aware of I guess, what's going around you, what's going on in you spiritually. And it is just being aware and not being consumed by everything.

These descriptions of mindfulness give the reader insight into the participants' thoughts regarding their understanding of mindfulness. Knowledge and attitudes are reviewed next.

Theme: Preconceptions About Meditation

Lahtinen et al. (2023) found that a MM SMA for university students decreased stress in small amounts. However, dropout from participation was 28%. Further, Szinay et al. (2021) conducted a qualitative study to determine reasons that keep people from using MM SMAs. It was noted that 20% use the app after downloading it and only 3.3% after 30 days. Findings from this qualitative case study revealed that many students were not aware of MM with an SMA or had misinformation regarding what it is. All students had feelings that praying and Bible study were a better way to relieve stress. Some students were aware of the helpfulness of MM with an SMA.

Of the participants, Sabrina did not know much about mindfulness meditation; however, she heard that the benefits included reducing stress and calming the mind. This description was the closest to understanding what mindfulness meditation really does. Bailey and Sarah related MM to yoga, which is an activity that uses MM techniques such as focusing on breathing and calming the mind. Further, Erin experienced it from what her father taught her, which was laying quietly and pushing out thoughts. Additionally, Sabrina and Samantha noted that it meant sitting and reflecting on thoughts which is the opposite of what MM aims to do. The subthemes that emerged to fall under the theme of "preconceptions about meditation" were: "Lack of awareness of meditation," "association with New Age or Eastern religion," "desire to do Bible reading and prayer instead of MM," and "helpfulness of MM."

Subtheme: Lack of Awareness of Meditation

Three participants had meaningful exposure to MM. The remaining 22 participants had little exposure to meditation and therefore did not have a clear understanding and presented varying preconceptions about mindfulness. Sabrina did not know much about mindfulness meditation; however, she heard that the benefits included reducing stress and calming the mind. Bailey and Sarah related MM to yoga, which is an activity that uses MM techniques such as focusing on breathing and calming the mind. Sarah stated:

> When your mind is continuously booked with thoughts. I know meditation can be used in yoga. I've used it in yoga before where you sort of are quieting the mind and just taking a break from running from thought to thought to thought.

Further, Erin experienced it from what her father taught her, which was laying quietly and pushing out all thoughts. Yet, Sabrina and Samantha noted that it meant sitting and reflecting on thoughts. Sabrina stated, “I don't think I know a whole lot about it. I feel like when I think of meditation, I think of people sitting in a quiet space, just reflecting on thoughts.”

Subtheme: Association with Eastern or New Age Religion

Four participants had the opinion that MM was associated with Eastern religion or New Age religion. This subtheme was clearly a preconception about mindfulness in the modern mindfulness meditation. Eastern Religion includes Buddhism, which is well known in culture even though mindfulness started in India and China (Kabat-Zinn, 2013). The Buddha referenced mindfulness as a direct path to being free from suffering.

New Age religion includes meditation but was noted by Erin to include crystals and varying beliefs that do not focus on God. Because the students interviewed were from a Christian university, these students held a negative association of MM due to the belief that it involved New Age religion practices. Erin wanted to remain with Christian values so felt MM was bad.

Similarly, Eileen, Samantha and Erin connected MM to Buddhism, so they felt it was against Christianity. These participants noted that they would rather pray and meditate on the word of God.

These feelings that MM was associated with Buddhism were shared by Erin. She stated:

> I think there's different views of meditation because you have the Buddhist monk's idea of meditation [that] is so much different than from what I would believe is meditation as a Christian. It is just the idea of there's [sic] different principles and different aspects of meditation that I feel like aren't necessarily spiritual in the way they should be.

Erin shared these same beliefs and noted, "I would meditate on the word and on the Lord. I wouldn't meditate in the sense of, oh, being one with the earth and with your chakra center. That's not the meditation I would ever practice."

Subtheme: Desire to Bible Reading and Prayer Instead of MM

Perhaps due to participants attending a Christian university, all participants felt that instead of MM, they would prefer to meditate on the Bible and God's word. One participant, Danielle, did state that she enjoyed MM with an SMA. Jaylynn also mentioned doing deep breathing, but meditation on God's word was still her preferred method. Keisha suggested that she used to do MM but switched to prayer and devotion. Shelby and Ariah agreed that their form of MM is a devotion. Finally, Keisha mentioned that professors have a virtue and devotion at the beginning of class and that is the form of meditation that she enjoys.

The desire to do Bible study and prayer was mentioned by every participant in this study. Samantha's statement represented these feelings.

> So, taking a step away to breathe, and praying, or [reading] God's word or to listen to worship, or even to just organize what you want to do. I feel like that can be interpreted as mindfulness meditation, but I think that's how I would interpret it.

These feelings were further reinforced by Jaylynn and her statement explained better why students at a Christian university might choose prayer and Bible reading over MM with an SMA. Jaylynn shared:

> I feel like meditation for me is just kind of doing some deep breathing, relaxing, closing my eyes and just being in the moment and being present and also praying because I know for some cultures, meditation can be kind of so spiritual to the point where you're kind of talking to different spirits, but as a Christian, that's obviously not really where I go with it. I pray to the Lord during it, but a lot of times it's also just focusing on myself relaxing and just being in the moment.

Subtheme: Helpfulness of MM

Five participants had positive things to say about MM and its helpfulness. This demonstrates that some students had a positive preconception about MM. Eileen, Emma, Erin, and Keisha felt it would be helpful for students to use it. They agreed that they hadn't heard anything negative about MM. However, Emma described mindfulness from what she learned from her dad as laying down and focusing on one body part. However, she has not done MM herself. Cady experienced MM through a Pilates class and felt it was helpful for her. Keisha stated, "Positively. I don't think there's anything negative about it. I think there's only positive and good experiences and results that can come from it."

Eileen also had positive thoughts about the benefits of MM. She noted:

> I think it would definitely be helpful for students, and maybe it's just you learn on your own to start doing it, just that meditation. Whether it's before your work, after your work, or in the morning, at night, whenever, I think it would definitely be helpful for students to start doing.

Theme: Attitudes Toward Smart Phone Applications

Xu et al. (2021) found that SMA's have become more popular and common in health care, including MM. The benefits of an SMA include cost-effectiveness, availability, and portability. Based on this information, it was expected that young students would be aware of a wide variety of SMAs including those for MM. However, some students were aware of a popular brand name MM SMA, but most had experience with apps that were for health and well-being but not MM. An unexpected finding was that many students were trying to limit their time on their smartphones.

Several participants had prior exposure to health and well-being SMAs. Katrina's dad used Headspace and recommended it her. She didn't feel it worked for her, but still recommends it to others. Kailyn's sister has used apps that include a bible verse for the day or a reminder to breathe. Finally, Shelby noted that she had some health and well-being apps on her Fitbit a few years ago. From data analysis, two subthemes emerged: "Prior exposure to health and well-being SMAs" and "attempts not to use SMAs".

Subtheme: Prior Exposure to Health and Well-being SMAs

Six participants had exposure to health and well-being SMAs. Katrina's dad used Headspace and recommended it her. She did not feel it worked for her, but still recommended it to others. Cady has used the Headspace app to help her go to sleep and noted that it improved her sleep but did not help her with stress. Kanya's sister has used apps that include a Bible verse for

the day or a reminder to breathe. Kanya stated, “I can't remember many of them, but there's apps that just give you a verse for the day or stuff like that. Or there's one that reminds you to breathe occasionally throughout the day. My sister uses a couple of them but I can't think of which one she uses.”

Prior exposure for the participants is limited and mostly comes from knowing someone who used a MM SMA. Participant Katrina stated:

> I don't know. My dad recommended Headspace to me, and just because it doesn't work for me doesn't mean my dad doesn't benefit from it. So, I would recommend everyone just try it. Because if it helps them, then that's good.

Subtheme: Attempts to Not Use Smartphones

An unexpected common theme for many students regarding attitudes towards smartphones was that they were trying to stay away from using smartphones more than necessary. Erin, Hannah, Tabatha, and Sarah try to avoid using their smartphones as much as possible. Tabatha felt that it made her more anxious and noted that a MM class in person might be better. Participant Erin stated: “You want to get rid of the darn thing, but you can't bring yourself to. I want to get rid of it, but then I find myself going on it more, and then I just get stressed about it.”

An additional comment by Sarah further enforced students’ reasoning for staying off their phone. She stated, “I try not to be on my phone too often. I did have a Bible meditation app. But like I said, I'm just not on there often. I don't even know if I have it anymore.” Tabatha further explained, “But to be able to meet in person or if it was a group or something like that to be around people and just to be more present, I feel like you're more present than when you're on your phone.”

Theme: Very Little Knowledge of MM Using an SMA

The themes of "very little knowledge of MM using an SMA," "prior exposure to methods presented in mindfulness SMAs," and "exposure to MM" were developed from answers to questions about MM and knowledge. It was found that participants had "limited exposure" to MM with or without an SMA. Participants also discussed "limited success" when using MM but were aware of several popular "brand names" of MM SMAs.

Emma's statement demonstrates that she knows someone who uses MM with an SMA, but she really does not know anything else about it. She stated,

> Yes. A good friend of mine from home, she's been meditating a lot recently. So, I know my boyfriend does use... He meditates. I think he uses... I don't know if he uses an app, but he definitely uses voiceovers like videos or just sounds or something like that to help him calm down.

Conversely, Delaney was a participant who had used MM with an SMA. Delaney said,

> I've done some mindfulness stuff, I guess. So, when I've gone to therapy in the past, we've done some mindfulness stuff, I guess. And a lot of it starts with just doing breathing exercises and sometimes there's sayings that go with it, sometimes there's things to think about or just to pay attention to the environment that you're in.

Subtheme: Limited Exposure

All participants had some small exposure to MM with or without an SMA. Emma has a friend and boyfriend who meditate, although she was not sure what method her boyfriend uses. She noted that she thought they might be videos. Additionally, Kanya did note that she thought MM with an SMA was commonly used with the population today. Cady believed that MM with

an SMA was not tailored to her personal needs, while Ariah liked it when she did use it. Further, Lynn felt that MM with an SMA would be useful for people who are introverts. Participant Ariah stated,

> Meditation definitely affects me in a way that when I do use it that I feel like, oh, man, I should do this a lot more than I should because after tests, sometimes I would be like, I would try to do some sort of meditation. Or when I am about to go to sleep.

In contrast, several participants had not experienced MM with an SMA themselves but know of someone who has. Erin noted,

> And so that was something my dad always talked about when we were younger, was just the idea of laying down and closing your eyes and just focusing on the tingling in your fingers. That's an idea, I guess, of meditation in a sense.

Erin's definition demonstrated the experience that several students had regarding MM.

Subtheme: Limited Success

Two participants mentioned that MM did not work for them because they had trouble sitting still. Bailey and Cady felt that they couldn't stop and be still or calm their mind enough to participate in MM. Participant Cady stated, "I've tried meditation before. It doesn't really work for me just because I have a huge problem trying to slow down my brain or not getting distracted. Honestly, for me, it…makes me feel antsy."

Conversely, Jaylynn added that being busy and not having time is a limiter to using MM**.** Jaylynn stated:

> I think coming back to the slowing down thing, it's just like the busyness right now. I just haven't really thought about it and had time. I guess I've thought about

> it and I've had time, but I haven't had those two things happen at the same time. So that's probably the biggest thing.

In addition to students feeling they do not have enough time; they noted not being able to calm down and sit for a few minutes.

Subtheme: Brand Names

Seven participants discussed being aware of specific MM SMAs. Headspace was the most mentioned app as Cady, Katrina, Karen, and Gemma heard of it or used it. Delaney noted an app called the Happiness Project and Karen included the Hallow app, which is a Christian devotion app. Karen shared, “So my experience with both Headspace and the Hallow app, I like the Hallow app.”

Bailey and Tabatha have used the Mindfulness app in their Apple watches, which is not a meditation app but a breathing reminder. These comments indicate that there is an amount of knowledge of MM SMAs. Bailey stated,

> Even the Apple watch has a, ‘It's time to breathe.’ Like that thing, I feel like if it did something like that, like, hey, it's time to meditate, it's time to take a break and do this. But it's like if I'm not, I feel like the notification isn't there I'm not going to remember to do it or have that in my mind if it's not there in front of me.

These comments indicate that students do have a basic awareness of certain MM SMAs, but little experience using them. However, students have had exposure.

Theme: Prior Exposure to Methods Presented in Mindfulness SMAs

Mindfulness meditation includes different types of activities. The common ones are the body scan and breathing (Kabat-Zinn, 2013). Participants indicated having experienced some parts of meditation such as “body scan,” “breathing,” “mindful minutes,” and “devotion time,”

which developed into subthemes. Mindful minute exposure occurred in class. Further, all students felt comfortable with devotion time.

The body scan involves listening to a guided meditation in which the guide asks the participant to focus on a part of the body for a specific time and generally moves from one end of the body to the other. Breathing involves focusing on your breathing for the period of the meditation. Mindful minutes are a brief method of relaxing that is also described as MM but used for a minute or less. Students noted that they had experienced some of these techniques themselves or heard about them from someone.

Subtheme: Body Scan

Body scanning is a method used in MM. Two participants mentioned having used this type of MM. Cady and Khloe used the body scan and felt this was a useful activity. Participant Cady stated: “I think I would recommend the body scan but not meditation so much just because... I know that it's beneficial, but I haven't really experienced that myself or know anyone who it helped.”

Keisha has a differing view of the benefits of a body scan. She shared:

> We were already relaxed from all the yoga and the stretches that we did, so I don't think a body scan is necessary because you are already aware of everything in your body and you're just lying there and relaxing, sinking into the ground, really being present.

Body scans are a mainstay practice of MM with breathing being the foundation.

Subtheme: Breathing

Multiple participants experienced using breathing techniques. The most popular one mentioned was box breathing used by Samantha, Bailey, and Eileen. Delaney was introduced to

breathing exercises when she went to a therapist. Gemma and Samantha reported doing deep breathing to calm themselves. Participant Bailey described what four by four or box breathing entails. She said, "It's just when you breathe in for four, hold for four, out for four, hold for four. But it's just, like if I can get my brain to focus on one thing, then we usually are fine."

Delaney had experience with breathing techniques used in mindfulness mediation and shared:

> I've done some mindfulness stuff, I guess. So, when I've gone to therapy in the past, we've done some mindfulness stuff, I guess. And a lot of it starts with just doing breathing exercises and sometimes there's sayings that go with it, sometimes there's things to think about or just to pay attention to the environment that you're in.

Focused breathing is the basis of MM. Further, some students were exposed to mindful minutes.

Subtheme: Mindful Minutes

Mindful minutes are a moment of mindfulness that can be incorporated when there is little time available. Eileen mentioned that she was exposed to the use of mindful minutes in a class that she had. The instructor used this at the beginning of class to calm the students. Participant Eileen stated:

> Yeah, so it was in one of our classes last semester [at] beginning of class. We take a mindful minute. She described to me as just a relax yourself and then try and clear your mind. If a thought comes in, recognize it, and then kick it right back out and just rest in the peace of not having anything in your mind.

Eileen experienced mindful minutes in a class; however, her description differed. She noted:

> My only real experience with it was in one of my classes last semester [when] we were doing mindfulness at the beginning of class, but from what I've experienced, I would probably define it just as, I guess like taking stock of your thoughts and figuring out what's in your mind. When you're aware of that, you can have a better perspective and a better control over it.

Mindful minutes were experienced by some participants, but devotion time was the overall method that students turned to.

Subtheme: Devotion Time

All participants suggested that devotion time was helpful for their stress. Focusing on God in a devotion as opposed to mindfulness meditation in the traditional sense was what most participants indicated was helpful to them. Kanya, Eileen, Kabir, and Gemma especially found the devotions by the instructors at the beginning of class to be helpful for their stress and coping. Participant Delaney stated:

> Meditation, just for an example, I think about when we meditate on scripture, we take a passage or whatever and we focus on that thing instead of whatever else is going on and we really focus in on that.

Additionally, several students credited the instructors as having devotion time at the beginning of class. Students felt this was their meditation time. Gemma shared, “I feel like I'm being supported by them, but also I really like how every week they open in prayer and devotion, and it's just really re-centering our focus on why any of us are here.”

Theme: Exposure to MM

Four students noted a prior experience with MM either experienced personally or by someone that they know. Denise had friends who recommended it to her, and she appreciated it after trying it. Kanya had the experience of participating in a study where students completed MM with an instructor. Additionally, Jaylynn had a clinical experience that was group meditation led by an instructor. She stated, "So, we had one clinical that was just someone talking to us about our stress and mindfulness, and we actually did a group meditation. The leader took us to a little meditation."

Finally, Katrina experienced high school counselors who led a group meditation. She stated:

> But when I was in high school, we had counselors who would help us with meditation and stuff, and that was, I think, more helpful because they're experiencing a situation with you and they can understand that you're moving really fast right now, so they have to keep pace and then start to gradually help calm you down in a way.

Experiencing MM in a class was the common way that students noted encountering the use of MM. This indicates that the classroom, though pressed for time, is a meaningful way that students can learn of MM. Educators could benefit the students by incorporating brief mindfulness encounters in class. Further, challenges of nursing school provide many reasons that students could benefit from MM with an SMA.

Theme: Challenges of Nursing School

Nursing school presents many challenges for the student. Martin et al. (2022) found that nursing students involved in self-reported health behaviors, such as exercise or MM, had better well-being. Additionally, Kaur et al. (2020) determined nursing students' perceptions of stress,

coping, and the clinical site in a qualitative study. Findings indicated that nursing students perceived their clinical classes as stressful. Sunandha et al. (2021) discussed findings of third-year nursing students experiencing moderate stress levels from fear of failure and inadequacy.

Themes were developed from participants' discussions of common stressors and challenges in their academic program. These themes included "challenges of nursing school", "perceptions of the use of MM," and "resilience in nursing school." "Challenges of nursing school" includes three subthemes: "time management," "difficulty of coursework," and "clinical experience."

Subtheme: Time Management

A big challenge that students noted was not having the time in nursing school to do MM with an SMA. Delaney and Emma suggested that finding the time and a quiet place is difficult for the nursing student. Participant Emma stated:

> I think honestly just sitting down and making sure that I have the time to do it, especially being at college, I feel like there's constantly noise all around me. So just finding a better space, I think, to sit down and do it would be good.

Delaney shared that time management was a problem. Most students felt that they had so much coursework to do that fitting in another task was difficult. The idea of self-care was not often valued in these participants. Delaney shared:

> And I just feel like a lot of times preconceptions that people [have] can get in the way of them doing it. And also, just it being in the wrong mindset that it takes so much time. Like I said, I was like [sic]: well, I don't have 15 minutes to sit down and do this. It's like, well, you don't need 15 minutes.

Time management was discussed by most of the participants as a common stressor in nursing school. Abby addressed the feeling of stress so that the reader can better understand.

> For me, I feel like with stress, it just feels like this weight on your shoulders where you're like, oh, I have so much to get done, and I don't know if I have the time to get everything that I have to do done [sic]. And I don't know if I can allot enough time to each thing to the best of my ability, everything I could do. And it just feels like every little thing, even when you're getting one assignment done, you're like, oh, I shouldn't be spending this much time on this assignment because I should be focusing on this instead.

Abby's comment exemplifies how nursing students feel about their stressful schedules. Further, the difficulty of coursework increases the demands on students' schedules.

Subtheme: Difficulty of Coursework

Four students noted that difficult coursework was a big stressor in nursing school and created a great challenge for them. Kabir noted that his grandmother warned him of this problem and that nursing school was designed this way to build resilience. Emma felt that having MM incorporated in class would help with resilience. She noted, "I think especially in nursing class because it's a big source of stress for us. So, I think incorporating something that helps with relaxation would help counteract that stress and make it less of a daunting thing." Samantha suggested that the difficulty of nursing school caused her to miss assignments, but that this enhanced her resilience.

Finally, Tabatha addressed the difficulty of nursing school with higher standards of work expected. Tabatha stated, "I do think that a lot of us, as nursing students, we're held to a higher standard with our work and our work ethic." In addition to difficult coursework, clinical classes add another dimension of stress for the nursing student.

Subtheme: Clinical Experience

Several participants discussed the difficulty of dealing with the clinical experience and stresses involved. Clinical classes are challenging for the nursing student. Eileen felt that having MM with an SMA could help a nursing student transition from the difficulty of clinical days to going home and not taking the difficulties with them. Katrina felt that she gets very stressed with clinical courses because it is what she called "a big situation."

Further, Hope acknowledged the difficulties and stress of clinical rotations for nursing students. Hope stated her realization of stress from the clinical experience:

> And there's also the nervousness of patient interaction because aside from clinicals, we're working on mannequins or other classmates and stuff, so there's not this aspect of the patient and then there's also the patient's family [that we] have to talk to. And so, it adds a level of unknown and it's a variable that you're not [sic], the patient could do anything. You could have a patient who's like, oh, I don't want a student nurse. And then it's stressful.

Eileen had different views of why clinical courses were stressful which she shared in her interview:

> One thing I was thinking about is another benefit it could have been [sic] I know that they've been talking a lot about trauma seems like a strong word for it, but the effect of what nursing students are experiencing and seeing in clinicals and how that's affecting them. I was thinking that maybe this would even be helpful for after clinical. Before you leave the hospital, find a spot to take that mindful time and maybe that could help create a separation, I guess, so that way you're not carrying everything that you were thinking about and seeing and experiencing from the clinical shift into the rest of your day and into the rest of your week.

Erin and the other students gave thorough descriptions of why clinicals cause so much stress for them. MM would be a helpful method to relieve this stress. Next, student perceptions of the use of MM will be reviewed.

Theme: Perceptions of the Use of Mindfulness Meditation

Six participants had heard of MM with an SMA for resilience and stress and agreed that it would be helpful for nursing students. Eileen, Jaylynn, Sabrina, Delaney, and Lynn noted that it was or would be helpful to reset and calm the mind. Eileen, Jaylynn, and Delaney have

experienced MM with an SMA. However, Cadence noted that she had not had any experience with an app before. Participant Jaylynn stated:

> So, we actually just went over mindfulness exercises in one of our nursing classes and one of our assignments was to do one of those exercises. So that's why it gets a little fresher for me, but a lot of the things that we did that I really enjoyed is even writing down things you're grateful for.

Sabrina and Jaylynn admitted to only hearing about MM. However, Delaney shared her experience:

> I think the app is nice because I can look at it as I'm doing it and it's guided. I'm not on my own doing it. ...Yeah, there was one app I was using just to use it for guided meditations. I forget the name of the app. And there was a subscription needed, so I only did the free ones. But they were nice.

Theme: Resilience in Nursing School

Participants discussed many ways their resilience is improved in nursing school. There are varied things from which they draw strength. Some common sources of resilience were "relying on the reasons they decided to attend nursing school," "getting themselves organized," "good relationships with instructors," "supportive personal relationships," "strength from relying on God," and "resilience drawn from the use of MM techniques." These subthemes all were noted by students to assist in developing resilience in nursing school. Most of the responses did not mention knowing that MM with an SMA could improve resilience.

Findings that supported this theme indicated that students need much additional education regarding how effective MM can be in improving resilience. If introduced in the classroom, the benefits to not only stress management but also resilience improvement can be

included. Nursing students require resilience to make it through the rigorous academic nursing program. Additionally, students can learn from each other.

Subtheme: Relying Upon Reasons for Attending Nursing School

Five students reported thinking back to the reasons they entered nursing school to build up their resilience to the difficulties they experienced during school. Eileen noted remembering why she decided to become a nurse, while Samantha appreciated the good parts of nursing school such as meeting patients to improve her resilience. Lynn stated:

> I definitely think that despite the stress that we experience on the daily [basis] with studying for tests and keeping up with everything, I think the point where I really feel that contentment of, this is what I want to do, and I know it's hard, but I've got to get through it and it'll be better.

Additionally, Samantha responded with her feelings regarding remembering why she chose the nursing academic path. She shared:

> I wouldn't have met any of the patients that I have up until now after my first semester of junior year, [sic] that I've been able to pray for, that I've been able to talk with, that I've been able to serve, that I've been able to show that they matter. I wouldn't have met any of these people if it wasn't for my failure, but it was, in the long run [sic] failure is what breeds the proper success, because after you've made a mistake, you now know what to do right, and you now know how to perform.

Many students relied on remembering why they chose to become a nurse, which is demonstrated by the participant statements. Participants as a whole chose the nursing profession to help others. Additionally, participants determined that changing their thought processes to

remain dedicated and focused while becoming organized would assist them in meeting the challenges of nursing school.

Subtheme: Getting Organized, Dedicated and Focused

Four participants promoted their resilience by organizing their time so they could accomplish all that nursing school required of them. Erin appreciated a wellness workshop that the school offered to improve resilience. Additionally, Erin made lists to become organized with her time. Further, Shelby felt her resilience was improved when using specific study habits. Participant Erin stated, "There's a lot going on, but I'm just going to write a list of what I want to get done today, what I want to get done tomorrow, and what I want to get done the next day."

Additionally, Delaney discussed how her friend helped her get past her feeling of being overwhelmed, which improved her resilience. The friend helped her set up a schedule to accomplish tasks. Delaney stated, "And then she's like once you do that, then we're going to make a timeline. We'll figure it out." These methods helped student improve resilience, but all participants also relied on good relationships with their professors.

Subtheme: Instructor Relationships

All participants spoke of resilience enhancement because of things that instructors did for them. Lara discussed that professors affected resilience greatly with devotionals and helping students to see that their strength comes from God. Kanya and Samantha echoed these sentiments by noting that instructors are helpful and encouraging. Lara stated:

> And I would say resilience is also bouncing back, but also having an enduring strength within you and how [sic] I practice resilience. I think the professors here have a really big impact on that with the devotionals before class and allowing us to realize that our strength doesn't come from within ourselves and it's from God.

> And that he will get us through and realizing that his mercies are new every morning and that we can just tackle everything daily and giving it up to him and that we can continue not on our own strength.

Kanya reiterated the other student's sentiments about their professors when she shared, "Professors are super encouraging, and we always know we can go to them." Most students in the study echoed similar comments about the instructors. In addition, many had personal relationships that improved resilience. However, remembering the personal reasons for entering the program supported some students. Eileen stated, "I think for nursing school, probably just a sense of, I think my resilience in nursing school comes from more like they always say, remember your why of why you're in nursing school."

Subtheme: Personal Relationships

Five participants indicated personal relationships that improved their resilience. Keisha noted that having an unshakable faith assisted her in gaining resilience in her personal relationships. Hope and Emma felt that they gained resilience from the people that they surrounded themselves with. Delaney noted a good friendship and advice that improved her resilience in nursing school. Finally, Ariah found improved resilience in a relationship with her mother. Ariah told her mother when she was going to study so that her mother could hold her accountable. Ariah stated, "I tell my mom when I'm stressed and then she talks me through it, and she holds me accountable to when I say, oh, I'm going to the library. And then I'll tell her later, yep, I went to the library."

A good description of how personal relationships helped with resilience was given by Hope. She shared:

> And I'd say that a lot of my endurance and resilience comes from the people I surround myself with too, especially when studying, having people to be able to push you and especially professors with the devotionals and having accountability. [Having] people that can say, this is the habit you're trying to form, or this is what you're trying to accomplish. I'm going to hold you to that.

Resilience based on peers, such as Hope described, assisted in participants' development of resilience. However, relying on God was the foremost method that participants discussed.

Subtheme: Relying Upon God

Four participants discussed improving resilience through a reliance on God. Eileen felt it was important to remember her love of Christ. Further, Samantha noted that nursing was God's plan for her life, and that would strengthen her resilience to continue and be successful in nursing school. Finally, Cady improved her resilience with praying and Samantha drew strength from Bible reading. Eileen stated, "it's also especially important that a lot of us, our nursing career will be based on our faith, and the aspect of our purpose in nursing also is to share the love of Christ."

Still, Samantha shared how her resilience is affected by her faith. She stated, "I'm going to keep working and keep pushing hard. I'm going to keep fighting for this because I know this is what God has for me."

Subtheme: Resilience Through Mindfulness Techniques

Three participants addressed using MM techniques to improve their resilience. Cady used grounding techniques to help her with stress from exams. Erin attended a wellness workshop at school that helped her with MM methods to improve resilience and be healthier. Keisha noted

that MM techniques were available, and she had a strong desire to learn them to improve her resilience. Participant Cady stated, "Psychological grounding techniques is something that helps me during exams and things."

Improving resilience through mindfulness techniques was not as popular as using personal faith. However, Cady stated:

> So, I guess that's the big thing is just finding something with your hands. I know one where you pat and then it creates the rhythm, and that really helps. But yeah, just some actual grounding techniques can really help me reset so I can keep going.

Survey Results

Of the 25 participants that participated in either a focus group or individual interview, all 25 were from the group of 91 who completed surveys to explore descriptive data regarding perceived stress, resilience, and mindfulness. In this section, the results of the data screening for the research questions are displayed. This includes the data obtained from the surveys PSS, BRS, and MAAS. Additionally, demographic data are presented. Tables will be used to display the collected data.

Perceived Stress Scale

The PSS included 10 items. Because of the length of this assessment, only relevant items are discussed below. A complete accounting of the participant responses can be found in Appendix R. The total perceived stress score indicates how often participants have found their lives to be uncontrollable, unpredictable, and overloaded in the last month (Cohen et al., 1983). The overall participant scores are presented in Table 12. Of note, as the scores rose, the number of participants did too.

Table 11

Total Perceived Stress

Total Perceived Stress Score	*N*	%
6-11	7	7.7
12-17	25	27.5
18-23	37	40.7
24-29	21	23.1
30-35	1	1.1

Note. $n = 91$. Mean score = 19.54

Table 11 illustrates that pre-licensure, BSN students are experiencing high stress levels. However, 40 is the highest possible score, and participants did not score above 32. This indicates that students are stressed but not at the maximum level. Thus, having examined the data above, participants scores indicate a need for a method to manage stress. Student answers indicate they do not feel that they are in control of important situations in their lives. Further, a moderate amount of stress can be seen by the scores in Table 8.

Brief Resilience Scale

The Brief Resilience Scale contains six items. Relevant scores will be discussed below due to the length. A complete accounting of the participant responses can be found in Appendix Q. The total BRS score indicates how much participants can bounce back from difficulties (B. W. Smith et al., 2008). As seen in Table 12, the lowest and highest scores had fewer participants. However, the majority of participant's scored in the middle ranges.

Table 12

Total Brief Resilience Scale

Resilience Score	*N*	%
13-16	15	16.5
17-20	30	33
21-24	41	45.1
25-28	5	5.54

Note. $n = 91$. Mean score = 20.78

Table 12 shows more participants in the moderate resilience area. However, the numbers with low resilience are higher than expected. This indicates a need for a way that students can promote their resilience. Therefore, MM, which has been proven to improve resilience, would be useful for this population. Kwon (2023) found that meditation benefited nurses with increased resilience and decreased depression. Kwon's study recommendations included incorporating meditation earlier in the nurse's career to provide greater help.

Mindfulness Awareness Assessment Survey

The MAAS contains 15 items. Relevant scores will be discussed below. However, a complete accounting of the participant responses can be found in Appendix T. A total mindfulness awareness score indicates how mindful the participant is. Brown and Ryan (2003) describe this as an open state of mind that can attend to the present and observe what is going on in the present moment. Higher scores indicate greater mindfulness awareness. MAAS scores are presented below.

Table 13

Mindfulness Awareness Assessment Survey

Mindfulness Awareness Score	*N*	%
20-29	4	4.4
30-39	9	9.9
40-49	24	26.4
50-59	30	33
60-69	16	17.6
70-79	8	8.8

Note. $n = 91$. Mean score = 52.19

Scores for the MAAS were distributed throughout the range from low to high. Participants indicated in interview questions that most did not have good definition of what mindfulness is. However, scores on the scale are divided somewhat equally between low, medium, and high. Participants had a mean score of 52.19% for mindfulness with 79 as the highest score. Additionally, 8.8% of these students scored in the highest category for mindfulness. These scores indicate that students perceive themselves as mindful. Yet, one theme that emerged was mindfulness as caring for others, which does not coincide with Kabat-Zinn's (2013) definition of mindfulness. Further, scores indicate that one third of the students have low mindfulness. This provides a goal for future education.

Research Question Responses

This section provides responses to the research questions. These responses allowed the participants to understand the knowledge of pre-licensure, BSN students regarding the use of MM with an SMA to manage stress and promote resilience The voices of the participants and document analysis provided the reader with a clear picture of the current state of students' knowledge of using MM with an SMA to manage stress and promote resilience while providing a pathway for improving that knowledge and use of MM with an SMA.

A review of the responses included direct quotes from the participants to ensure that their questions are grounded and generate this research. Between the interviews, focus groups, and surveys, there was a structure in the responses. Therefore, it provided the research with richer data as the participants had an opportunity to thoughtfully describe their experiences and express their beliefs. The document analysis informed the answers to the research questions because it provided additional data and context related to the students' experiences with MM using an SMA.

The central question for this research study was: "What is pre-licensure Bachelor of Science of Nursing (BSN) students' knowledge of mindfulness meditation using a smartphone app to manage stress and promote resilience?" Participants had varying degrees of exposure and use of MM. There was limited knowledge of MM using an SMA with all students indicating that prayer, bible reading, and devotion were their preferred means of meditating.

Further, a few students had been exposed to MM during a class with an instructor and one student had previously participated in a research study in which she used MM. This supports the themes of "very little knowledge of MM using an SMA," "prior exposure to methods presented in mindfulness SMAs," "exposure to MM," "perceptions of the use of MM with an SMA," "varying definitions of "mindfulness," "preconceptions about meditation," and "attitudes toward SMAs." Participant Delaney stated:

> I've done some mindfulness stuff, I guess. So, when I've gone to therapy in the past, we've done some mindfulness stuff, I guess. And a lot of it starts with just doing breathing exercises and sometimes there's sayings that go with it, sometimes there's things to think about or just to pay attention to the environment that you're in.

Several students noted experience with components of MM such as breathing. Participant Eileen stated, “Going from super overwhelmed right into super anxious, I think four-by-four breathing is really helpful for that because it allows you to slow down your sympathetic nervous system.” While the theme “prior exposure to methods presented in mindfulness SMAs” was addressed frequently as the students’ using devotions and prayer. Participant Cady stated: “For me, I think devotions help because it's just a time to slow down and [it] gets you thinking on what's right and wrong.”

When participants were asked about exposure to MM, participant Keisha stated, “I did a mindfulness study in 2019.” Additionally, participant Jaylynn stated, “So we had one clinical that was just someone talking to us about our stress and mindfulness, and we actually did a group meditation. The leader took us to a little meditation.” However, use of MM with an SMA was limited for the participants. Delaney was one of the few who had used it. Delaney stated,

> I think the app is nice because I can look at it as I'm doing it and it's guided. I'm not on my own doing it… yeah, there was one app I was using just to use it for guided meditations. I forget the name of the app. And there was a subscription needed, so I only did the free ones, but they were nice.

Sub Question One

The first sub question was, “What has the prelicensure BSN student experienced regarding MM with an SMA?” The themes of “varying definitions of mindfulness,” “preconceptions about meditation,” and “attitudes toward SMAs” emerged through conversation with participants and analyzing interview and focus group data repeatedly. A subtheme. “mindfulness as being attentive to others,” emerged and is represented in a comment by Keisha. “Mindfulness is being intentional with your actions.” This was reinforced by Sabrina’s comment,

“And then, even in the testing center, I'm very mindful to others around me, and to not be disruptive, and to focus on me and my exam. Yeah, I say that's what I've been mindful of in the program so far.” These comments represent a different view of mindfulness that these students had as opposed to the definition given by Kabat-Zinn (2005), "paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally" (p. 4).

Participants had “preconceptions about MM,” which was developed as a subtheme based on shared information in discussion. Jaylynn shared her perception of MM, which was the closest to what mindfulness meditation is but still not correct. Participant Jaylynn stated,

> I think mindfulness is probably just focusing on the state of your mind and your body and separating yourself from where you actually are and everything that's going around you, and just focusing on your physical state or your mental state and just trying to be aware of where you are and if you're really stressed, trying to relax yourself if that makes sense.

Further, the subtheme of “limited understanding and awareness of MM” became evident when analyzing data. Participant Erin stated,

> You need to do this, you have to do this, or this person said this, this person says this. And it's rising above that. And just being aware of I guess, what's going around you, what's going on in you spiritually. And it is just being aware and not being consumed by everything.

“Limited understanding and awareness of MM” was further demonstrated by participant Samantha’s statement, “Meditation I would describe that as thinking about something, like sitting on something in your mind almost, and just thinking about something. That's how I would

describe it." This subtheme demonstrates the need for education regarding what MM is before introducing it to students as a method to manage stress and improve resilience.

Another sub theme of the theme "preconceptions of MM" was the idea that MM was "associated with Eastern and New Age religion." Some participants had a brief understanding based on things they had heard or people they knew who practiced this type of meditation. Participant Erin shared,

> And so, I think there's some aspects of meditation that promote the idea that man is the most valuable thing and that there's nothing above it. I think the type of meditation that I was thinking of, that I don't necessarily agree with, was I have aunts and stuff and they do the whole thing with candles and crystals, and it's that kind of idea that to me it's like, well, you're trying to be, I guess they say one with yourself. It's that sense I don't agree with.

There appeared to be a general thought among the participants that meditation itself needed to be rooted in God's word. This was exemplified in Eileen's comment:

> I think we have gotten, like you said, far enough to where it's not like Buddhism and Hinduism and all this karma and all that stuff, but I think there is still a sort of stigma around it as a whole [sic]. Just that the idea that if you're doing this, is it because you're not praying enough or is it because you're not [sic]? Is your relationship with the Lord not where it's supposed to be because you're having to do this kind of thing.

The subtheme "desire to do Bible reading and praying" emerged from the data. Participants appeared to feel guilty if they chose to use MM and did not see it as an adjunct activity not meant to replace religion, but to be used as an additional method to

deal with stress. Participant Kanya stated, “I would say mindfulness meditation is setting that time apart every day to be intentional about... Mine would be reading the Bible or praying.”

Another subtheme that emerged was “helpfulness of MM.” Participants who had experienced MM shared what it was about it that helped them. Participant Emma stated, “Honestly, I really haven't heard of anybody who hasn't been helped with the meditation aspect of it. Most say that it's a really good thing to do.”

The final theme that emerged was “attitudes toward SMAs,” which encompassed two subthemes. The first subtheme is “prior exposure to health and well-being SMAs.” Students were asked about what health and well-being apps they had used or knew about. Participant Kanya stated,

> I can't remember many of them, but there's apps that just give you a verse for the day or stuff like that. Or there's one that reminds you [to] breathe occasionally throughout the day. My sister uses a couple of them, but I can't think of which one she uses.

The final subtheme that presented itself was “attempts not to use smartphones.” The student comments that fell into this subtheme indicated that some had tried fasting from their phones and had desires to use them less, making the idea of using an SMA for MM not desirable to them. Hannah demonstrated this with her comment, “I really do try to stay off my phone. I just did a three-week fast from all non-school related internet and I cannot tell you the difference I felt in my personality, in my stress levels, and everything.”

Sub Question Two

Sub Question Two stated, “What do prelicensure, BSN students know about MM using an SMA to manage stress?” The participants had very little exposure to MM or MM with an SMA and many did not have a correct definition, based on discussions with the participants and subsequent transcription analysis. Only three students gave a definition that was close to the meaning of mindfulness as given by Kabat-Zinn (2013). The theme “Very Little Knowledge of MM With an SMA” emerged with a subtheme of “Limited Exposure”. For example, participant Emma stated:

> A good friend of mine from home, she's been meditating a lot recently. So, I know my boyfriend does use, he meditates. I think he uses; I don't know if he uses an app, but he definitely uses voiceovers like videos or just sounds or something like that to help him calm down.

Several participants knew of friends or a parent who had used MM with an SMA.

Additionally, participants were able to note specific brand names of MM SMAs, but most had no personal experience. However, participant Katrina stated,

> I've used an app before. I've used the Headspace app, which I think is a pretty popular one. I don't know. I usually use it to help me fall asleep, but I kind of agree that oftentimes when using it I can’t sit still like my dad. He uses it at the end of his workday. When he's driving home, he'll listen to one of the Headspace.

In contrast, participant Serena noted, “that she did not have any apps for meditation and did not know of anyone else who did either.”

The subtheme “limited success” was demonstrated by participant Cady’s thoughts:

> I feel like it's not guided well enough or personalized, which is hard because you're using an app. But I felt like it wasn't tailored well to my certain experience with stress because I couldn't get my brain to slow down.

Several participants had feelings like Cady's that they had to be moving all the time and could not slow down to meditate. However, the point of meditation is to make your brain and body slow down and relax.

Some participants were aware of specific MM SMAs through personal use or hearing of another person using them. Karen was aware of two SMAs and noted: "So my experience is with both Headspace and the Hallow app, I like the Hallow app." It should be noted that the Hallow app is a Christian devotional app while Headspace is a well-known MM SMA.

An additional subtheme was detected with analysis that students had "prior exposure to components of MM" such as the subthemes of "breathing," "body scans," and "mindful minutes." The subtheme "devotions" was included because of the prominence of analyzed data. Samantha summed up a common exposure to "breathing" that several students shared: "I think meditation is like four-by-four breathing." Additionally, Bailey shared, "I do like box breathing, I like that one."

"Body scan," a subtheme, is a method of MM in which the participant slowly scans the body. Cady noted,

> I would recommend the body scan. But as far as meditation for more mental stress, I haven't seen the benefits, but I would still recommend that other people try it just because I haven't seen it, but that doesn't mean someone else might not.

This quote shows that Cady found the body scan useful but felt that MM was not useful to her.

Several students had experience with another subtheme of "mindful minutes." Mindful minutes are moment of taking time to breathe and focus on relaxing. Participant Eileen stated,

> My only real experience with it was in one of my classes last semester; we were doing mindfulness at the beginning of class, but from what I've experienced, I would probably define it just as, I guess like taking stock of your thoughts and figuring out what's in your mind. When you're aware of that, you can have a better perspective and a better control over it.

Even though Eileen experienced mindful minutes, she did not have a clear understanding of mindfulness meditation.

Finally, the subtheme of "devotion time" was gained from analyzing data from interviews and focus groups. Instructors have virtues of the week and a devotion at the beginning of class each week. Participant Gemma stated, "I feel like I'm being supported by them, but also I really like how every week they open in prayer and devotion, and it's just really re-centering our focus on why any of us are here [sic]."

Sub Question Three

Sub question three was, "What do prelicensure BSN students know about MM using an SMA to promote resilience?" Participant Jaylynn shared her knowledge about MM SMAs and was happy to hear more about it. Her comment discussed her personal exposure regarding MM with an SMA. Jaylynn stated,

> I've heard a lot about it, especially I've heard about some where it kind of guides you through the meditation, so I guess kind of the video that lady played for us,

> except it's on your phone and I feel like that would be really beneficial, but I just personally haven't done it yet. The only thing I think is that I feel like people need to know more about it, which we already touched on, but I just think that it's not talked about enough, which is why when you were talking about doing your research on it, that really just thrills me and makes me really excited.

Summary

In this chapter, themes that emerged from the participants' focus groups and interviews and developed codes and themes through document analysis were closely reviewed. Further, survey data was analyzed for descriptive information. Survey data through the PSS, BRS and MAAS provided a description of the participants' level of perceived stress, resilience, and mindfulness. The data lent an understanding of participants' viewpoints when combined with interview and focus group data. This researcher was able to systematically develop and discuss nine major themes through repeated reading and analysis of data, providing evidence grounded in the participant's statements and opinions. Data gathering included the development of codes, grouping like codes, and developing themes to describe participant's responses.

Pre-licensure, BSN students' knowledge of MM with an SMA to manage stress and promote resilience was thoroughly explored through triangulation of the data. Triangulation improves the study's validity by adding additional data sources that offer several benefits that offset the extra time and work involved for the researcher (Bans-Akutey & Tiimub, 2021). Benefits include further confirmation of findings, improved comprehension of the subject, and additional credibility and validity. Furthermore, triangulation was used in this study by incorporating surveys, interviews, and focus groups. By utilizing data from surveys, interviews and focus groups, participants opinions and feelings were obtained and validated.

The sample consisted of 91 participants who completed surveys. From the sample of 91, 14 participants volunteered and participated in interviews and 11 participated in one of two focus groups, providing a saturation of data. Transcription was performed and coding was accomplished with the Atlas ti program. From the codes, themes were developed through repeated analysis of the data.

The data obtained indicated the need for further education and demonstration of MM techniques with an SMA. Student knowledge was lacking regarding their understanding of mindfulness and mediation. Some students experienced MM firsthand or knew of another person who used it and most were willing to try MM with an SMA if provided an opportunity. Additionally, this researcher's data collection process and analysis of data provided this study with clear and concise answers to the central research question and three sub-questions. This data imparted the written commentaries and thematic analysis that assist the reader in making correlations between the data and the research questions.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this case study was to explore prelicensure, BSN students' knowledge of the use of MM with an SMA to manage stress and promote resilience. The methodology propelled the data collection. The surveys, interviews and focus groups, and subsequent document analysis assisted in developing the thematic analysis to demonstrate the result of the exploration. The data collection methods allowed for a logical way to closely review the content knowledge based on the theoretical constructs of this study. The document analysis revealed the nature of experiences that support the findings of BSN student knowledge of MM with an SMA for stress management and resilience promotion. Chapter Five includes discussion that gives the reader a look at the overall picture of the study and integrate all the pieces together. Chapter Five includes the discussion of five subsections: summary of the findings, discussion of the findings and implications related to relevant literature and theory, practical and methodological implications, limitations and delimitations, and recommendations for future research.

Discussion

The purpose of this section is to discuss the study's findings obtained from the themes discussed in Chapter Four and survey data. This discussion establishes the researcher's voice as the expert on the topic for this study. These findings were based on empirical literature and the evidence obtained by this researcher. Findings, themes, and implications for future research will be discussed. Finally, the data from the study was used with empirical evidence to support the research claims.

Interpretation of Findings

McVeigh et al. (2021) conducted research which revealed that 78% of nursing students found MM beneficial, and many desired an SMA. Participants in this case study gave differing responses. Danielle and Kennedy stated that they used MM SMAs sometimes. Lauren felt that MM SMAs would be for introverts, Sofia stated she would be willing to try MM SMAs, and Tessa found her phone distracting. This section will meaningfully review a summary of the key themes. This will elicit the major components of the study, grounded in the overall themes, and review the interpretation of the findings of the study.

Summary of Thematic Findings

Nine themes were determined from the accumulated data which included: "varying definitions of mindfulness," "preconceptions about meditation," "attitudes toward smartphone applications," "very little knowledge of MM using an SMA," "prior exposure to methods presented in mindfulness SMAs," "exposure to MM," "challenges of nursing school," "perceptions of the use of MM with an SMA," and "resilience in nursing school." Connections were made from these themes to address the central research question and sub questions. Table 14 presents the thematic findings of this study.

Table 14

Representation and Visualization of Data

Themes	Interview and Focus Group Sections Where Themes Emerged (ie. Part One - stress questions, Part two - resilience questions and Part three - mindfulness)	Relationship to Literature	Participant Quotes Addressing the Research Questions
Varying Definitions of Mindfulness	Part Three	Kabat-Zinn (2013) defined mindfulness as "paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally" (pg. 4).	RQ1a: Erin stated: "And it is just being aware and not being consumed by everything".
Knowledge and Attitudes Towards MM	Part Three	McVeigh et al. (2021) found that participants described mindfulness in different ways including being mindful of others.	RQ1a: Participant Sabrina stated: "I would describe mindfulness as thinking carefully, being attentive, and being intentional in how you do things, and thinking about them a lot. So like, thoughtfulness."
Attitudes Towards SMAs	Part Three	Spadaro and Hunker (2021) noted that nursing student participant's requested further research using MM with SMAs.	RQ1b and 1c: Katrina stated: "My dad recommended Headspace to me, and just because it doesn't work for me."
Very Little Knowledge of MM Using An SMA	Part One, Two, Three	McVeigh et al. (2021) noted that students requested more availability of MM techniques in the classroom including the use of MM SMAs	RQ1b and 1c: Karen shared: "So my experience with both Headspace and the Hallow app, I like the Hallow app."
Prior Exposure to Methods Presented in MM SMAs	Part One, Two, Three	Mindfulness meditation includes different types of activities. The common ones are the body scan and breathing (Kabat-Zinn, 2013).	RQ1a: Cady stated: "I think I would recommend the body scan but not meditation so much just because... I know that it's beneficial, but I haven't really experienced that myself or know anyone who it helped."
Exposure to MM	Part One, Two Three	Findings from Sifat et al.'s (2022) study indicated that the students found mindfulness exercises beneficial and appreciated the ability to access them on an SMA.	RQ1a, 1b and 1c: Jaylynn had a clinical experience that was group meditation led by an instructor. "So, we had one clinical that was just someone talking to us about our stress and mindfulness, and we actually did a group meditation."
Challenges of Nursing School	Part One, Part Two	Sunandha et al. (2021) discussed findings of third year nursing students experiencing moderate stress	RQ1b and 1c: Abby shared: I feel like with stress, it just feels like this weight on your shoulders where you're like, oh, I have

		levels from fear of failure and inadequacy.	so much to get done and I don't know if I have the time… And I don't know if I can allot enough time to each thing to the best of my ability… And it just feels like every little thing, even when you're getting one assignment done, you're like, oh, I shouldn't be spending this much time on this assignment because I should be focusing on this instead."
Perceptions of the Use of MM SMAs	Part Three	Findings from one study indicated that many nurses enjoyed doing a brief three to five-minute meditation in a quiet place and returning to work feeling refreshed (Xu et al., 2021)	RQ1a, 1b, 1c: Participant Jaylynn stated: "So, we actually just went over mindfulness exercises in one of our nursing classes and one of our assignments was to do one of those exercises."
Resilience in Nursing School	Part Two	Stoliker et al. (2022) found that resilience education using an online class helped increase students' resilience and decrease anxiety.	RQ1c: Participant Cady stated: "Psychological grounding techniques is something that helps me during exams and things."

This table presented above gives literature references and participant quotes that support the findings. This brief synopsis of literature findings is presented to give the reader an easy way to view overall findings. It is presented as a summary of qualitative findings.

SQ1a. What are the experiences of prelicensure BSN students with MM and SMAs?

Overall, findings from this study agreed in part with the literature. Literature definitions of mindfulness were based on Kabat-Zinn's (2005) definition of mindfulness as "paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally" (p. 4). However, there were instances in which participants had very different ideas about what MM is. Upon analysis, three themes emerged from the data concerning SQ1a.

Varying Definition of Mindfulness. Participants had many varied definitions of mindfulness that were unlike the definition that Kabat-Zinn (2013) developed. Participants often described mindfulness as being considerate to others. The findings of this study agreed with the

literature overall. However, new findings not discussed prior in the literature were presented. First, the findings of this study agreed with those of McVeigh et al. (2021) and others. The literature offered many definitions of mindfulness based on Kabat-Zinn's (2013) definition. For example, Spadaro and Hunker (2021) described it as accenting a nonjudgmental, or illustrative observation in the present moment where objects, emotions, thoughts, and perceptions are continually changing. Participants described mindfulness in many terms.

First, participants described mindfulness in terms of being considerate. McVeigh et al. (2021) found that participants described mindfulness in different ways including being mindful of others which was a common finding in this research. Similarly, Sarah noted, "Mindfulness is being considerate." Findings from this study correlated with the findings of McVeigh et al. (2021) in those participants described mindfulness as being considerate. Where McVeigh et al. studied a secular university, this study was performed at a Christian university.

Second, new findings not discussed prior in the literature were presented by the participants. For example, Sabrina stated: "Mindfulness is like thoughtfulness." Further, Kailynn shared: "Mindfulness is having a balance." Conversely, McVeigh et al. (2021) found that participants noted mindfulness as being aware of themselves in relation to influencing factors. This is the opposite of findings in this study. Students in this study did not discuss mindfulness in this way. Students at a Christian university in this study had less knowledge of mindfulness than the students in McVeigh et al.'s study. This could be due to a lack of education regarding self-care methods beyond prayer and devotion. In all, participants likely had varying definitions of mindfulness because they had different and limited experiences.

Third, participant MAAS answers indicated that a third of the scores fell in the low range. These scores were used to understand the context of the participants and provide a descriptive

view of their answers to interview and focus group questions. The survey findings coincide with the participants' lack of understanding of mindfulness that was noted in responses to questions.

Preconceptions About Meditation. The literature addresses preconceptions about meditation. Kabat-Zinn (2021) discussed that many people base their perceptions of MM on things they have heard which may include unreliable sources. Often, these preconceptions do not include education or personal experience. Interpretive themes in the McVeigh et al. (2021) study included enhanced awareness with mindfulness focusing on self-care. The themes found by McVeigh et al. do not align with preconceptions found in this study. Every participant in this study at a Christian university discussed relying on prayer and devotion for what they described as MM. In comparison, Knabb et al.(2020) indicated that often Christians do not understand MM and believe that it is a "stand-alone coping skill for the amelioration of psychological suffering" (p. 7), whereas Valenti (2023) discussed that students may not utilize MM if there is little perceived benefit.

Participants had much to share about preconceptions regarding mindfulness. Sabrina admitted that she did not know much about mindfulness. Additionally, Samantha stated: "Meditation. I would describe that as thinking about something, like sitting on something in your mind almost, and just thinking about something." Additionally, Erika stated, "So, for me, meditation would probably be sitting in prayer and talking to God and just having that time to just relax your mind and focus on the good aspects of it." All participants indicated that they used prayer and devotion for their form of meditation.

Preconceptions about MM are often based on hearsay and not education (Kabat-Zinn, 2013). Participants in this study had little experience with MM with an SMA. The small amount who had personal experience with it stated it was useful. The most common experience with MM

SMAs that participants voiced was knowing someone who used it or recommended it. However, generally, participants had not tried it and relied on prayer and devotion for what they referred to as their time spent meditating.

Participants in this study were from a Christian university and did not have the education regarding MM with an SMA. Valenti (2023) proposed from outcomes in a study involving Christian students, that they need further education on the benefits of MM and how it can be woven into the Christian life. These findings when compared to McVeigh et al.'s (2021) indicate that there might be a difference between Christian university students and secular university students.

Attitudes Toward Smartphone Applications. The third and final theme that emerged for Q1a revealed the differences in participants' feelings and what the literature had to say regarding SMA usage for MM. First, McVeigh et al. (2021) reported findings that students knew about MM and wished for more opportunities for it to be used in the classroom. Participants expressed an interest in using MM with an SMA. Second, Spadaro and Hunker (2021) gave students an online MM intervention. At the end of the study, students expressed interest in learning more about MM with an SMA. Third, Sifat et al. (2022) found that students wanted more availability of a MM SMA.

Participant attitudes and experience toward MM SMAs differed greatly from the literature. Sarah shared, "I try not to be on my phone too often. I did have a Bible meditation app. But like I said, I'm just not on there often. I don't even know if I have it anymore." Additionally, Erika knew her boyfriend meditated and would try a MM SMA but noted that there is lack of time and a quiet space to yourself in college. Finally, Emily had experienced a mindful

minute in class and thought this method would be helpful. However, she had never used a MM SMA. She felt there was a stigma with using one instead of relying on God to take care of you.

The differences between studies in the literature and findings in this study are evident regarding the use of MM with an SMA. University participants generally desired to learn more about a MM SMA and requested it in research studies. However, participants in this study did not express the same desires. The difference between the responses could be due to the overall use of prayer and devotion for students in a Christian university.

SQ1b. What do prelicensure BSN students know about MM using an SMA to manage stress?

Overall, findings from this study agreed in part with the literature. However, some findings were opposite from what findings were in the literature. A study by McVeigh et al. (2021) indicated that nursing students had knowledge of MM and requested more information about the use of MM SMAs. Upon analysis, three themes emerged from the data concerning RQ1b.

Very Little Knowledge of MM Using an SMA. This theme developed upon analysis of the data. The literature discussed that not all people are aware of MM. Kabat-Zinn (2021) noted that people think they know what mindfulness is because it has become so mainstream in its use. However, many have a limited view. Findings in this case study correlated with the literature findings that not all people are aware of MM. Findings in this study's survey answers to the MAAS further confirmed that students had levels of mindfulness that were on the lower end of the scale.

Kabat-Zinn's (2021) discussion included the fact that many people have ideas about MM but do not have true knowledge of it. Often, it is believed that MM requires adopting a specific spiritual view or believing it can heal all problems. Yet, this is based

on lack of information. Kabat-Zinn's discussion explains the misunderstandings of students in this study when they discussed beliefs that MM would take them away from a Christian focus.

The literature offered information about student's knowledge of MM with an SMA to manage stress. Sensiper (2022) found that university students who participated in a semester long class that educated them on the background of MM were more open to using MM. Conversely, Martin et al. (2022) noted that nursing students were familiar with and generally used distraction techniques to manage stress. These findings correlate with findings in this research study. Further, the participants scored in the middle of the PSS levels which indicated they had a moderate amount of stress. This is confirmed by answers to interview and survey questions regarding the stresses of nursing school.

Nursing students discussed limited ways in which they had experienced MM to gain knowledge of it. Students discussed the use of devotion in class that they found helpful. Few students had experienced a mindful minute or mindfulness meditation in class. Eileen noted having a class that incorporated a mindful minute at the beginning of class. Further, Jaylynn had a clinical class that gave students an opportunity to do guided mindfulness meditation. Yet another student had experienced MM in a research study at a previous university. Danielle noted that she had tried MM with an SMA and found it useful.

Similar to findings in Martin et al.'s (2022) study, some participants discussed using distraction techniques to relieve stress. However, they admitted that the symptoms of stress returned immediately after the distraction. Kabir admitted to watching television to distract himself from thinking about an upcoming assignment that was due. Another participant

mentioned enjoyable reading but further admitted that stress symptoms returned as soon as she stopped.

Sensiper (2022) found the in-depth education helped students' willingness to participate in MM. Students in this study often indicated that they would be willing to try MM with an SMA. However further education regarding the benefits and background of MM could increase the actuality of participants trying and continuing use of a MM SMA. Further, as Knabb et al. (2020) discussed, Christian students may believe that mindfulness meditation is not to be used by Christians. Valenti (2023) found that Christian university students lacked knowledge of MM which limited practice.

Prior Exposure to Methods Presented in Mindfulness SMAs. The literature discussed aspects of MM with an SMA that people commonly use. Body scans and breathing techniques are some of these techniques (Kabat-Zinn, 2013). Sarazine et al. (2021) had participants in their study receive mindfulness techniques of loving kindness meditation, breathing, body scans mindful eating and a wandering mind meditation. Additionally, Galante et al. (2021) gave participants eight weeks of mindfulness training that included multiple mindfulness techniques. There are various methods of practicing mindfulness, and the study participants had limited experience with some basic methods.

Ten participants in this study had previously been exposed to elements that are commonly used in MM SMAs. Students had experienced body scans, breathing, and mindful minutes. Often the exposure was through an introduction in the classroom or from a therapist. Many participants, like Bailey, mentioned four by four or box breathing as something that they can use quickly that helps them calm down. This type of breathing involves breathing in for a count of four and out for a count of four. Samantha shared that she takes a moment to breathe in

worship. However, all students discussed devotion and prayer as the method of meditation that they use regularly.

Differences in exposure to mindfulness meditation techniques can be attributed to a difference in educational background. Students in this study are not experiencing education in classes about MM except for those discussed by two participants. Further, only one participant had a parent who used MM with an SMA. This lack of experience leads to limited practice of MM techniques.

Exposure to Mindfulness Meditation. There is scant literature that analyzes what pre-licensure, BSN students know about MM. McVeigh et al. (2021) conducted a survey study that provides information on this subject. McVeigh et al.'s findings indicated that 70% of BSN students wanted more MM available in the classroom and were interested in MM with an SMA. Valenti (2023) researched perceptions of mindfulness in freshman Christian university students and found that 16% used MM with a SMA being the most popular method. However, 50% of students did not have a good definition of MM. Valenti's study found that most students learned about MM in their homes. Findings from these studies differ from this research study.

Four participants in this study had personal experience of MM. Two had experience with MM with an SMA. Kanya participated in a study in which MM was used. Jaylynn had a clinical class that incorporated a guided MM. Yet, Cady had tried MM with an SMA and stated it helped her sleep but was otherwise not useful due to her inability to sit still. Danielle was the only participant who had used MM with an SMA and continued to use it somewhat. She noted that every time she used it, she remembered how much it helped and vowed to use it more.

Two of the participants, Katrina and Cady, discussed having fathers who used a MM SMA or body scan practices. Other students did not note that MM was learned about in the

home. Other learning sources in this study were noted as participation in a study, learning in class or from a therapist. This finding differs from what Valenti discussed.

Further, differences are found in this research study compared to literature findings. The fact that Valenti found students had learned about MM in their homes, points to the idea that background education differs for participants in this study. Parents may not have had the education themselves to pass to their children.

Finally, participants and their families may have attended church communities that did not promote self-care activities that have been research proven which could account for the difference. Valenti's study utilized students who stated they were Christian; however, there are different denominations. The university in this study maintains a specific list of beliefs that it operates under. Having a central definition of beliefs for the participants in this study could narrow the student's background.

SQ1c. What do they know about MM using an SMA to promote resilience?

Overall, findings indicated that pre-licensure, BSN students experienced a great amount of stress and resilience from nursing school. Findings regarding challenges in nursing school echoed the literature. However, some findings regarding the use of MM with an SMA to promote resilience were at odds. Upon analysis, three themes emerged from the data to answer RQ1c.

Challenges in Nursing School. Much can be found in the literature regarding sources of students' stress in nursing school. Student nurses' feelings of inadequacy and perceptions of stress from nursing faculty and staff nurses were found to cause much stress (Stinson et al., 2020). Further, Yildirim-Hamurcu and Terzioglu (2021) noted that nursing students indicated that most perceived stress came from a large academic workload and taking care of patients.

Additionally, Franco (2022) noted that nursing student stress came from all areas including internal demands, external demands, and situations such as clinical experiences.

Students had much to say about sources of stress in nursing school which correlated well with the literature. First, Jaya expressed this feeling of stress well when she stated:

> I've noticed with classes before; you can memorize and forget. With nursing, it's memorized and then you must remember everything that you've memorized and its constant repetition of that because otherwise it's going to end up causing an issue with a patient or a complication somewhere in their illness or plan of care.

Second, Hannah commented, “The emotions definitely get me a lot between the different professors and everything.” Comments by these participants show that stress comes in mental and emotional forms due to difficulty of academia and fear generated by the unknown of what is to come.

Findings in this area agreed with previous research. This is a likely result due to the large amount of research that has been done in the past regarding student nurses and sources of stress. Katzell (1968) published early research on this topic and studies have been common since providing validity of findings. Researchers throughout the decades have pursued this topic but little has changed for the nursing student.

Perceptions of the Use of MM with an SMA. Researchers have much to say in the literature regarding the use of MM to improve resilience. However, little research contends with both MM and SMAs. Mitchell (2021) reported findings that pre-registration students showed improved resilience that correlated with higher levels of mindfulness. Additionally, Rushton et al. (2021) incorporated mindfulness and resilience training for nurses and found that burnout was decreased. Further, McVeigh et al. (2021) noted that the knowledge of mindfulness improving

resilience has become internationally known. Participants in McVeigh et al.'s study were aware of MM promoting resilience and wanted the availability of this practice in the form of SMAs. Yet, Valenti (2023) found that 50% of participants had inaccurate perceptions of MM. Further, mindfulness grows as a movement making misperceptions more common.

What participants had to say regarding MM with an SMA to promote resilience was minimal, which conflicted the literature findings. Students did not have clear understandings of MM, so understanding how it affected resilience was not possible. No students related improved resilience to the use of MM with an SMA. Cady noted using tactile methods like tapping or a special stone that helped calm her and improve her resilience, while Katrina used prayer and spending time with friends who are supportive. Finally, Jenna shared that she pushes through things and uses supportive family members to improve her resilience. Several participants discussed simply remembering the reason they chose to become a nurse in the first place. Further, scores from the BRS indicated that students had moderate levels of resilience. This finding confirms the findings from answers to interview and focus group questions.

These insights show a gap between what the literature had to say regarding resilience and the use of MM. It appears that the participants in this study have not been exposed to the idea that MM with an SMA can improve resilience. Yet, McVeigh et al. (2021) noted that it is a widely known benefit of MM.

Findings in this study did agree with Valenti's (2023) findings. Valenti found that participants did not often have accurate perceptions of MM. Further, participants in this study did not relate MM benefits to improved resilience. Valenti noted that times are changing and the lines between science and religion are shifting. These changes, along with further research, can change the knowledge that Christians have regarding the benefits of MM with an SMA.

Resilience in Nursing School. Literature addresses resilience in nursing school frequently. Educators are urged to assist student nurses in enhancing their resilience to the stress of the nursing curriculum, clinical rotations, and life factors (Chun-Chih et al., 2023). Additionally, Vidic (2021) found in a longitudinal study that MM assisted students in decreasing stress and improving resilience to stress through education and practice in a semester long class. Further, Galante et al. (2021) noted that mindfulness education and practice assisted students in becoming more resilient to stress.

Yet, with all the examples in the literature, the findings of this study were quite different. Jaylynn shared, "I think just allowing myself to push through those little trials of nursing school would probably be some resilience." Others too shared of difficult experiences, but they persevered and did not quit. Eileen discussed failing a class which made her more determined to work harder.

Additionally, participants offered thoughts of what improved their resilience in nursing school which included instructor, peer, and family relationships. Kailynn shared, "Professors are super encouraging and we always know we can go to them." Emma noted, "having those peers that understand what you're going through and try to help you by inputting their information…is definitely a big help." Moreover, participants in this study noted that they relied on God for their resilience.

Since participants in this study were from a Christian university, relying on God was not a surprising finding. Additionally, as Chun-Chih et al. (2023) recommended, instructors should be supportive of students, which is obviously the case in these findings. However, a resounding difference found is that students did not even consider MM with an SMA for use to improve

resilience. This suggests that these students have not been exposed to this benefit of MM with an SMA. Offerings at the school for students to learn could ameliorate this deficit in knowledge.

Implications for Policy and Practice

Nursing students who participate in self-care activities have been found to have better well-being (Martin et al., 2022). All the participants reported praying and bible study, but most were reluctant to spend time on other self-care practices due to the number of academic and clinical assignments that needed to be completed. However, the American Association of Colleges of Nursing (2020b) made national recommendations to improve stress and include these methods in nursing education. Additionally, Spurr et al. (2021) reported study findings that recommended incorporating wellness activities in the classroom for nursing students. Therefore, it is imperative that faculty provide encouragement of self-care and teach it in the academic setting.

Classes are full of information that nursing students need to learn for safe patient care, and the amount grows every day with new methods and treatments. Most of the students find the devotions in class helpful. Adding 1-2 minutes of explanation of MM and a guided mindful minute would be a way to expose the student this stress relieving method and satisfy recommended actions by the American Association of Colleges of Nursing (2020b) and American Nurses Association Enterprise (2020). However, educators would need to be educated about MM first before teaching it to students. A brief in-service would assist the educators in gaining knowledge regarding the inclusion of stress relief methods in class, which include MM with an SMA.

Still, Valenti (2023) recommended further research to determine misperceptions and negative beliefs in Christian communities regarding MM with an SMA. The findings from this

study indicate that such research is needed. Barriers must be understood before change can be made. Advanced research can inform the reader regarding barriers and the best ways to instigate change.

Findings from this study helped to close the gap of what knowledge pre-licensure BSN students have regarding MM with an SMA to manage stress and improve resilience. McVeigh et al. (2021) surveyed BSN students regarding their knowledge of MM. This study extended that knowledge by performing qualitative research to gain more in-depth data regarding what BSN students know about MM with an SMA.

Theoretical and Empirical Implications

In terms of theoretical implications, this study continues to expand the foundation of the theory guiding this study. Lazarus and Folkman's (1984) transactional theory of stress and coping was the guiding theory for this study. The theory has three parts including: appraisal, reappraisal, and coping. Students in this study chose coping methods of prayer, Bible reading and exercise or going outdoors. All of these are effective coping mechanisms.

Five of the participants discussed using distraction as a method of coping but noted that they did not feel better once stopping the distracting activity. However, several participants stated they had tried MM but they were not able to sit still long enough. This evidence demonstrates the need for a more effective coping method for pre-licensure, BSN students. MM has been shown to help nursing students manage stress and improve resilience (Franco, 2022; Spadaro & Hunker, 2021).

Vygotsky's (1978) social constructivist framework was used as the secondary framework. This framework addresses the elements of how people learn on their own and with the assistance of others. This research study supports Vygotsky's theory of constructivism showing that

students increased their knowledge of MM through the technology of an SMA. Those who had experience with using MM with an SMA had increased knowledge of what benefits MM presented for managing stress and improving resilience.

From the participants in this study, it suggests that MM is a part of the content knowledge for pre-licensure, BSN students – although there are gaps in the depth of knowledge. This researcher has crucially used the secondary framework of constructivism to demonstrate the collaborative nature and methodology of this study. This study gives opportunities for learning and collaboration between the researcher and amongst the participants which is what constructivism entails. Further, constructivism supports the context of the study and its connection to the experience of the participants by discovering methods in which participants learned about MM with an SMA from others.

Findings from this study indicated that nursing students at one university did not have a clear understanding of MM with an SMA. Additionally, four students associated it with Eastern religions and had not tried it. Yet, four had tried it but did not feel it worked for them. Two students sporadically used MM with an SMA. Conversely, McVeigh et al. (2021) found that secular university students were familiar with MM and wanted more integrated into their academic program. The comparison of these findings clearly shows a gap between a Christian university and a secular university.

Findings further showed a distinct gap between the knowledge and experience that students had about MM with and SMA. Some students had experienced certain practices used in MM such as breathing and body scan but did not clearly understand the potential benefits of MM. Additionally, several students believed that they were not able to slow down enough to use MM with an SMA. Students noted that they were regularly using prayer and Bible study for their

form of meditation. Devotions were incorporated into each class and the students liked that. Jaylynn did note that she was excited by research on MM with an SMA. However, Jaylynn had researched and used multiple holistic methods to improve her health which was different from the other participants. Alternatively, McVeigh et al. (2021) reported findings that students wanted more MM incorporated into the classroom and expressed an interest in MM with an SMA. Further research must be done to determine why there were such different responses between McVeigh et al.'s (2021) study and this one.

When students were asked about MM with an SMA promoting resilience, they had varied responses. Students reported relationships with peers and faculty, Bible study, and drawing on reasons why they entered nursing school as ways to improve resilience. One student mentioned a wellness workshop on campus, another used hand movements such as tapping, and a third stated she knows there are tools which she wants to learn. However, no other students mentioned this workshop. Participant responses indicate a clear gap in knowledge about using MM with an SMA to improve resilience. Future research should address this gap to determine if this gap is widespread.

Limitations and Delimitations

This study has some limitations. A lack of knowledge regarding MM with an SMA was found. Researchers should discover if this lack of awareness of mindfulness is universal in other nursing education contexts. Additionally, practitioners at such nursing education contexts should take note of the lack of awareness about this topic.

One limitation that was noted with this study is that it involves only one university. The university in which the participants came from is a Christian university. This fact caused a much greater discussion of meditation as prayer and Bible use. Using more than one university with

some participants coming from a state university would likely change the number of comments regarding prayer, Bible reading, and relying on God instead of MM with an SMA.

Further, most students in this study were found to have a limited knowledge and experience of using MM with an SMA. This lack of knowledge provided answers to some questions that were not pertinent. Students need better education in methods of stress relief including MM with SMA.

A major delimitation was the distance of the selected research university from the researcher's home. Therefore, the choice to visit students in person to gain participants was a delimitation. However, the choice to visit participants in person did yield a high participation rate which justified this delimitation.

Additionally, the choice was made to delimit the study by asking of student's knowledge of MM with an SMA. Adding a teaching section would have been helpful to students, but it was outside the scope of what was manageable in this study. Further, participants were chosen based on a convenience sample. This choice made the acquirement of participants easier but did not account for a population-based variety of ethnicities and backgrounds.

Further, the final delimitation in this study was the choice of a case study over a phenomenological study. The benefits of choosing a case study allows for deep discussions based on the one-on-one interviews and intimate focus groups used in case study methodology, rather than attributing the experience to a group. The choice of a case study provides the reader with the opportunity to see a relationship between the people, phenomena and context. Finally, it allows the researcher to collect data through different methods.

Recommendations for Further Research

Further research should include multiple universities with varying settings. Including varying universities would extend the knowledge that was gained in this study that could determine a difference between responses from a Christian university and a secular university. Conducting research using multiple Christian universities could validate findings in this study. Findings from further research would enhance the understanding of what pre-licensure, BSN students' knowledge is of MM with an SMA to manage stress and promote resilience.

An additional recommendation would be to conduct interventional quantitative research that requires the participants to use a MM SMA. Use of an app would assist in determining if it is helpful to the student and increasing their experience with MM SMAs. Twenty-two students in this study did not have a good understanding of what MM with an SMA was, and five said they would try it but hadn't taken the time. This could be remedied with such a quantitative study.

Finally, further research could be conducted that provides educators with the best ways to provide education to pre-licensure, BSN students with education regarding MM using an SMA Students with limited experience in using a MM SMA and even less experience of using one are not able to fully understand how it will affect their stress and resilience levels. Research should provide more information about MM and SMAs to practitioners so that educators can take advantage of the benefits they provide.

Summary

Findings from this study indicated that participants were not well educated in the use of MM to manage stress and promote resilience. All participants stated that they used prayer and devotion for meditation, but only one student indicated that she used MM with an SMA sporadically to manage stress. The American Association of Colleges of Nursing (2020b) published a call to action to reduce stress for nursing students nationally on campuses. Yet, two

students indicated a well-being seminar, but no other information was available regarding what methods of self-care that this offered to students.

Additionally, participants indicated high stress levels. The PSS showed that 64.9% of students had scores between 18 and 35 with a mean of 19.54. The maximum score on the PSS is 40. Stress has been a known problem for nursing students since Katzell (1968) published a survey study to determine reasons for high nursing students' attrition rates. Additionally, Kabir's grandmother who is a nurse told him that she felt that nursing school was supposed to be stressful to prepare nurses for a high-stress occupation.

Next, the BRS showed that participants had a mean resilience score of 20.78% with 28 being the highest score possible. In participants' discussions, they indicated that they felt they had resilience from making it through difficult situations, remembering why they chose the profession and relying on God. However, no students discussed knowledge of improving resilience from MM with an SMA, indicating a need for further education.

Finally, participants had a mean score of 52.19% for mindfulness with 79 being the high score. Further, 8.8% of these students scored in the highest category for mindfulness. These scores indicate that students perceive themselves as mindful. Yet, one theme that emerged was mindfulness as caring for others, which does not coincide with Kabat-Zinn's (2013) definition of mindfulness.

BSN students need to prepare for stress in the workplace; however, academia should work to provide the students with effective coping mechanisms so they can fulfill their dreams of becoming nurses and serve the ill and suffering. Nursing is a calling that many participants noted for themselves. These students deserve the best start possible to succeed in a profession that is about helping others. Further, educators have a responsibility to help students be successful in

their education and chosen profession. Students look to educators to teach more than just the subject matter. Providing students with means to manage stress and improve resilience in an emotionally and physically demanding profession is imperative. Thus, educators in nursing education should maintain a mission of assisting nursing students in becoming the best practitioners they can be to then care for patients in the best manner possible.

As a student who has completed the doctoral dissertation journey, I would like to encourage other nursing students to persevere. The feeling of helping people through difficult times is very rewarding. There will be difficult times, but with persistence, you can make a difference. Remember why you chose this journey in the first place.

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APPENDIX A

Permission to Use Stress Diagram

APPENDIX B

Interview Questions Relation to Research Questions

Interview Question	**Central Q**	**SubQ1**	**SubQ2**	**SubQ3**
1				
2	X		X	
3	X		X	
4	X		X	
5	X			X
6	X			X
7	X			X
8	X	X	X	
9	X	X		
10	X	X		
11	X	X		
12	X	X	X	
13	X	X		X
14	X	X	X	X

APPENDIX C

Consent Form

Title of the Project: Research Proposal for a Case Study Exploring the Knowledge of Prelicensure BSN Students Regarding the Use of Mindfulness Meditation with a Smartphone App to Manage Stress and Promote Resilience

Principal Investigator: Beth Kelley, CNM/NP-C, PhD student, Liberty University

Invitation to be part of a Research Study

You are invited to participate in a research study. To participate, you must be an unlicensed BSN student. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

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

The purpose of this case study is to explore the knowledge of prelicensure BSN students regarding the use of mindfulness meditation with a smartphone app to manage stress and promote resilience.

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 things:

1. Surveys and Questionnaires:
    a. Demographic Questionnaire will take approxmately 1 minutes in class.

b. The Perceived Stress Scale has 10 questions and will take approximately 2 minutes in class.

c. The Brief Resilience Scale has 6 questions and will take approximately 1 minutes in class.

d. The Mindfulness Awareness Assessment Survey has 15 questions and will take approximately 3.

2. The interviews will be conducted in person or on zoom and recorded. You will be asked to answer several questions about your knowledge of mindfulness meditation with a smartphone app to manage stress and promote resilience. This will take approximately 45-60 minutes.

3. You will be asked to participate in a focus group in person which will be recorded to discuss your knowledge of the use of mindfulness meditation with a smartphone app to reduce stress and improve resilience. Focus groups will last 60 minutes.

How could you or others benefit from this study?

Direct Benefits: The results from this study will help other nursing students to decrease their stress levels.

Benefits to society include further verification of the benefits of regular meditation to help decrease stress levels.

What risks might you experience from being in this study?

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

I am a mandatory reporter for abuse. If it comes up in this study that the participant is considering suicide or self-harm or is a victim of abuse, I will need to report this to the proper authorities.

How will personal information be protected?

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

- Participant responses will be transcribed and then made anonymous using pseudonyms. Interviews will be conducted in a location where others will not easily overhear the conversation.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews will be recorded and transcribed. Recordings will be stored on a flash drive and kept locked in a safe to which only the researcher has access. The flash drive will be destroyed after three years.

How will you be compensated for being part of the study?

After completing the interview or focus group, participants will be entered into a drawing for one of 5 $25 Amazon gift cards. Email addresses will be requested for compensation purposes; however, they will be pulled and separated from your responses to maintain your confidentiality.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University you attend. If you decide to participate, you are free not to answer any questions or withdraw at any time before the interview.

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

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

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

The researcher conducting this study is Beth Kelley. 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, [redacted].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 [redacted].

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner 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

By continuing through the survey, you are agreeing to be in this study. *I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study by moving on to the next page in the survey.*

APPENDIX D

Demographic Data Form

Gender: Male_____ Female _____

Non-binary/Third gender_____

Prefer not to say_____

How many years old are you: _____

Are you of Spanish, Hispanic, or Latino origin?

- Yes
- No

Choose one or more races that you consider yourself to be:

_____White or Caucasian

_____Black or African American

_____American Indian/Native American or Alaska Native

_____Asian

_____Native Hawaiian or Other Pacific Islander

_____Other

_____Prefer not to say

APPENDIX E

Perceived Stress Scale- 10 Item

[Assessment removed per license agreement.]

RST Assessments, LLC. Contact information and permission to use: Mapi Research Trust Lyon, France, https://eprovide.mapi-trust.org

APPENDIX F

Perceived Stress Scale Permission to Use

Mapi Research Trust

USER LICENSE AGREEMENT GENERAL TERMS

Mapi Research Trust, a not-for-profit organization subject to the terms of the French law of 1st July 1901, registered in Lyon under number 453 979 346, whose business address is 27 rue de la Villette, 69003 Lyon, France (hereafter referred to as "**MRT**"), and the **User**, as defined herein (each referred to singularly as a "Party" and/or collectively as the "**Parties**"), do hereby agree to the following User Agreement General and Special Terms (hereafter, the "**AGREEMENT**").

WHEREAS MRT facilitates access to information on Clinical Outcome Assessment (COAs) and epidemiology and encourages exchanges between various users around the world by providing, in particular, the availability, translation(s) (where appropriate) and distribution of COAs.

WHEREAS the User wishes to be able to have access to one or several COAs and to use each such COA in accordance with the terms and conditions set forth in the AGREEMENT.

Now, therefore, MRT and the User agree to enter into this AGREEMENT subject to the following terms and conditions.

Article I. Definitions

For the purposes of this AGREEMENT, the Parties agree to the following definitions to the terms listed below, when capitalized:

Affiliate	Means, with respect to either Party, any company, corporation, firm, partnership, or other entity that controls, is controlled by, or is under common control with such Party, where control means the power, direct or indirect, to direct or cause the direction of the management and policies of such entity, whether by contract, through the by-laws of the aforementioned entities or otherwise.
Author	Means the person(s) or legal entity that developed the COA and the Documentation that may accompany it.
Beneficiaries	Means third-party individuals or legal entities, clinical research site/staff and vendors engaged by the User in connection with the conduct of the Stated Purpose who may administer the COA and use the Data as part of their activity.
COA	Means the licensed Clinical Outcome Assessment which is licensed by MRT for the countries and Licensed Languages listed in the Special Terms.
Collaboration Agreement	Refers to the separate agreement between the Author or the Copyright Holder and MRT by which the Author or the Copyright Holder grants the right to MRT to sublicense and reproduce the COA.
Confidential Information	Means all information disclosed to a Party (or its Affiliates) by the other Party or its Affiliates, agents or employees in any manner, whether orally, visually or in tangible form (including, without limitation, documents, devices and computer readable media) and all copies thereof, whether created by such Party, for the purpose of the AGREEMENT.
Copyright Holder	Means the person or legal entity who owns the copyright on the COA and/or on any Documentation.
Data	Means any data, result or report obtained or prepared from a lawful use and administration of the COA.

Documentation	Means all documentation provided by MRT to the User, including, if available, scoring instructions or administration guidelines, manuals, translation certificates, or any other documents accompanying the COA or related to or referencing the COA.
Effective Date	Means the date of acceptance by the User of this Agreement.
e-Version of the COA or eCOA	Means the electronic version of the COA including – but not limited to – electronic versions for hand held devices, tablets, web-based and Interactive Voice Response (IVR) versions.
IT Company	Means the company that performs the electronic migration of the COA and delivers e-Version(s) of the COA to the Users.
License	Means the license granted by MRT to the User as defined in this AGREEMENT, as further described in Section 3.01.
Licensed Languages	Means the language versions of the COA licensed to the User in the Special Terms.
Mode	Means the format of the COA as approved by MRT and as described in the relevant User License Agreement Special Terms. Modes include, but are not limited to, paper format and electronic format.
AGREEMENT	Means this User License Agreement General Terms, its Appendixes and User License Agreement Special Terms which binds the User to MRT.
Screenshot	Means the screen captures of the e-Version of the COA as implemented in the electronic mode by the IT Company.
Stated Purpose	Means the context of use of the COA by the User, as detailed in the Special Terms. It refers to all types of studies, clinical trials, research projects or any other project, as defined in the Special Terms, for which MRT grants the User the right to use the COA.
User	Means the user of the COA as defined herein and that is a Party to this AGREEMENT.
Special Terms	Means the User License Agreement special terms applicable to the COA licensed by the User.

Article II. Author's and Copyright Holder's rights

2.01 Each COA is proprietary content, information and material that is protected by applicable intellectual property and other laws, including but not limited to copyright. The User shall not use the COA except for the Stated Purpose as permitted pursuant to this AGREEMENT and the Special Terms.

2.02 The Author and/or the Copyright Holder owns all of the economic rights in the COA and any derivative work from the COA including but not limited to existing and future translations, and in particular the rights to reproduce, perform, amend, adapt and translate the COA.

2.03 The Author also owns all of the moral rights on the COA, and therefore has, in particular, the right to authorship of the COA, the right to preserve the integrity of the COA, to perform or prevent it from alteration, distortion or destruction and the right of withdrawal.

2.04 Through the Collaboration Agreement, the Author and/or the Copyright Holder have granted MRT the right to sublicense, and have authorized MRT to grant, on a non-exclusive basis, a portion of these rights to the Users interested for specific purposes, and in particular to the User for the Stated Purpose.

Article III. Grant of license

3.01 Subject to the terms and conditions of this AGREEMENT MRT hereby grants to the User and the User accepts, the following non-exclusive, non-transferable, non-assignable, non-sublicensable worldwide license, during the term specified in the Special Terms:

(i) To use the COA for the Stated Purpose in the authorized Modes and Licensed Languages, including the right to communicate it to the Beneficiaries only; and

(ii) To reproduce the COA for the Stated Purpose, including the right to physically establish the COA or to have it physically established, on any paper, electronic, analog or digital medium, and in particular documents, articles, studies, observations, publications, websites whether or not protected by restricted access, CD, DVD, CD-ROM, hard disk, USB flash drive, for the Beneficiaries and/or the Sponsor only; and

(iii) To translate the COA or have it translated when the COA has not been translated into the Licensed Language(s),

hereafter, the "**License**".

Article IV. Obligations of the User

4.01 General obligations

For each COA licensed pursuant to this AGREEMENT, and unless otherwise stated in the Special Terms, the User shall:

- Insert the Copyright Holder's copyright notice on the COA (paper or e-Version);
- Not amend, modify, condense, adapt, reorganize the COA in any Mode whatsoever, even minor, without MRT's specific written consent;
- Refrain from using or reproducing the COA in any way and on any format whatsoever, with the exception of doing so for the purpose of fulfilling a requirement for the Stated Purpose;
- If the COA is to be used in a publication, website or context other than research or clinical study:
    - Cite the reference publications of the COA
    - Indicate the details of MRT for any information on the COA, as follows: "[NAME OF COA] contact information and permission to use: Mapi Research Trust, Lyon, France, https://eprovide.mapi-trust.org"
    - Not include any full copy of the COA, but a sample protected version with the indication "sample copy, do not use without permission"

- Provide MRT, as soon as possible, with a copy of any publication regarding the COA, for information purposes.

4.02 Translation of the COA

The User undertakes not to translate the COA nor have it translated by any means whatsoever other than those means stipulated in the AGREEMENT or the Special Terms.

The Special Terms User shall sign a Translation Agreement with MRT, which shall describe the requirements for translation of the COA, unless otherwise stated in the Special Terms.

4.03 Obligations for the use of an e-Version of the COA

In the case of use of an eCOA for academic or non-commercial Stated Purposes, the User undertakes to submit the Screenshots of all the electronic pages where the e-Version of the COA appears to MRT to ensure compliance with section 4.1. Electronic migration guidelines will be provided to the User and/or the IT Company.

When the migration of the COA in e-Version is performed by an IT Company, the User shall ensure that the IT Company has signed the necessary license agreement with MRT before developing the e-Version of the COA.

Article V. Ownership of Data

5.01 Except as otherwise specified in the Special Terms, the Parties hereby agree that the Data will be the sole property of the User.

Article VI. Beneficiaries

6.01 The User shall authorize, under its sole responsibility, the Beneficiaries to use the COA and the Data as necessary in strict adherence to their function in the context of performing the Stated Purpose. Such use gives no rights to the Beneficiaries to use the COA beyond the use contemplated by this AGREEMENT.

6.02 The User guarantees that the Beneficiaries will comply with the terms and conditions of this AGREEMENT and in particular the undertakings regarding confidentiality, and accepts liability for any breach of this AGREEMENT by the Beneficiaries.

Article VII. Term and termination

7.01 Term

This AGREEMENT shall be effective as of its acceptance by the User and shall continue for the period stipulated in the Special Terms unless terminated earlier by the Parties as permitted in this Article 7.

The confidentiality and non-disclosure obligations stipulated in Article 9 of this AGREEMENT shall survive expiration or termination of this AGREEMENT for any reason whatsoever and shall continue to apply without limitation.

7.02 Termination

(a) Termination due to financial disruption of the Parties

If for any reason whatsoever, one or both Parties ceases to conduct all business activities, the AGREEMENT shall terminate immediately and without penalty and any compensation being owed by either of the two Parties to the other.

(b) Termination for breach

In the case of breach by a Party of one or more of its obligations pursuant to this AGREEMENT, the other Party may terminate this AGREEMENT with immediate effect if the breaching Party has not rectified the breach detailed in a registered letter with confirmation of receipt within a period of thirty (30) days from the date indicated on the registered letter.

(c) Termination of the Collaboration Agreement

In addition, in the event of termination of the Collaboration Agreement between the Copyright Holder of a COA and MRT, or in case MRT loses the right to distribute the COA, this AGREEMENT may consequently also be terminated immediately.

(d) Consequences of the termination

In the event of termination of the AGREEMENT for whatever grounds, the User shall remove, return or destroy, as instructed by MRT, all copies of the COA and Documentation and other materials, documents, data and information in its possession, whether held electronically or by other means, in relation to the AGREEMENT, within a period of thirty (30) days after such termination. However, the User may keep a single copy of such materials for the purposes of archiving information necessary for legal, tax or regulatory inspection and may use the Data as it deems fit, in accordance with the AGREEMENT and the Special Terms.

Article VIII. Personal data

The Parties shall comply with all relevant data protection obligations.

Article IX. Confidentiality

9.01 Disclosure of Confidential Information

In relation to this AGREEMENT, a Party or its Affiliates may disclose Confidential Information (as defined in the definition section) ("Discloser") to the other Party, its agents, officers and/or Affiliates ("Recipient"). All such Confidential Information shall remain the property of the Discloser disclosing it and nothing in this AGREEMENT shall be construed as granting to the Recipient any license and/or other rights with respect to the Confidential Information of the Discloser or any part thereof, except as provided for in this AGREEMENT. The Recipient agrees that any such Confidential Information disclosed to it will only be used in connection with the legitimate purposes of this AGREEMENT. The Recipient shall be entitled to disclose Confidential Information only to those agents, officers, Affiliates, contractors and third parties (excluding any competitors of the Discloser) who have a need to know it and are obligated to keep same in confidence, and safeguard it with all reasonable care.

9.02 Non-Disclosure-Period

In respect of Confidential Information disclosed in relation to this AGREEMENT, the obligations and rights of confidentiality as set out herein apply during the period of the Special Terms and for a period of five (5) years thereafter, in respect of Confidential Information otherwise disclosed under this AGREEMENT the obligations and rights of confidentiality as set out herein apply during the period of the AGREEMENT and for a period of five (5) years thereafter.

9.03 Binding Other Parties

The Recipient is responsible for ensuring its servants or agents, or any other persons or parties who receive Confidential Information through it, are bound to terms substantially similar to those set out in this Agreement.

9.04 Exclusions

The confidentiality obligations of the Recipient in Sections 9.1 to 9.3 do not extend to Confidential Information or any other information which:

- is or becomes generally available to the public otherwise than by reason of a breach by the Recipient of Sections 9.1 to 9.3 above; or
- is known to the Recipient and is at its free disposal prior to its receipt from the Discloser as established by written evidence; or
- is subsequently disclosed to the Recipient by a third party who the Recipient had no reason to believe was under a duty of confidence to the Discloser.

9.05 Disclosure by Law

Confidential Information may also be disclosed by the Recipient to the extent required by law (including statutory, regulatory, or similar legislative requirements), court orders and similar, provided that the Recipient making the disclosure of the Discloser's Confidential Information gives the maximum practical advance notice of same to the Discloser.

9.06 The Parties agree that MRT is entitled to give a copy of the AGREEMENT and the Special Terms to the Author and/or to the Copyright Holder upon simple request from either, and may do so without infringing this confidentiality obligation.

Article X. Intellectual property

10.01 The User shall not do or authorize any third party to do any act which would invalidate or be inconsistent with any intellectual property rights regarding the COA(s).

10.02 The User shall promptly give notice in writing to MRT in the event that it becomes aware of any claim brought by a third party that the COA infringes the intellectual property rights of such third party.

10.03 MRT acknowledges that, to the best of its knowledge, neither the COA nor the Documentation infringe any third party rights and that it has the rights required to enter into this AGREEMENT.

10.04 Except as to willful misconduct, negligence or breach of this AGREEMENT by the User, MRT undertakes in particular to indemnify the User, its officers, directors, employees and agents from any loss, damage, cost or expense, settlement, fines, disbursements (including reasonable legal fees) ("Loss) arising from any third party claim against the User for any damage caused by a breach or misappropriation by MRT of the copyright existing in the COA.

10.05 The User shall indemnify MRT and its Affiliates and their officers, directors, employees and agents from any Loss arising from any third party claim relating to or which arises from: (i) the User's negligence or intentional misconduct; or (ii) the use / non-use or administration of the COA by or on behalf of the User, unless such Loss is caused by a breach or misappropriation by MRT of the copyright existing in the COA.

APPENDIX G

Brief Resilience Scale

Removed to comply with copyright

APPENDIX H

Permission to Use the Brief Resilience Scale

Hi Beth,

Thanks for your interest in the *Brief Resilience Scale (BRS)*. As of the beginning of October 2022, the *BRS* has been cited over 4,200 times according to Google Scholar, used in over 40 countries, and translated in at least two dozen languages.

You are welcome to use the BRS free of charge and for as much as you like. I attached a brief user's guide with the items, instructions, and directions for scoring and interpretation. I also attached the original validation article in case you don't have it or it may be useful to you.

In addition, in case you may want to translate the BRS into another language, I attached a *Translation Guide for the Brief Resilience Scale* that includes some of the translations and an article on translating measures that actually used the *Brief Resilience Scale* as an example.

Finally, I attached a free positive psychology workbook that the Center for Applied Positive Psychology of Albuquerque, New Mexico, USA. and I recently created to foster resilience in coping with challenges during the pandemic and its aftermath. This workbook is based on a positive psychology course that was refined and tested over a 10 year period and has consistently been shown to increase resilience, happiness, and well-being and decrease anxiety, depression, and stress. Please feel free to pass on the following links to whoever you want.

Here are the links where you can download as many copies as you want and you can get can a printed copy at Amazon.com for the minimal no profit to us cost of $5.92:

1. Link for Free PDF:

https://drive.google.com/drive/folders/1eVPov4kbw-2WcYHU51Nbv8wi-aCC3y72?usp=sharing

2. Link for Printed Hard Copy:

https://www.amazon.com/Bruce-W.-Smith/e/B078T27V58?ref_=dbs_p_pbk_r00_abau_000000

We wish you the best in your work!

Warm Regards,

[redacted]

APPENDIX I

Mindfulness Awareness Assessment Survey

Removed to comply with copyright

APPENDIX J

Mindful Awareness Assessment Scale Permission

Re: [External] Re: Use of MAAS

Kelley, Beth <[redacted]>
Mon 5/22/2023 3:35 PM
To: Kirk Warren Brown <[redacted]>
Thank you so much for your prompt reply!
Beth Kelley PhD(c)

Get Outlook for iOS

From: Kirk Warren Brown <[redacted]>
Sent: Monday, May 22, 2023 3:33:50 PM
To: Kelley, Beth <[redacted]>
Subject: [External] Re: Use of MAAS

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Yes you are welcome to use the MAAS for your study. You can find the scale, along with background normative and other information, on the 'Lab > Tools for Researchers' page of my Lab website, the link for which is here.
The 'Publications' page has papers related to the validation of the MAAS. See especially Brown and Ryan (2003).

All the best with your research,

Kirk

Kirk Warren Brown
Affiliate Professor
Department of Psychology • Virginia Commonwealth University
[redacted]

Editorial Board, *Scientific Reports*
Editorial Board, *Journal of Personality*

Pronouns: he/him/his

On Sat, May 13, 2023 at 6:36 PM Kelley, Beth <[redacted]> wrote:

> Hello,
> My name is Beth Kelley, and I am a graduate student at Liberty University. I would like permission to use the MAAS for my doctoral research. I am planning a qualitative case study to determine how much nursing students know about mindfulness and their willingness to use mindfulness meditation. I look forward to your reply.

APPENDIX K

Interview Protocol

Hello, I am Beth Kelley, a Ph.D. student at Liberty University. You have already completed online surveys and been presented with informed consent information. Now, you have agreed to participate in an interview. This study aims to determine pre-licensure BSN students' knowledge regarding using MM with an SMA to manage stress and promote resilience. We are speaking on Zoom today to make it easier for you to attend. To begin, do you have any questions? Please let me know immediately if I use any words and you do not completely understand their meaning.

Interview Content Questions

Icebreaker Questions

1. Tell me about yourself and why you chose nursing. (ice breaker)

Stress Questions

2. How do you experience stress in nursing school?
3. How would you describe stress?
4. What are the sources of stress in nursing school?

Resilience Questions

5. How do you define resilience?
6. How would you experience resilience in nursing school?
7. What promotes resilience in nursing school?

Mindfulness Meditation With a Smartphone App Questions

8. How would you define mindfulness meditation?
9. What is your experience with mindfulness meditation?

10. How would you describe mindfulness meditation with a smartphone app?

11. What is your experience with mindfulness meditation with a smartphone app?

MM With an SMA + Stress and Resilience

12. How has MM with an SMA affected your stress in nursing school?

13. How has MM with an SMA affected your resilience in nursing school?

Closing Question and Instructions

14. What else would you like to share today with me on this topic?

Thank the individual for participating.

Assure participants of confidentiality.

If needed, request further interviews.

If asked, inform the participant of how they will receive study results.

APPENDIX L

Focus group protocol

Hello, I am Beth Kelley, a Ph.D. student at Liberty University. You have already completed online surveys and been presented with informed consent information. Now, you have agreed to participate in a focus group. This study aims to determine pre-licensure BSN students' knowledge regarding using MM with an SMA to manage stress and promote resilience. We are speaking on Zoom today to make it easier for you to attend. To begin, do you have any questions? Please let me know immediately if I use any words and you do not completely understand their meaning.

Focus Group Content Questions

Standardized Open-Ended Questions for Focus Groups

Icebreaker Questions

1. Why did you choose nursing? Please go around the group and give everyone a turn to speak. (ice breaker)

Stress Questions

2. Let's discuss how everyone experiences stress in nursing school.

3. Please discuss how you would describe stress.

4. How does everyone describe sources of stress in nursing school?

Resilience Questions

Greene et al. (2022) noted that resilience refers to balancing risks to well-being and resilience factors when experiencing stress. Resilience also refers to a person's innate aptitude for self-change.

5. How does everyone define resilience?

6. How has everyone experienced resilience in nursing school?

7. What does everyone think promotes resilience in nursing school?

Mindfulness Meditation with an Smartphone App Questions

8. How would you all describe mindfulness meditation?

9. Does anyone have experience with mindfulness meditation?

10. What does the group know about mindfulness meditation with a smartphone app?

11. Please discuss where you got your information from. Has anyone personally used it?

MM with an SMA + Stress and Resilience

12. How has MM with an SMA affected anyone's stress in nursing school?

13. How has MM with an SMA affected anyone's resilience in nursing school?

Closing Question

14. Would anyone like to add anything about our discussion topic today?

Thank everyone for participating.

Assure participants of confidentiality.

If asked, inform the participants of how they will receive study results.

APPENDIX M

Liberty Permission Letter

LIBERTY UNIVERSITY | SCHOOL of NURSING

9/28/2023

Dear Beth Kelley,

After careful review of your research proposal entitled, EXPLORING PRELICENSURE BSN STUDENTS' KNOWLEDGE OF MINDFULNESS MEDITATION USING A SMARTPHONE APP TO MANAGE STRESS AND PROMOTE RESILIENCE, I have decided to grant you permission, pending IRB approval, to conduct your research at Liberty University's School of Nursing recruiting our students enrolled in any nursing class as participants.

The study has the full support of the course lead faculty and me.

Please let me know if you have any questions.

Sincerely,

[redacted]

Tracey Milton Turner, EdD, MSN, RNC-OB
Interim Dean,
Liberty University
[redacted]

APPENDIX N

Recruitment Flyer

Research Participants Needed

A Qualitative Single Case Study to Explore Prelicensure BSN Students' Knowledge of Mindfulness Meditation Using a Smartphone App to Manage Stress and Promote Resilience

---

Are you 18 years of age or older?

- Are you a pre-licensure nursing student in a BSN program?

If you answered **yes** to both of the questions listed above, you may be eligible to participate in a research study.

The purpose of this case study is to explore pre-licensure BSN students' knowledge regarding using mindfulness meditation with a smartphone app to manage stress and promote resilience. Information will be gathered through surveys, a demographic questionnaire, interviews, and focus groups.

Participants will be asked to:

- Sign in online for approximately 20 minutes in class to complete several surveys online via Qualtrics, including a demographic survey
- Agree to participate in an in-person or one-on-one Zoom, audio and video-recorded interview lasting 45-60 minutes

and/or

- Agree to participate in a Zoom, audio and video-recorded focus group with 5-7 others lasting 60 minutes
- Participant's will be sent a transcription copy of interview contents and will be asked to return in 7 days if any changes are desired
-

Benefits include:

- Contributing to future knowledge
- Have a role in research
- Learn more about mindfulness meditation with a smartphone app

Participants will be entered into a drawing for one of five $25 Amazon gift cards at the completion of the interview and/or focus group

To be part of this study, please scan the code

https://qualtricsxmk9ffmwhh9.qualtrics.com/jfe/form/SV_85QwvRSJxL3SE5w

A consent document is provided as the second page of the survey which you will access in the classroom while the researcher is present. Please provide your phone number at the end of the surveys in the box provided for participation in interviews and focus groups. You will be contacted by the researcher to schedule this participation.

Beth Kelley, a doctoral candidate in the Nursing School at Liberty University, is conducting this study.

Please contact [redacted] for more information.

APPENDIX O

IRB Letter of Approval

January 22, 2024

Beth Kelley Kara Schacke

Re: IRB Exemption - IRB-FY23-24-717 A Qualitative Single Case Study to Explore Prelicensure BSN Students' Knowledge of Mindfulness Meditation Using a Smartphone App to Manage Stress and Promote Resilience

Dear Beth Kelley, Kara Schacke,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(ii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:
Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or

For a PDF of your exemption letter, click on your study number in the My Studies card on your Cayuse dashboard. Next, click the Submissions bar beside the Study Details bar on the Study details page. Finally, click Initial under Submission Type and choose the Letters tab toward the bottom of the Submission Details page. Your information sheet and final versions of your study documents can also be found on the same page under the Attachments tab.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at [redacted]

Sincerely,

[redacted]

Administrative Chair

Research Ethics Office

APPENDIX P

Letter to Participants

Hello Prelicensure BSN student,

As a graduate student in the School of Nursing at Liberty University, I am conducting research as part of the requirements for a Doctoral degree in Nursing Education. The purpose of my research is to determine what pre-licensure BSN students know about stress, resilience, and mindfulness meditation with a smartphone app to manage stress and improve resilience. If you meet my participant criteria and are interested, I invite you to join my study.

Participants must be 18 years or older and be enrolled in a pre-licensure BSN program at one of two Universities where I have permission to speak to students. Participants, if willing, will be asked to complete a demographic questionnaire and three brief surveys online via Qualtrics, and an interview and/or focus group through Zoom or in-person, both of which will be audio and video-recorded. Then, participants will be given seven days to respond to a request for member-checking data. It should take approximately 10 minutes to complete the online questionnaire, and surveys. Interviews will take approximately 45-60 minutes and focus groups will take approximately 60 minutes. Names and other identifying information will be requested for this study, but the information will remain confidential.

Participants will be personally visited in the classroom and given a QR code to take them to the informed consent, demographic questionnaire, interview, and focus group sign-up.

Consent information will be provided as one of the first pages of the online survey. This consent information contains additional details about my study. After you have read the consent form, please complete the surveys and fill in the box to sign up for interviews or focus groups.

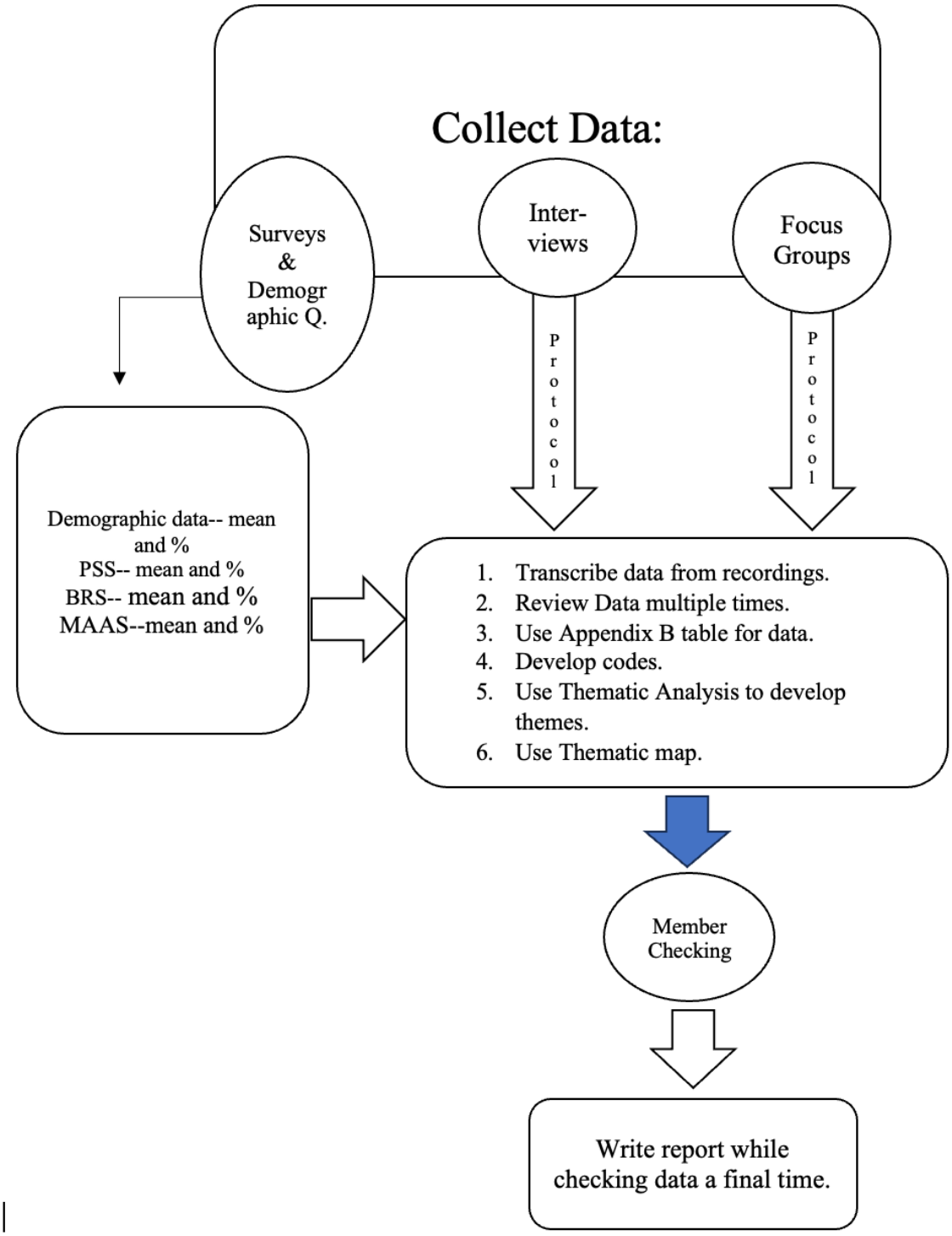
Doing so will indicate that you have read the consent information and would like to participate in the study.

Participants will be entered in a raffle to receive one of five $25 Amazon gift cards at the completion of the interview and/or focus group.

Thank you for your time. Do you have any questions?

APPENDIX Q

Data Management Map



APPENDIX R

Detailed Results of Perceived Stress Scale

Question 1: In the last month, how often have you been upset because of something that happened unexpectedly?

Responses	N	%
Never	2	2.2
Almost Never	12	13.2
Sometimes	46	50.5
Fairly Often	22	24.2
Very Often	9	9.9

Note. n=91. Mean score=2.26

Question 2: In the last month, how often have you felt that you were unable to control the important things in your life?

Responses	N	%
Never	4	4.4
Almost Never	17	18.7
Sometimes	34	37.4
Fairly Often	26	28.6
Very Often	10	11.0

Note. n=91. Mean score=2.23

Question 3: In the last month, how often have you felt nervous and "stressed"?

Responses	N	%
Almost Never	1	1.1
Sometimes	18	19.8
Fairly Often	40	44.0
Very Often	32	35.1

Note. n=91. Mean score=3.13

Question 4: In the last month, how often have you felt confident about your ability to handle your personal problems?

Responses	N	%
Very Often	11	12.1
Fairly Often	43	47.3
Sometimes	33	36.3
Almost Never	4	4.4

Note. n=91. Mean score=1.33

Question 5: In the last month, how often have you felt that things were going your way?

Responses	N	%
Very Often	6	6.6
Fairly Often	30	33.0
Sometimes	42	46.2
Almost Never	12	13.2
Never	1	1.1

Note. n=91. Mean score=1.69

Question 6: In the last month, how often have you found that you could not cope with all the things that you had to do?

Responses	N	%
Never	2	2.2
Almost Never	27	29.7
Sometimes	43	47.3
Fairly Often	16	17.6
Very Often	3	3.3

Note. n=91. Mean score=1.90

Question 7: In the last month, how often have you been able to control irritations in your life?

Response	N	%
Very Often	11	12.1
Fairly Often	38	41.8
Sometimes	33	9.9
Almost Never	9	9.9

Note. n=91. Mean score=1.44

Question 8: In the last month, how often have you felt that you were on top of things?

Response	N	%
Very Often	2	2.2
Fairly Often	37	40.7
Sometimes	41	45.1
Almost Never	11	12.1

Note. n=91. Mean score=1.67

Question 9: In the last month, how often have you been angered because of things that were outside of your control?

Response	N	%
Never	3	3.3
Almost Never	31	34.1
Sometimes	40	44.0
Fairly Often	13	14.3
Very Often	4	4.4

Note. n=91. Mean score 1.82

Question 10: In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Response	N	%
Never	4	4.4
Almost Never	21	23.1
Sometimes	39	42.9
Fairly Often	20	22.0
Very Often	7	77

Note: n=91. Mean score=2.05

APPENDIX S

Detailed Results of the Brief Resilience Scale

Question 1: I tend to bounce back quickly after hard times.

Response	N	%
Strongly Disagree	1	1.1
Disagree	5	5.5
Neutral	23	25.3
Agree	59	64.8
Strongly Agree	3	3.3

Note: n-91. Mean score=3.64

Question 2: I have a hard time making it through stressful events.

Response	N	%
Strongly Agree	1	1.1
Agree	14	15.4
Neutral	27	29.7
Disagree	45	49.5
Strongly Disagree	4	4.4

Note. n=91. Mean score=3.41

Question 3: It does not take me long to recover from a stressful event.

Response	N	%
Strongly Disagree	2	2.2
Disagree	16	17.6
Neutral	33	36.3
Agree	36	39.6
Strongly Agree	4	4.4

Note. n=91. Mean score=3.26

Question 4: It is hard for me to snap back when something bad happens.

Response	N	%
Strongly Agree	2	2.2
Agree	20	22.0
Neutral	19	20.9
Disagree	46	50.5
Strongly Disagree	4	4.4

Note. n=91. Mean score=3.33

Question 5: I usually come through difficult times with little trouble.

Response	N	%
Strongly Disagree	1	1.1
Disagree	21	23.1
Neutral	43	47.3
Agree	25	27.5
Strongly Agree	1	1.1

Note. n=91. Mean score=3.04

Question 6: I tend to take a long time to get over setbacks in my life.

Response	N	%
Strongly Disagree	1	1.1
Agree	10	11.0
Neutral	34	37.4
Disagree	43	47.3
Strongly Disagree	3	3.3

Note. n=91. Mean score=3.41

APPENDIX T

Detailed Results of Mindfulness Awareness Assessment Survey

Question 1: I could be experiencing some emotion and not be conscious of it until some time later.

Response	N	%
Almost Always	4	4.4
Very Frequently	18	19.8
Somewhat Frequently	32	35.2
Somewhat Infrequently	21	23.1
Very Infrequently	9	9.9
Almost Never	7	7.7

Note. n=91. Mean score=3.37

Question 2: I break or spill things because of carelessness, not paying attention, or thinking of something else.

Response	N	%
Almost Always	1	1.1
Very Frequently	7	7.7
Somewhat Frequently	15	16.5
Somewhat Infrequently	15	16.5
Very Infrequently	25	27.5
Almost Never	28	30.8

Note. n=91. Mean score=4.54

Question 3: I find it difficult to stay focused on what's happening in the present.

Response	N	%
Almost Always	6	6.6
Very Frequently	15	16.5
Somewhat Frequently	27	29.7
Somewhat Infrequently	21	23.1
Very Infrequently	17	18.7
Almost Never	5	5.5

Note. n=91. Mean score=3.47

Question 4: I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.

Response	N	%
Almost Always	11	12.1
Very Frequently	24	26.4
Somewhat Frequently	29	31.9
Somewhat Infrequently	16	17.6
Very Infrequently	8	8.8
Almost Never	3	3.3

Note. n=91. Mean score=2.95

Question 5: I tend not to notice feelings of physical tension or discomfort until they really grab my attention.

Response	N	%
Almost Always	4	4.4
Very Frequently	13	14.3
Somewhat Frequently	26	28.6
Somewhat Infrequently	18	19.8
Very Infrequently	18	19.8
Almost Never	12	13.2

Note. n=91. Mean score=3.76

Question 6: I forget a person's name almost as soon as I've been told it for the first time.

Response	N	%
Almost Always	23	25.3
Very Frequently	15	16.5
Somewhat Frequently	24	26.4
Somewhat Infrequently	14	15.4
Very Infrequently	7	7.7
Almost Never	8	8.8

Note. n=91. Mean score=2.90

Question 7: It seems I am "running on automatic," without much awareness of what I'm doing.

Response	N	%
Almost Always	6	6.6
Very Frequently	21	23.1
Somewhat Frequently	29	31.9
Somewhat Infrequently	22	24.2
Very Infrequently	10	11
Almost Never	3	3.3

Note. n=91. Mean score=3.20

Question 8: I rush through activities without being really attentive to them.

Response	N	%
Almost Always	5	5.5
Very Frequently	12	13.2
Somewhat Frequently	33	36.3
Somewhat Infrequently	20	22.0
Very Infrequently	19	20.9
Almost Never	2	2.2

Note. n=91. Mean score=3.46

Question 9: I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.

Response	N	%
Almost Always	6	6.6
Very Frequently	23	25.3
Somewhat Frequently	29	31.9
Somewhat Infrequently	19	20.9
Very Infrequently	10	11.0
Almost Never	4	4.4

Note. n=91. Mean score=3.18

Question 10: I do jobs or tasks automatically, without being aware of what I'm doing.

Response	N	%
Almost Always	4	4.4
Very Frequently	9	9.9
Somewhat Frequently	36	39.6
Somewhat Infrequently	22	24.2
Very Infrequently	17	18.7
Almost Never	3	3.3

Note. n=91. Mean score=3.53

Question 11: I find myself listening to someone with one ear, doing something else at the same time.

Response	N	%
Almost Always	5	5.5
Very Frequently	26	28.6
Somewhat Frequently	33	36.3
Somewhat Infrequently	16	17.6
Very Infrequently	8	8.8
Almost Never	3	3.3

Note. n=91. Mean score=3.05

Question 12: I drive places on 'automatic pilot' and then wonder why I went there.

Response	N	%
Almost Always	5	5.5
Very Frequently	14	15.4
Somewhat Frequently	17	18.7
Somewhat Infrequently	13	14.3
Very Infrequently	16	17.6
Almost Never	26	28.6

Note. n=91. Mean score=4.09

Question 13: I find myself preoccupied with the future or the past.

Response	N	%
Almost Always	11	12.1
Very Frequently	37	40.7
Somewhat Frequently	30	33.0
Somewhat Infrequently	9	9.9
Very Infrequently	3	3.3
Almost Never	1	1.1

Note. n=91. Mean score=2.55

Question 14: I find myself doing things without paying attention.

Response	N	%
Almost Always	6	6.6
Very Frequently	16	17.6
Somewhat Frequently	33	36.3
Somewhat Infrequently	17	18.7
Very Infrequently	14	15.4
Almost Never	5	5.5

Note. n=91. Mean score=3.35

Question 15: I snack without being aware that I'm eating.

Response	N	%
Almost Always	3	3.3
Very Frequently	4	4.4
Somewhat Frequently	10	11.0
Somewhat Infrequently	16	17.6
Very Infrequently	16	17.6
Almost Never	42	46.2

Note. n=91. Mean score=4.80