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*University of Texas at Tyler*

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EFFECTS OF AN ONLINE MINDFULNESS PROGRAM ON DEPRESSION, ANXIETY,  
STRESS, AND COPING AMONG UNDERGRADUATE SECOND-YEAR NURSING  
STUDENTS

by

HOLLIS FRANCO

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy in Nursing  
Department of Nursing

Danita Alfred, Ph.D., Committee Chair

College of Nursing and Health Sciences

The University of Texas at Tyler  
March 2020

The University of Texas at Tyler  
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## Dedication

This is dedicated to my husband Nick, my children Reese and Reagan, my parents, and my students.

## Acknowledgments

First, I would like to acknowledge my heavenly father, without our God, none of this would be possible.

Next, I would like to thank my husband Nick, as he has been holding down the fort for three years, and I am forever grateful for him. He works so hard at protecting our community and country, as well as making sure our kids and I had everything we needed through this process. We can now go on dates, spend our nights watching sports, and enjoy life. Thank you and I love you.

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that so humbly supported me. I realize now that I have given myself the greatest gift.

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## Abstract

# EFFECTS OF AN ONLINE MINDFULNESS PROGRAM ON DEPRESSION, ANXIETY, STRESS, AND COPING AMONG UNDERGRADUATE SECOND-YEAR NURSING STUDENTS

Hollis Franco

Dissertation Chair: Danita Alfred, PhD

The University of Texas, at Tyler  
March 2020

Stress can profoundly affect nursing students' success and cannot be ignored. Unchecked stress can have devastating effects on nursing students, such as depression, anxiety, and lack of coping. To mitigate these effects, strategies to decrease nursing student's stress should be implemented. Mindfulness shows favorable effects for decreasing depression, anxiety, and stress and increasing positive coping skills. However, there is little evidence available regarding the impact of online mindfulness programs.

Chapter 2, "Mental Health: A Key Concept for Nursing Education," provides a conceptual analysis of mental health in the context of nursing education. In order to enhance nursing knowledge, this concept is defined using language to help operationalize the term.

Chapter 3 provides a literature review that summarizes empirical literature from 2013 related to nursing student's experiences with academic stress and coping. The manuscript outlines common coping strategies and synthesizes strategies used to decrease stress in nursing students.

A quasi-experimental one-group pretest-posttest was used for the primary study documented in Chapter 4. A quasi-experimental one-group pretest-posttest study allowed the researcher to use of repeated measurements taken before and after the mindfulness treatment on one cohort of student nurses to assess the effects on depression, anxiety, stress, and coping. Quantitative data were collected using the Depression, Anxiety, and Stress Scale (DASS-21), the Coping Strategies Inventory Short-Form (CSI S-F), and open-ended questions. A thematic analysis was used to appraise the open-ended questions critically. The quantitative data were analyzed using paired t-test.



## Chapter 1

### **Overview of the Research**

Nursing students face stressful events in their studies that can lead to destructive consequences in their academic, professional, and personal life (Rathnayake & Ekanayaka, 2016). When an individual is placed in uncertain situations that threaten his or her well-being, this brings about stress (Deasey, Coughlan, Pironom, Jourdan, & McNamara, 2014; de Souza et al., 2015). Students may feel they have a lack of support from family and friends while in nursing school (Beauvais, Stewart, DeNisco, & Beauvais, 2013; de Souza et al., 2015; Deasy et al., 2014; Pitt, Powis, Jones, & Hunter, 2012) and experience poor relationships with peers (Rania, Siri, Bagnasco, Aleo, & Loredana, 2014) resulting in increased stress levels. Students must learn skills to manage their time in order to participate in extracurricular activities and spend time with family and friends to decrease the negative impact of stress (De Luca, Franklin, Yuequ, Johnson, & Brownson, 2016; de Souza et al., 2015). Assisting students to develop skills to manage stress, positive coping strategies, and their time is necessary (Deasy et al., 2014).

Second-year nursing students could potentially increase academic success by using mindfulness to cope better with stressful events. The retirement of baby boomers is creating a nursing shortage; the shortage can be impacted by more nurses entering the field. The retention rate of nursing students in 2016 was 80% (National League for Nursing, 2018). Utilizing mindfulness has been linked to decreased anxiety, depression, and insomnia in over 83 trials (National Center for Complementary and Integrative Health [NCCIH], 2017).

## **Purpose**

The purpose of this study was to evaluate the impact of an online mindfulness intervention in second-year nursing students' depression, anxiety, stress, and coping.

## **Introduction of Articles**

Three manuscripts presented in this dissertation portfolio focus on improving nursing students' wellness and mental health. The first manuscript included is a concept analysis of mental health. Mental health is part of every individual and is just as important as physical health. The term mental health has been confused with mental illness. Nursing students are under a great deal of stress in nursing school, and educators can help students develop strategies to improve mental health. Using the Walker and Avant (2014) methodology, the concept analysis for mental health includes: (1) selection of concept; (2) determination of aim or purpose of analysis; (3) identification of uses of the concept; (4) determination of defining attributes; (5) identification of a model case; (6) identification of additional cases; (7) identification of antecedents and consequences; and (8) definition of empirical referents. This concept analysis was submitted to Nursing 2019. The purpose of re-defining mental health was to enhance understanding of mental health and facilitate higher education research.

The second manuscript presents a review of published literature related to academic stress and coping among nursing students. Nursing students are under stress during nursing school and looking into what is the root of the cause can bring light to intervention studies that need to be conducted to assist nursing students with their stress. Various perspectives on nursing student's academic stress are discussed in Chapter 3. Qualitative and quantitative studies revealed varying

sources of stress, such as time management issues, family support, balancing work, school, and personal life, as well as the fear of the unknown while in clinical practice. Lack of support from family and friends and poor relationships with peers results in increased stress levels. Positive coping strategies are needed to progress through a rigorous nursing program. Limited studies were available that provided intervention strategies for mitigating the effects of stress in nursing students. Potential strategies included mindfulness and relaxation strategies to assist with stress management.

The third manuscript is the report of a quantitative study aimed at identifying the effects of an online mindfulness program on second-year nursing student's depression, anxiety, stress, and coping. The study has a sample size of seventy-six participants.

## Chapter 2

### Mental Health: A Key Concept for Nursing Education

#### **Abstract**

**Aim:** The aim of this concept analysis is to establish a definition of mental health that can be used for higher education research.

**Background:** Mental health in nursing students has been a recent topic of discussion in higher education. Understanding the concept of mental health and the effects it has on students' success is priority. By understanding the concept of mental health, society will be able to implement better strategies to increase positive mental health and identify issues related to negative mental health.

**Design:** Walker and Avant's methodology was used to exemplify attributes, antecedents, positive and negative consequences, and empirical referents of mental health. A model and contrary case are provided to examine mental health.

**Results:** There are three critical attributes for the concept of mental health: (a) well-being, (b) resiliency, and (c) emotional status. Positive and negative consequences associated with mental health include: (a) worry-free, (b) clear thinking, (c) happiness, (d) balanced emotions, and (e) good social relationships (a) confused thinking, (b) excessive worry, (c) social withdrawal, (d) thoughts of suicide, (e) drug abuse, and (f) low moods.

**Conclusion:** This concept analysis list defining attributes that can help with understanding how strategies can be developed to enhance positive consequences of mental health and facilitate higher education research.

*Keywords:* Mental health, concept analysis, nursing students

## **Mental Health: A Key Concept for Nursing Education**

Mental health and mental illness are two separate concepts and should be delineated and used appropriately. However, mental health is mistakenly used interchangeably with mental illness (Bhandari, 2016; Thorbecke & Condrón, 2018). There are two aspects to mental health, positive mental health, and negative mental health. By understanding the whole concept of mental health, society will be able to use the correct term, implement strategies to increase positive mental health, and identify issues related to reducing negative mental health. To facilitate continuing this understanding for future generations, a clearly defined and measured mental health concept will help nurse educators better assist nursing students in caring for their patients.

Understanding the concept of mental health as a priority concern in nursing education will assist nurse educators who seek to determine the contributing effects to student mental health, academic success, and patient safety. Mental health in nursing students, particularly suicide and homicide, has been a recent topic of discussion in higher education, with these becoming more prevalent in higher education and society as a whole.

The purpose of this manuscript is to provide a conceptual analysis of mental health. Walker and Avant's (2005) methodology was used to provide a definition, critical attributes, and antecedents of mental health. Consequences and empirical referents of mental health also are discussed, and a final definition of mental health is offered as a result of this concept analysis. Constructed cases are provided to exemplify mental health, a model (positive), and contrary (negative) case.

## **Mental Health**

A common problem is distinguishing the words mental health from mental illness. When the term mental health is entered into a search engine, it brings up thousands of articles on mental illness, such as depression, bipolar, schizophrenia, anxiety, and more. Clarifying the definition will eliminate misunderstandings surrounding the distinction between mental health and mental illness.

Merriam-Webster (2018) defines mental health as, the state of being all-encompassing mentally and emotionally. All-encompassing can be interpreted as, being able to adjust, having positive feelings about others, and the ability to meet the demands of daily life are manifestations of mental health (Merriam-Webster, 2018). Mental health affects how we think, feel, act, and helps determine how we handle stress, relate to others, and make healthy life choices (CDC, 2018; U.S. Department of Health and Human Services, 2017). People with positive mental health have the ability to navigate everyday activities and create functional productive relationships. According to the World Health Organization (2014), mental health is defined as someone who understands his or her own potential, has the ability to cope with the stress of everyday life, works efficiently, and able to contribute to his or her own community.

### **Attributes of Mental Health**

Identifying attributes of a concept helps express meaning and promotes understanding of the term to further explain the defining characteristics (Walker & Avant, 2005). The concept of mental health is determined by how well someone can overcome difficult situations or how they

feel emotionally daily. Synthesis of the literature proposed that the important attributes of mental health include:

- Well-being
- Resiliency
- Emotional stability

**Well-being.** The Center for Disease Control's (2018) definition of mental health is more holistic than others as it includes emotional, intellectual, and social well-being as critical attributes.

Well-being is defined as someone in a good, comfortable, happy, and healthy state (Merriam-Webster, 2018). Clients relate their happiness to their mental health and psychological well-being (Steptoe, Deaton, & Stone, 2015). Intellectual well-being is when one is able to keep their mind flexible, informed, and engaged (Melnyk & Neale, 2018). Social well-being is a sense of belonging and the feeling of being included socially in society as well as having a good support system (Javadi-Pashaki & Darvishpour, 2018). Based on these assumptions, if nursing students were able to recognize their well-being (emotionally, intellectually, and social), they could actualize their positive mental health.

**Resiliency.** Mental health is associated with higher resiliency (Ghanei et al., 2017). Resiliency is the capacity persons possess that enables them to recover rapidly from challenges or hard times to bounce back. Students with the ability to bounce back from challenges demonstrate better academic performance and success, and therefore better mental health (Ghanei et al., 2017).



**Emotional Stability.** Having a positive outlook on every situation is an attribute of mental health. Positive emotions serve a defining function of mental health (Wehner, Schils, & Borghans, 2016). Possessing the skills to resolve internal conflict offers a solution to the problems associated with negative emotions and illness. Using these skills regularly results in complementary emotional well-being, which is a key foundational component of mental health. Promoting student mental health includes teaching them to identify individual resiliency, well-being, and ability to cope with life stressors.

### **Antecedents to Mental Health**

Antecedents are certain trials or matters that must be in place or set up before the concept of mental health can occur. Recognizing what must be present before the concept helps further clarify the meaning of the concept and its application (Walker & Avant, 2005). The antecedents for mental health include:

- Awareness (Wickremasinghe, 2018)
- Adaptation (Ghanei et al., 2017).

Awareness, as an antecedent of mental health, is defined as being cognizant of your cognitive and emotional well-being (Wickremasinghe, 2018). Emotional intelligence of oneself and others is of utmost importance.

Adaptation is the ability of individuals to address stressful situations such as grievances, dangers, disasters, interpersonal, family problems, financial and professional problems, and medical and health problems with effective resolution strategies, leading to positive mental

health (Ghanei et al., 2017). Therefore, for positive mental health to be actualized, antecedents must be in place.

### **Consequences of Mental Health**

Walker and Avant (2005) described consequences as the result or outcome of the concept. There are consequences of both positive and negative mental health. The consequences of positive mental health can include being worry-free, clear thinking, happiness, balanced emotions, and good social relationships (Ghanei et al., 2017). The consequences of negative mental health can include confused thinking, excessive worry, social withdrawal, thoughts of suicide, drug abuse, and low moods (Bhandari, 2016). Students and educators have a responsibility to create a therapeutic environment to ensure positive consequences can be met.

### **Empirical Referents**

Healthcare providers assess mental health attributes by performing a mini-mental status exam (MMSE) on a client (Brannon & Bienefeld, 2016). Developing a trusting relationship between the provider and the client is necessary when completing an MMSE and obtaining consent. The person administering the exam must be competent in using the tool. The outcomes of the MMSE can vary from good mental health to a preliminary diagnosis of mental illness (Brannon & Bienefeld, 2016). The MMSE can provide client feedback that supports a focus on mental health or mental illness.

A surrogate empirical referent for mental health is to assess its attributes, such as resiliency and well-being, and compare them across life stages. An example is the Brief Resilience Scale, a measure of resiliency that can determine how one can positively bounce back

from stressors in life (see table 1; Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008).

*Table 1 Brief Resilience Scale*

<b>Please respond to each item by circling one</b>	<b>Strongly Disagree to Agree</b>				
I tend to bounce back quickly after hard times	1	2	3	4	5
I usually come through difficult times with little trouble.	1	2	3	4	5
I tend to take a long time to get over set-backs in my life	1	2	3	4	5

Another final example is the Mental Health Continuum Short Form (MHC-SF; Keyes, 2009) that consists of items evaluating well-being as an attribute to mental health. The MHC-SF has been translated and validated in Canada, France, Korea, and the United States (Keyes, 2009). The MHC-SF can assist in assessing positive mental health in higher education.

### **Re-Defined Mental Health**

Mental health is the capability to adapt and be aware of one’s own cognitive and emotional well-being. After analyzing the literature and describing the concept of mental health, the following definition, based on attributes, has been developed: mental health means having well-being and coping with everyday life stressors, while being resilient, and emotionally stable while utilizing emotional intelligence.

### **Constructed Cases**

**Positive Mental Health Model Case.** The following model case demonstrates the defining attributes of the concept of mental health demonstrated by a nursing student: Sam is going to nursing school and working full time. This coming week, she has a 12-hour clinical shift on Monday, class from 8 am to 5 pm Tuesday with two quizzes,

simulation on Wednesday from 8 am to 12 pm, an exam on Thursday, and clinical practicum on Friday from 1 pm to 5 pm. This weekend her sister is getting married as well. Her boyfriend of two years just broke up with her due to her busy schedule. Sam decided to focus on school and her routine when she gets sad (emotional stability). She plans her schedule so she can eat healthy, good food, and go work out daily (well-being). She worked out a way to attend her sister's wedding. She also asks her friends to support her by helping remind her that she is loved and valued (resiliency). Sam made it through the week with outstanding grades and support (resiliency). Sam has self-awareness, balanced emotions, and her own well-being as her priority. Sam's positive thought process has a positive effect on her overall mental health.

### **Contrary Case.**

Jill is going to nursing school and working full-time. She has become overwhelmed knowing her busy week ahead with a lot of exams, clinical, and work. Jill's boyfriend broke up with her two weeks ago.

Jill's friends notice she has been cutting her wrists and legs (lack of emotional stability). Jill locks herself in her room, cries uncontrollably, and continues to cut (lack of well-being). She misses her classes and work and eats candy all week (lack of emotional stability). She believes she will never find love again and drops out of school (lack of resiliency). Jill is contemplating suicide (lack of emotional stability).

## **Conclusion and Recommendations**

Understanding the concept of mental health is imperative for all healthcare providers, including nurse educators, and students. Society as a whole must be aware of and promote their positive mental health. Specifically, an understanding of mental health is necessary for assisting nursing students in building resiliency, well-being, and emotional stability. This concept analysis using Walker and Avant's approach is an attempt to clarify the meaning of mental health and apply it to nursing education.

Knowledge of the concept of mental health will assist nursing educators in determining best methods for fostering student's mental health and thereby their academic success. In addition, empiric referents that are specific to assessing nursing students' mental health can be beneficial. The conceptual definition for mental health, as developed here, may be useful in further studies on mental health in higher education. Research on enhancing mental health versus minimizing the dysfunction of mental illness could benefit stakeholders like healthcare providers, researchers, scholars, media, and educators who are vested in advancing positive mental health.

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## Chapter 3

### Academic Stress and Coping in Nursing Students: A Literature Review

#### **Abstract**

**Background:** Academic stress is a recurrent problem in nursing education. Despite the growing literature examining stress in nursing students, a larger viewpoint on this concept has not been explored. Literature related to sources of academic stress for nursing students and their coping abilities and skills is reviewed.

**Method:** A review of the literature (2013-2019) was conducted by a search through online databases: PubMed, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and Google Scholar. A search from 2013-2019 produced 96 articles. Abstracts and full text were examined for inclusion. Sixteen studies met the eligibility criteria. Data were synthesized using the content method of analysis.

**Results:** Nursing education increases stress that can negatively affect a student's academic performance. Stress during nursing school is related to balancing work, school, personal life, and clinical practice. Lack of support from family and friends and poor relationships with peers results in increased stress levels. Strategies to decrease stress include time management skills, support from peers and family, biofeedback, and mindfulness.

**Conclusion:** Further understanding sources of academic stress and beneficial coping strategies may help nursing students maintain good mental health and increase the retention rate of nursing programs.

**Keywords:** academic stress, mental health, nursing students, coping, and academic retention.



## **Academic Stress and Coping in Nursing Students: A Literature Review**

Stress is a significant, although unavoidable issue in nursing education. It is defined as a relationship between the person and the environment that is considered personally noteworthy and challenging or exceeding resources of coping (Lazarus & Folkman, 1984). Stress can be caused by a variety of reasons, and existing evidence shows that the two major causes of stress in nursing students are academic demands and the clinical learning environment (Deasey et al., 2014; de Souza et al., 2015; Graham et al., 2016; Gurkova & Zelenikova, 2018; Labrague et al., 2018; McCarthy et al., 2018). Nursing students are more susceptible to stress, anxiety, and depression (Deasy et al., 2014; Moxham et al., 2018; Rathnayake & Ekanayaka, 2016) than non-nursing students (Bartlett, Taylor, & Nelson, 2016).

Eighty-two percent of nursing students report dealing with some type of negative stress during nursing school (Rathnayake & Ekanayaka, 2016). Fifty-one percent report they suffer from depression, and 59% report increased anxiety (Rathnayake & Ekanayaka, 2016). Without proper and timely coping strategies, academic stress leads to undesirable feelings (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014). Stress, suicidal thoughts, and maladaptive behavior can impede a student's ability to complete nursing school. The results of negative stress on nursing student outcomes requires faculty to seriously consider potential stress management interventions (de Souza et al., 2015; Gurkova & Zelenikova, 2018; Moxham et al., 2018; Nayak, 2019; Rathnayake & Ekanayaka, 2016).

Student nurses must be able to cope with stressful situations before becoming a nurse because not only is school stressful, but the profession is stressful. Therefore,

knowing what is affecting higher education students while in college is necessary to gain insight into treatment options for nursing students. Nurses experience increased amounts of stress due to long hours at work and taking on greater and more complex patient loads. If student nurses can learn positive coping strategies, they can succeed in nursing school and as a professional nurse. Although stress and coping are hot topics in the nursing literature, reviews are minimal with only three noted in the last five years (Labrague et al., 2016; Labrague, McEnore-Petitte, Alexis, Santos, & Edet, 2018; McCarthy et al., 2018).

### **Aim and Objectives**

The aim of this paper is to critically review studies related to stress, coping, and strategies to decrease stress and/or increase coping among nursing students. Examining literature related to undergraduate and graduate students' is important to nurse educators to ensure students have the proper resources available to succeed. Additional objectives are to (i) identify the root cause or sources of stress among nursing students; (ii) identify common coping strategies; and (iii) synthesize strategies to decrease stress in nursing students.

### **Methods**

#### **Search strategy**

The literature search was conducted in PubMed, Cumulative Index of Nursing and Allied Health (CINAHL), and Google Scholar using the keywords: *academic stress, mental health, nursing students, coping, and academic retention*. The search was limited to peer-reviewed research manuscripts, dissertations, and literature published in the English language after 2013.

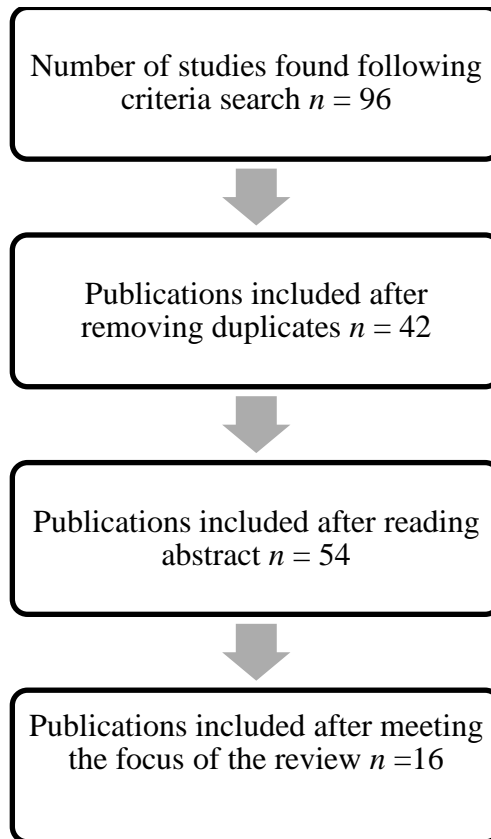
CINAHL was the primary database that provided articles relevant to mental health and stress within higher education nursing students. PubMed provided more articles addressing coping strategies and the identification of stressful events that lead students to drop out of nursing school. Google scholar contributed to general information and articles on the causes of stress during nursing school as well as interventions to decrease stress.

### **Eligibility criteria of this review**

Articles were included in the review based on the following inclusion criteria: published between 2013 and 2019; were reported in English, and focused on the stress and coping among nursing students. Interventions to decrease stress in nursing students were also examined. All studies were subjected to a consistent method of critical appraisal, depending on their design, to determine the quality and rigor of the findings (Snyder, 2019).

### **Results**

Ninety-six studies were retrieved by titles and abstracts were screened. Forty-two were removed due to duplication resulting in a total of 54 articles. Approximately two articles were read each day over five weeks. After full-text reading, while screening for inclusion and exclusion criteria, 38 articles were excluded leaving 16 articles for the review of the literature.



*Figure 1 Data search (collection) process*

### **Causes of Stress**

Nursing school increases stress that negatively affects students' academic performance (de Souza et al., 2015; Rathnayake & Ekanayaka, 2016; Zhang & Zheng, 2017), and personal lives (de Souza et al., 2015; Rathnayake & Ekanayaka, 2016). Stress during nursing school can be contributed to balancing work, school, and personal life (de Souza et al., 2015; Deasy et al., 2014; Singh et al., 2018) as well as the fear of the unknown encountered in clinical practice (Deasey et al., 2014; de Souza et al., 2015; Graham et al., 2016; Gurkova & Zelenikova, 2018; Labrague et al., 2018; McCarthy et al., 2018). Lack of support from family and friends (Beauvais, Stewart, DeNisco, & Beauvais, 2013; de Souza et al., 2015; Deasy et al., 2014; Graham et al., 2016; Gurkova & Zelenikova, 2018; Singh et al., 2018) and poor relationships with peers (Rania, Siri,

Bagnasco, Aleo, & Loredana, 2014; Singh et al., 2018) results in increased stress levels. An additional stressor for nursing students is employment status while finishing school (Moxham et al., 2018). Eight of the sixteen articles spoke strongly to clinical practice stress (de Soza et al., 2015, Gramh, Lindo, Bryan, & Weaver, 2016, Gurkova & Zelenikova, 2018, Labrague et al., 2018, Labrague et al., 2016, McCarthy et al., 2018, Porteous & Machin, 2018, & Wolf et al., 2015), yet only three gave potential interventions on how to decrease students stress (Labrague et al., 2018, Labrague et al., 2016; McCarthy et al., 2018).

*Table 2 Studies on stress and coping strategies among nursing students*

<i>Author/year</i>	<i>Design/ Sample population</i>	<i>Purpose/Aim</i>	<i>Findings (excerpts from articles)</i>
Bartlett, Taylor, & Nelson, 2016	Descriptive correlational design  N=156 nursing students Age: 24 years  N=76 from the general student body Age:22	To explore the source of stress among nursing students and to compare stress levels between nursing students and the general study body	1. The causes of stress were family, work, and athletic responsibilities. 2. Nursing students were found to have significantly more stress, anxiety, sleep disturbance, and stress-related illnesses than the general study body. 3. There is a great importance of self-care and stress management skills in nurse preparatory programs for use in both academic preparations and in future careers.
Beauvais, Stewart, DeNisco, & Beauvais, 2013	Descriptive correlational design  N=124 participants 59% (244) undergraduate 41% (272)graduate	To describe the relationship between emotional intelligence, psychological empowerment, resilience, spiritual well-being, and academic success in undergraduate and graduate nursing students	1. Attrition rates remain high. 2. Emotional Intelligence and resilience have to do with academic success. 3. Spiritual well-being and psychological empowerment did not relate to academic success.
Deasy, Coughlan, Jourdan, Mannix-McNamara, 2014	Mixed method  N=1557  Individual interviews- n=59  All students from teacher education (n=1104), nursing/midwifery (n=473)	Determine the prevalence of psychological distress, the sources of stress, and the coping processes of a sample of Irish students	1. The causes of stress were exams, assignments, finances, and workload. 2. Negative coping strategies were eating out more, substance abuse, and physical inactivity. 3. Escape avoidance conducted showed that individual factors, psychological status, social factors, and lifestyle behaviors are linked to "escape avoidance."

			Qualitative findings show 3 recurrent themes, escape/avoidance, seeking support, and taking control. Students that tried to escape from their stress instead of facing it were more likely to drink and use drugs. Some sought out professional help, and others took control of their own.
de Souza et al., 2016	Quantitative, Cross-Sectional Design  111 student nurses in Brazil (84 female; 16 male) Race: most white Age: 18 and over Semester: varied School: One university.	To determine the level of stress among students of an undergraduate course in nursing of a Brazilian public university	1. Causes of stress were time management, professional training, work, worrying about professional future, professional communication.
Graham, Lindo, Bryan, & Weaver, 2016	Cross-sectional study/quantitative  N=132 Only 2 <sup>nd</sup> -year students in the clinical setting	To determine the levels of stress among students in the Jamaican clinical setting and describe the perceived contributing factors to this stress.	1. Causes of stress were financial difficulties, the clinical setting, no time for peers or sleep, family stress. 2. Coping strategies nursing students used were relaxation techniques to cope, recreational activities, and seeking emotional support.
Gurkova & Zelenikova, 2018	A cross-sectional descriptive study  N=275 nursing students enrolled in the Czech Republic and Slovakia	To investigate the relationship between supervisory approaches in clinical practice on the one hand and nursing students' level of experience, perceived stress, coping strategies, and psychosocial status on the other.	1. Experienced nursing students perceived higher levels of stress than novice students 2. Stress was caused by teachers, peers, lack of professional knowledge, lack of skills and clinical practice
Labrague et al., 2016	A systemic review  Articles between 2000 and 2015	To identify the level of stress, its sources, and explore coping methods used by student nurses during nursing education.	1. 13 articles met the inclusion 2. Stress levels in nursing students range from moderate to high. 3. Stress was caused by caring for patients, assignments, workloads, negative interactions with staff and faculty. 4. Coping strategies include problem-solving strategies such as developing objectives to resolve the problems, adopting various strategies to solve the problems, and finding the meaning of stressful events.
Labrague, McEnroe-Petitte, Alexis, Santos, & Edet, 2018	A systemic review  Articles between 2010 and 2017	To appraise and synthesize existing scientific articles reporting stress perceptions and coping styles in Saudi student	1. 11 articles met the inclusion criteria 2. Stress stemmed from heavy workloads and taking care of the client. 3. Coping strategies were both

		nurses.	active and passive by all students. 4. Stress interventions are necessary and need to be culturally appropriate.
McCarthy et al., 2018	Integrative Literature review  Articles between 2010 and 2016  Utilizing Whittemore and Knafl's approach	To examine the literature related to the sources of stress, coping mechanisms, and interventions to support undergraduate nursing and midwifery students to cope with stress during their undergraduate education	1. 25 articles met the inclusion criteria 2. The key sources of stress came from clinical, academic, and financial issues but predominantly from the clinical environment. 3. Coping strategies were both adaptive and maladaptive. 4. Mindfulness, spiritual learning programs, peer mentoring coping interventions, and rational emotive behavior therapy were strategies notes to cope with stress.
Moxham et al., 2018	Cross-Sectional Design  920 nursing students in Australia Age: 18 and over 84.9% were Female Students enrolled in their first, second, and third year of a nursing program	To identify the predictors of emotional well-being of pre-registration nursing students by measuring their levels of anxiety, depression, behavioral control, positive affect, and general distress	1. Causes of stress included employment status and the age of students. Younger students were under more stressed, and female students had higher anxiety.
Nayak, 2019	Cross-Sectional Design  N=201 undergraduate nursing students in a private college in South India	To assess procrastination, time management skills, and its relationship with academic stress among undergraduate nursing students in a private college of South India	1. Causes of stress included procrastination, time management, and time-wasting. 2. Strategies to decrease stress include time management skills.
Porteous & Machin, 2018	A hermeneutic phenomenological study  10 first-year nursing students in the United Kingdom (UK)	To understand how one group of undergraduate nursing students perceived their experiences of transition into higher education and the nursing profession	1. Five themes emerged from the data: uncertainty, expectations, learning to survive, seeking support, and moving forward. 2. Students developed their own coping skills to deal with the demands of academic life and those of the practice setting. 3. Developing Self-efficacy was key to their successful transition through the first year of school.
Rania, Bagnasco, Aleo, & Sasso, 2013	Quantitative  First-year nursing student's in 8 different nursing schools  N=357  Average age 24	To examine how learning in different classroom contexts of the same nursing degree program can affect academic performance, well-being, self-esteem, and perceived climate	1. Causes of stress includes students' self-esteem, relationships with peers, and well-being and academic climate. 2. Coping strategies were support from peers and family.
Rathnayake & Ekanayaka 2016	Cross-sectional study  N=92 nursing students in the University of	To examine depression, anxiety, stress, and associated factors among undergraduate	1. The majority of students were not satisfied with nursing school (26.1% were unsatisfied, and 26.1% were extremely unsatisfied)

	Peradeniya in Sri Lanka	nursing students in Sri Lanka	<p>2. The majority of students reported mild to extremely severe symptoms of depression (51.1%), anxiety (59.8%), and stress (82.6).</p> <p>3. The factors associated with depression were younger age, the academic year of the students, lack of satisfaction with the nursing program, poor physical well-being factors, lower self-rated physical health, and lower self-rated mental health.</p> <p>4. The factors associated with anxiety were younger age, self-rated poor physical health, and lower self-rated mental health.</p> <p>5. The factors associated with stress were self-rated poor physical health, and self-lower self-rated mental health.</p>
Singh et al., 2018	<p>Cross-sectional study</p> <p>N=380 students (182 from government college and 198 from private college)</p> <p>Age=20-25</p>	To study the level of stress among undergraduate nursing students of Luckow city and to determine the risk factors cause stress	<p>1. More than half of the nursing students reported being stressed</p> <p>2. Reasons for stress were gender, sharing of room, educational expenses, academic performance, mobile phone and harassment in college</p>
Wolf et al., 2015	<p>Mixed Methods Design</p> <p>N=210 students Accelerated (n=75) Generic (n=135)</p> <p>3<sup>rd</sup> and 4<sup>th</sup>-year students</p>	To identify predictors of stress between accelerated and generic Baccalaureate Nursing (BSN) students, and (2) Describe stressors and coping strategies used by accelerated students in comparison with generic students	<p>1. Predictors of stress for both the accelerated and generic groups included a history of depression, year in the program (second year reported higher stress), emotional support from peers and family, and self-esteem of the student.</p> <p>2. Fear of failure and clinical incompetence, problematic relationships, and time management issues were identified as major stressors.</p> <p>3. Coping strategies used by both groups included positive thinking and social support.</p> <p>4. Senior students with a history of depression, low self-esteem, and little social support were more likely to experience high levels of stress.</p>

### Common Coping Strategies

Common coping strategies included mindfulness, guided imagery, journaling, exercise, peer support, and music therapy (Graham et al., 2016; Labrague, McEnore-Petitte, Alexis, Santos, & Edet, 2018; McCarthy et al., 2018, Nayak, 2019; Rania, Bagnasco, Aleo, & Sasso, 2013; & Wolf et al., 2015). Nursing students are placed in



stressful situations that may directly or indirectly affect their academic performance. Twenty percent of nursing students practice negative coping skills to manage their fears and overwhelmed feelings in the clinical learning environment (Graham, Lindo, Bryan, & Weaver, 2016). Negative coping skills include but are not limited to drinking, taking drugs, not sleeping, and eating poorly (Barlette et al., 2016; Deasy et al., 2014; Labrague et al., 2018; McCarthy et al., 2018). Stress can also increase negative effects such as poor psychological health and sleeping and eating disorders (Graham et al., 2016).

Labrague et al. (2018) reported that active problem-solving behaviors, where students formulate a plan to resolve stressful situations, were commonly utilized. Whereas McCarthy et al. (2018) reported that maladaptive behaviors were common coping strategies. Nevertheless, additional coping strategies are needed to assist students with academic stress that include positive thinking, therapeutic interventions, and support from family and peers (Wolf et al., 2015).

### **Strategies to Decrease Stress**

Time management skills are needed to help students decrease stress (de Souza et al., 2015; Deasey et al., 2014; Grahm, Lindo, Bryan, & Weaver, 2016; Nayak, 2019), facilitate participation in extracurricular activities, and carve out time to spend with family and friends (de Souza et al., 2015). Porteous & Machin (2018) reported self-efficacy was key to student success in nursing school. Additionally, a biofeedback intervention program and mindfulness meditation helped nursing students reduce their anxiety and stress levels (Manocchi, 2017; Ratasiripong, Park, Ratanasiripong, & Kathalae, 2015; Song & Lindquist, 2015).

The inclusion of foundational life skills and stress management into nursing curriculums for student nurses prior to a crisis should be a core requirement, not an optional extra (Deasy et al., 2014; Moxham et al., 2018). The initiation of stress management programs and increasing counseling activities for nursing students is also important (Moxham et al., 2018; Rathnayake & Ekanayaka, 2016). Having a course devoted to teaching positive coping, life skills, and resiliency can boost students' self-esteem and make them more likely to be successful in nursing school (Bartlett, Taylor, & Nelson, 2016; Labrague, McEnore-Petitte, Alexis, Santos, & Edet, 2018; McCarthy et al., 2018).

Nursing faculty need training and appropriate resources to recognize, refer, and support students during times of crisis (Patrick, Carty, Inayatulla, & Verkoeyen, 2017). Resources such as counseling centers are not consistently available to students (Pattani, 2016). In areas where counseling centers are available, long wait times and a lack of funding for growth and sustainability lead to fragmented care and place student lives at risk (Pattani, 2016; Watkins, 2016). With the lack of funding, students feel they are unable to seek treatment and are desperate for help (Pattani, 2016).

### **Discussion**

The American Nurses Association (2017) states the nursing shortage is not going away anytime soon. The average age of a nurse is 44.6 years old, and the average age is increasing yearly (American Nurses Association, 2017). More nurses are needed to take the retiring nurse's positions at the bedside. Teaching nursing students how to employ positive coping skills may help the retention rate. The attrition rate of four-year college students in 2015 was 50% (ACT Institutional Data File, 2015). The number of students

not able to complete nursing school will affect the nursing shortage. Helping nursing students to manage academic stress may increase the retention rate while in school and help with the nursing shortage in the long-term. Adding a stress management course should be considered by all nursing programs.

Barriers such as lack of nurse educators, lack of clinical sites, and simulation space keep students from enrolling in a nursing program (National League for Nursing, 2013). With the limited number of students able to enroll and be admitted into a nursing program, it is imperative that nursing schools retain students once admitted. Once in a nursing education program, educators must address personal skills and provide resources for those struggling to cope with the challenges presented in school (Graham et al., 2016). The demands of the workplace as a professional nurse far exceed those of academia. Nursing students must be prepared for their post-graduation job by learning to utilize positive coping strategies during stressful situations in school.

### **Gaps in the Literature**

Although there are studies about the levels of stress in nursing students, gaps related to treatment, and coping strategies need to be further evaluated. The long-term impact of biofeedback and mindfulness meditation interventions on stress, anxiety, and academic performance needs to be evaluated (Ratasiripong et al., 2015). Greater recognition of the stressful nature of being a student in higher education is needed, rather than the current view that it is part of normal college life (Deasy et al., 2014).

Early acknowledgment of stress and related problems are vital, and initiation of stress management programs and expanding counseling services for students is necessary (Deasey et al., 2014; de Souza et al., 2015; Graham et al., 2016; Gurkova & Zelenikova,

2018; McCarthy et al., 2018; Rathnayake, & Ekanayaka, 2016). Faculty education and placing the student in stressful controlled simulation experiences solely to develop coping skills could decrease student's stress. Looking into ways of teaching self-care throughout nursing programs is a priority to see if interventions increase the retention rate.

Decreasing stress in the clinical and simulation setting needs to be further evaluated (Graham et al., 2016). Studies evaluating strategies to decrease stress in the clinical learning environment are minimal. A mixed-method approach on the perception of stress, its effects on learning, and the coping mechanism employed by students in the clinical learning environment should also be studied (Graham et al., 2016). A study that assists students to manage stress in the clinical learning environment can lead to positive academic success and the retention rate of students. Students should be taught how to use positive coping skills so that they can be successful in nursing school and as a nursing professional. Positive coping skills include relaxation techniques, emotional support from others, and recreational activities such as spending time with friends, watching television, dancing, and singing (Graham et al., 2016).

### **Conclusion**

The aim of this paper was to examine the literature related to sources of academic stress and coping abilities of nursing students as well as to synthesize interventions that may be effective in alleviating the effects of this phenomenon. The studies in the review demonstrate an existing science is indicating the need for stress management courses for nursing students. Stress management class can provide needed coping strategies to advance the science of nursing education by increasing the retention rate in nursing schools and decreasing the burnout of nurses in the workforce.

The review of the literature identifies that assisting students in developing skills to manage stress (de Souza et al., 2015; Graham et al., 2016) and initiate positive coping strategies (Deasy et al., 2014; McCarthy et al., 2018) are necessary. Increasing access to mental health care by increasing the number of counselors available will decrease stress and allow students to seek help (Patrick et al., 2017; Rathnayake & Ekanayaka, 2016). A study, which combines faculty education on assisting students with stress and an on-call counselor who is readily available to meet with students at times of increased stress, might improve student mental health. Findings from such a study will influence future strategies targeted toward retention rates of nursing students, depression, anxiety, stress, and coping.

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## Chapter 4

### Effects of an Online Mindfulness Program on Depression, Anxiety, Stress, and Coping among Undergraduate Second-Year Nursing Students

#### **Abstract**

**Objectives:** The purpose of this study was to evaluate the impact of an online mindfulness intervention on second-year nursing students' depression, anxiety, stress, and coping.

**Hypotheses:** It was hypothesized that nursing students' depression, anxiety, and stress scores would decrease, and coping abilities would increase in response to an online mindfulness module.

**Methods:** Lazarus and Folkman's Transactional Model of Stress and Coping was used to guide the proposed intervention using a quasi-experimental pretest-posttest one-group design. A convenience sample of 76 nursing students was utilized from three campuses at one nursing school. Pre- and post-tests on depression, anxiety, and stress, as well as the coping scale, were administered to all students enrolled in their second year (fourth semester) of nursing school. The mindfulness exercise intervention was administered before the posttests.

**Results:** Student nurses who completed the four-week online mindfulness intervention reported decreased anxiety and stress. Open-ended questions revealed the intervention was beneficial, and the time spent practicing mindfulness was valuable.

**Conclusion:** A four-week online mindfulness intervention was effective when used in nursing students, reducing anxiety and stress. The online mindfulness intervention resulted in lowered anxiety and stress in nursing students' engaged in clinical courses and warrants further study.

**Keywords:** depression; anxiety; stress; coping; nursing students; mindfulness

## **Effects of an Online Mindfulness Program on Depression, Anxiety, Stress, and Coping among Undergraduate Second-Year Nursing Students**

The National Alliance of Mental Illness (2017) reports that one in five adults between the ages of 18-24 is living with some type of mental illness. Many nursing students attend baccalaureate programs during this time in their life. Stress is one factor that contributes to student attrition in nursing programs; stress can cause symptoms such as depression and anxiety (Esch, Stefano, Fricchinoe, & Benson, 2002). Retaining nursing students is important due to the global nursing shortage (Deasey, Coughlan, Pironom, Jourdan, & Mannix, 2014; Manocchi, 2017). The reason nursing students drop out of school is not fully known, as it can be due to personal reasons, academic failure, or often-undifferentiated (Jeffreys, 2012). As baby boomers retire, the number of new nurses needed in the workforce will continue to rise. It is estimated that by 2030, the number of registered nurses will decrease by 28.4%, with 3.6 million new nurses needed (Bureau of Labor Statistics, 2018). There are many factors that cause nursing students to experience stress, including internal, external, and situational stressors. Researchers identified various stressors, for example, fears and anxiety related to study are internal stressors (Deasey et al., 2014; de Souza et al., 2016). External stressors can be derived from lack of social support (de Souza et al., 2016; Rathnayake & Ekanayaka, 2016; Zhang & Zheng, 2017) and situational stressors can result from an unbalanced life (de Souza et al., 2016; Rathnayake & Ekanayaka, 2016). Often strategies to reduce stress such as medications, arts and crafts, and complementary therapies are used. However, these interventions have not addressed the issues related to stress, problems with coping, depressive symptoms, or anxiety. Mindfulness is an identified strategy to reduce and

manage stress and should be studied further (Beddoe & Murphy, 2004; Galbraith & Brown, 2011; Regehr, Glancy, & Pitts, 2013).

Mindfulness is paying attention in a particular way; on purpose, in the present moment and non-judgmentally (Kabat-Zinn, 2016). Practicing mindfulness does not cost the student anything and is a therapeutic approach that can be self-managed. Mindfulness is a more practical and less costly approach than medications and professional counseling for students who only need strategies to help with stress reduction.

Mindfulness interventions have been examined in college students in 24 studies, with 22 having positive results; however, few pertain to nursing students (Bamber & Schneider, 2016; Chen et al., 2019; Manocchi, 2017). Mindfulness interventions have been provided face to face; however, with nursing students' busy schedules, it is hard to attend mindfulness intervention courses. Providing an intervention online has the potential to influence many more students, as they can practice mindfulness on their own time. Positive results of mindfulness include decreased depression, anxiety, and stress, and increased coping strategies. Although the results of 22 studies of mindfulness interventions appear hopeful, determining if online mindfulness interventions decrease depressive symptoms, anxiety, and stress requires further examination.

Mindfulness, as a face to face intervention, has been studied in first-year nursing students, but there remains a paucity of literature. There is even less literature related to second-year nursing students and online mindfulness interventions (Chen et al., 2019; Riet, Levett-Jones, & Aquino-Russell, 2018). Therefore, examining second-year nursing students and providing an online mindfulness intervention is warranted (Bamber & Schneider, 2016; Chen et al., 2019; Manocchi, 2017; White, 2014). Second-year nursing

students are under a large amount of stress due to finishing nursing school, searching for jobs, and preparing for the national certification exam.

The retention rate of nursing students in 2016 was eighty percent, while 20% of the students admitted to nursing programs left before program completion (National League for Nursing, 2018). The attrition rate could be due to life stressors and/or life events. Life stressors and/or events include but are not limited to a lack of support from family, peers, loved ones; the stress of exams; balancing clinical work with coursework, or working fulltime with no time for self and school. Exploring an online mindfulness intervention to understand the benefits it has on second-year nursing student's stress and coping may be an important avenue for negotiating stress (Manocchi, 2017; Song & Lidquist, 2015), and retaining nursing students. Utilizing mindfulness via an online platform will also teach students an additional coping strategy to manage professional stressors they will encounter after school and in professional roles.

The expected outcomes of this study include an increase in coping mechanisms and a decrease in depressive symptoms, anxiety, and stress in nursing students from pre-to-post mindfulness intervention. By facilitating a mindfulness intervention online for second-year nursing students, this study has the potential to enhance nursing student retention, which in return will bring more nurses into the workforce. This study of second-year nursing students' practice of online mindfulness exercises contributes to the literature by increasing what is known about mindfulness as an online intervention and the potential to impact student retention and attrition rates.

### **Research Questions**

The purpose of this study was to explore the impact of an online mindfulness

intervention on second-year nursing students' depression, anxiety, stress, and coping skills. The research six questions were:

1. Do second-year baccalaureate nursing students have decreased levels of depression after participating in an online mindfulness intervention?
2. Do second-year baccalaureate nursing students have decreased levels of anxiety after participating in an online mindfulness intervention?
3. Do second-year baccalaureate nursing students have decreased levels of stress after participating in an online mindfulness intervention?
4. Do second-year baccalaureate nursing students have increased levels of positive coping after participating in an online mindfulness intervention?
5. Do second-year baccalaureate nursing students have decreased levels of negative coping after participating in an online mindfulness intervention?
6. How do second-year baccalaureate nursing students perceive the impact of the mindfulness experience?

### **Theoretical Framework**

Studies surrounding stress in nursing students have been conducted for decades. However, intervention studies to decrease stress in second-year nursing students need further examination. Stress is defined as a relationship between the person and the environment that is considered personally noteworthy and challenging or exceeding resources of coping (Lazarus & Folkman, 1984). The Transactional Model of Stress and Coping (Appendix A) by Lazarus and Folkman (1984) is the mid-range theory that was used for this study. The model has been used multiple times to evaluate stress and how one perceives and reacts to it. The model can be adapted to find associations between

stress and coping in multiple populations and contexts.

According to Lazarus and Folkman (1984), there are three critical concepts, which are stress, appraisal, and coping. Nursing students can experience stress for a variety of reasons; a few examples are living away from family, lack of social support, challenging experiences of higher learning, and interacting in the clinical learning environment (Graham, Lindo, Bryan, & Weaver, 2016; Manocchi, 2017). The relationship between a person and the milieu can potentially threaten well-being is viewed as psychological stress (Lazarus & Folkman, 1984). Two critical processes, cognitive appraisal, and coping determine the person-milieu environment relationship (Lazarus & Folkman, 1984). Cognitive appraisal identifies the event and to what extent a specific transaction between the person and environment is stressful. Coping occurs when a person manages the milieu-environment relationship and the emotions that build from the situation (Lazarus & Folkman, 1984).

Once under stress, students appraise the stressful situation using a three-step approach. An appraisal is different for everyone; it is subjective and highly personal, depending on one's ability to cope with the stressor. There are three appraisals that make up this process, the first being *primary appraisal*, where a person judges the encounter as positive or stressful (Lazarus & Folkman, 1984). Next are *secondary appraisals*, which are the feelings related to dealing with the stressor or the consequences of the stressor (Lazarus & Folkman, 1984). The secondary appraisal can happen simultaneously with primary appraisal; it does not necessarily come second like explained in most theories. *Reappraisal* is last, and this is when someone determines which additional resources are needed to cope with the situation (Lazarus & Folkman, 1984). This is where the online

mindfulness intervention would be utilized by nursing students. Once students determine an additional response is needed, they can practice mindfulness online to assist in coping. The effectiveness of these coping strategies determines how one reacts to stress.

Coping is an interaction among the person's internal resources and external environmental stressors (Lazarus & Folkman, 1984). The two major theory-based functions of coping identified by Lazarus and Folkman are *problem-focused coping* and *emotion-focused coping*. Problem-focused coping is when someone focuses on the problem or whatever it is that is causing the stress. Emotion-focused coping is focused on changing the perception of a stressful situation. Nursing students use mindfulness for emotion-focused coping when they become stressed, which can be used for a lifetime. A case for problem-focused coping entails addressing the problem, for example, stress from exams, clinical, or homework. Emotional-focused coping is aimed at addressing nursing students' negative emotions related to the threat and/or demand. This type of coping is when a mindfulness intervention can assist nursing students in altering their negative emotional response to the problem or stressor. In nursing school, nursing students have very intense schedules with class time, clinical time, and study time crammed into one week. A negative coping strategy would be to react to the high demands of nursing school by being so overwhelmed that nothing gets accomplished. The nursing student either starts all projects at once but fails to complete one or more of them, or they do nothing because the intense schedule seems impossible.

Students must learn to cope by decreasing their stress levels and maintaining good mental health throughout nursing school. Mindfulness can reduce stress by having students relax using the mind-body connection when stressors occur (Bamber &



Schneider, 2016; Manocchi, 2017) utilizing reappraisal and problem-focused and emotion-focused coping. The model explains the relationship between a stressful event and a person's ability to cope, leading to positive mental health.

### **Review of Literature**

Identifying ways to decrease students' stress has been well-researched. Studies included guided imagery, journaling, exercise, music therapy, and mediation (Brodersen, 2017; Chen et al., 2019; Graham, Lindo, Bryan, & Weaver, 2016; McCarthy et al., 2018). Yet, stress continues to be a debilitating problem for nursing students. In 2015, thirty percent of students reported stress interfered with their academic performance, which is two and a half percent higher than in the year 2000 (American College of Health Association, 2015b). While this is a small increase, stress remains a problem for nursing students. Bamber and Schneider (2016) completed a literature review to examine the effects of mindfulness in college students in 57 studies, which concluded that mindfulness interventions appear hopeful, however, the frequency, duration, and methods used need to be further examined to see what is most effective.

Song and Lindquist (2015) conducted a two-group randomized, control trial (N=44) and found a mindfulness-based stress reduction intervention significantly improved depression, anxiety, and stress in first-year nursing students. Limitations of the study included the lack of a theoretical framework and a small sample. Because of these two limitations, generalizability is questionable. Additionally, utilizing an 8-week intervention program has the potential effect of diffusion of treatment, and can be difficult for nursing students to engage in due to the time commitment. Mindfulness may be effective with a shorter intervention or an online format.

## **Factors Influencing Stress and Anxiety**

**Internal Influencing Factors.** Internal influencing factors of stress for nursing students include clinical practice fears (Graham, Lindo, Bryan, & Weaver, 2016; Gurkova & Zelenikova, 2018; Manocchi, 2017), lack of self-efficacy (Manocchi, 2017; Zaho, Lei, He, Gu, & Li, 2015), test anxiety (Gibson, 2014, Manocchi, 2017), and lack of critical thinking skills (Gibson, 2014; Manocchi, 2017). Due to the inability to adapt to stressors, twenty percent of nursing students develop maladaptive coping skills to manage their fears in the clinical learning environment (Graham, Lindo, Bryan, & Weaver, 2016; Manocchi, 2017). Maladaptive coping skills can lead to depression, thoughts of suicide, poor body hygiene, poor mental health, and withdrawal from academic courses (Graham et al., 2016; McCarthy et al., 2018).

The negative relationship between test anxiety and academic performance is well established in the literature (Duty, Christine, Loftus, & Zappi, 2016; Khalaila, 2015). Nursing students must meet higher academic performances as they are responsible for patients' safety and life. For example, a higher test average is needed to pass courses than other students, and increased time is demanded in both classroom and clinical work. Exams in nursing school require critical thinking skills, which is a new skill set not used in previous undergraduate studies. Thinking critically can cause stress (Graham et al., 2016; Manocchi, 2017), and stress can impede a student's success. Investing in ways to decrease stress throughout nursing school will enable nursing students to spend more time studying for exams and less time 'stressing' over them. Test anxiety has been studied in nursing students since 1973 (Brodersen, 2017). Brodersen (2017) reviewed over 19 intervention studies related to decreasing students' stress using aromatherapy,

music therapy, and cognitive-behavioral interventions.

**External Influencing Factors.** External influences create stressful situations that may directly or indirectly affect student nurses' academic performance (de Souza et al., 2016; Rathnayake & Ekanayaka, 2016; Zhang & Zheng, 2017). De Souza et al. (2016) assessed stressors of nursing students and determined that on the job training caused greater than 50% of the stressors nursing students experience. However, support and time for family was also a stressor (de Souza et al., 2016). Students expressed a need for support from parents, peers, and romantic partners (Ratelle, Simard, & Guay, 2013; Zhang & Zheng, 2017). Subjective well-being is linked to happiness. Happiness stems from the support of persons that are closest to the student (Ratelle et al., 2013).

**Situational Influencing factors.** Stress in nursing school is caused by balancing work (de Souza et al., 2016; Deasy et al., 2014; Pitt, Powis, Jones, & Hunter, 2015; Zhang & Zheng, 2017), school (de Souza et al., 2016, Deasy et al., 2014, Zhang & Zheng, 2017), and personal life (de Souza et al., 2016; Rathnayake & Ekanayaka, 2016). Time management is key. Student nurses who report working full time in addition to school state this causes increased stress (de Souza et al., 2016; Deasy et al., 2014; Pitt et al., 2015; Wolf, Sidham, & Ross, 2015; Zhang & Zheng, 2017). Finding a way to balance the two is necessary for success.

Nursing students need family support as nursing school is time-consuming and demanding (Deasy et al., 2014). Families must understand the difficulties of nursing school, as well as the time commitment their student is facing. Educating families about the time commitment of nursing school may help families understand the stress and decrease unnecessary burdens on the student. Students feel their family is a cause of

stress while in nursing school (de Souza et al., 2016; Deasy et al., 2014; Pitt et al., 2015; Zhang & Zheng, 2017).

**Depressive Symptoms.** Chronic stress causes depressive symptoms if not properly addressed. Depressive symptoms include feelings of isolation, weight changes, fatigue, unstable sleep patterns, difficulty concentrating, risk for self-harm, and more (Rosiek, Rosiek-Kryszewska, Leksowski, & Leksowski, 2016). Fernandes, Rocha Vieira, Soares e Silva, Avelino, & Santos (2018) reported over fifty percent of nursing students suffer from depressive symptoms such as fatigue, irritability, somatic concerns, and sleep disorders. Abu Ruz, Al-Akasha, & Jarrah (2018) determined students who suffer from depressive symptoms have lower grade point averages and do not regularly attend class compared to students who do not suffer from depressive symptoms. Chen, Sung, and Lee (2015) used Chinese five-element music therapy as an intervention for nursing students who exhibited depressive symptoms over a 10 week period. Findings demonstrated significantly reduced depression in the experimental group compared to nursing students in the control group. Limitations to this study included length of the study, as nursing students are limited for time to participate for more than eight weeks due to the demands of course content (Chen et al., 2019).

Depression can lead to suicide if not treated (Rosiek et al., 2016). Aradilla-Herrero, Tomas-Sabado, and Gomez-Beniot (2014) found that fourteen percent of nursing students presented a substantial suicide risk, and interventions to improve emotional coping skills are needed. Furthermore, the mental health status of nursing students related to their academic performance and retention, patient safety, and professionalism when entering the workforce is of question (Chen et al., 2019). Utilizing

an online mindfulness intervention over a four-week period to help manage depressive symptoms may increase students' safety.

**Anxiety and Stress-related Symptoms.** Symptoms of stress can vary depending on the person and event. Symptoms include but are not limited to anxiety, depressive symptoms, insomnia, fatigue, and becoming physically ill (Henry & Crawford, 2005; Psychology Degree, 2018). As these symptoms can interfere with one's activities of daily living, it is vital they are addressed properly. Ratanasiripong, Park, Ratanasiripong, & Kathalae (2015) randomly assigned eighty-nine nursing students to one of three treatment groups (biofeedback, mindfulness meditation, control group) to assess anxiety and stress pre and post-intervention. Conclusions suggested the biofeedback and mindfulness group had significantly lower anxiety and stress compared to the control group (Ratanasiripong, Park, Ratanasiripong, & Kathalae, 2015). Utilizing mindfulness interventions to reduce anxiety and stress appears to be an optimistic strategy (Ratanasiripong, Park, Ratanasiripong, & Kathalae, 2015).

**Coping Skills.** Positive coping skills are needed to progress through a rigorous nursing program and into a professional nursing career. Positive coping skills include relaxation techniques, emotional support from others, and recreational activities such as spending time with friends, watching television, and the use of mindfulness (Graham et al., 2016; Manocchi, 2017). Ineffective coping occurs when students experience internal, external, and situational factor stress that overloads their system that requires intervention (Deasy et al., 2014; Malinski & Todaro-Franceschi, 2011). Kim, Kim, & Kim (2015) randomly assigned senior nursing students to either an experimental group that utilized Rational Emotive Behavior Therapy (REBT) or a control group to review

self-efficacy and stress-coping strategies. Kim et al. (2015) found that REBT improved self-efficacy in the intervention group, but no significant difference was noted for stress-coping strategies. Additional studies are needed to review interventions for senior nursing students coping strategies that will align with the present study.

### **Mindfulness**

Mindfulness has been linked to decreased anxiety, depression, and insomnia in over 83 trials (National Center for Complementary and Integrative Health (NCCIH), 2017). When healthy individuals practiced mindfulness, they reported feeling more relaxed, decreased rumination, and increased self-compassion and empathy (Chiesa & Serretti, 2009; van der Riet, Levette-Jones, & Aquino-Russell, 2018). Mindfulness provides a holistic mechanism to help nursing students cope effectively and manage stress (Manocchi, 2017).

An empirical link between influencing factors and its effect on stress has been identified. Concepts of mindfulness are attention, awareness, non-reactivity, and non-judgmental thoughts (Bamber & Schneider, 2016). Mindfulness interventions usually last for 8 weeks, with 26 hours of face to face education (Shapero, Greenberg, Pedrelli, de Jong, & Desbordes, 2018). Due to time constraints, nursing students may benefit from an abbreviated mindfulness intervention. For persons reporting lower levels of stress with emotional experiences, a brief mindfulness intervention may be sufficient to produce positive outcomes (Sass, Berenbaum, & Abrams, 2013). A four-week mindfulness intervention may improve depressive symptoms, anxiety, stress levels, and coping skills.

Therapy Assistance Online (TAO) is a peer-reviewed interactive website developed by Dr. Susan Benton in 2012 to reduce mental health disparities for college

students (TAO Connect, Inc., 2018). Dr. Benton developed this program to alleviate long wait times for student appointments. TAO is utilized to address college students' anxiety, and outcomes compare to traditional visits with a counselor (Benton, Heesacker, Snowden, & Lee, 2016). Benton et al. (2016) found that TAO clients had a greater reduction in anxiety, greater mental health improvements, and improved life functioning and well-being when compared to treatment as usual clients. Owen, Adelson, Budge, Kopta, and Reese (2014) benchmarked outcomes for 700 patients treated with TAO at 15 college mental health clinics with a published study of outcomes for 25 student mental health clinics. Owen et al. (2014) found that patients treated with TAO improved more than patients in traditional therapy on several scales. Therefore, mindfulness through TAO was utilized to address depressive symptoms, anxiety, stress, and coping in nursing students.

### **Conceptual and Operational Definitions**

Variables from the study are defined below and summarized in Table 3.

*Table 3 Conceptual and Operational Definitions*

Variable	Conceptual definition	Operational definition
Personal Factors	Demographic factors describing nursing student (e.g., age, ethnicity, gender)	Demographic Survey
Depressive Symptoms	Depressive symptoms include but are not limited to feelings of sadness, hopelessness, anxiety, sleep disturbances, and troubled thinking (Mayo Clinic, 2018). Additional depressive symptoms include low positive	A 7-item subscale of the Depression, Anxiety, and Stress Scales (DASS-21) will measure depression. The reliability was .82 for depression and .88 overall for the DASS-21 (Henry & Crawford, 2005).

	affectivity or anhedonia (Henry & Crawford, 2005).	
Anxiety	Anxiety is a tense feeling that often accompanies stress (Mayo Clinic, 2018). Additional anxiety symptoms include physiological hyperarousal (Henry & Crawford, 2005).	A 7-item subscale of the Depression, Anxiety, and Stress Scales (DASS-21) will measure anxiety. The reliability was .90 for anxiety and .88 overall for the DASS-21(Henry & Crawford, 2005).
Stress	Stress is the relationship between the person and the environment that is considered as personally noteworthy and as challenging or exceeding resources of coping (Lazarus & Folkman, 1984). Stress is also an index of non-specific vulnerability to distress (Henry & Crawford, 2005).	A 7-item subscale of the Depression, Anxiety, and Stress Scales (DASS-21) will measure stress. The reliability was .93 for stress and .88 overall for the DASS-21(Henry & Crawford, 2005).
Coping	Lazarus and Folkman (1984) state coping is “the constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (p. 141).”	<i>Coping Strategies Inventory Short-Form (CSI S-F)</i> , which is a short form of the Coping Strategies Inventory (CSI), is one way to measure coping (Addison, Campbell-Jenkins, Sarpong, Kibler, Singh, Dubbert,...& Taylor, 2007). The CSI was originally (Addison et al., 2007) a 78-item questionnaire, and the short form reduced the questions to 16 items. The CSI S-F has four subcategories that focus on problem-focused engagement (.67 reliability), problem-focused disengagement (.60 reliability), emotion-focused engagement (.72 reliability), and emotion-focused disengagement



		(.58 reliability). The test and retest reliability value was 0.76 (Samuel & Kannappan., 2011).
Mindfulness	Mindfulness is “paying attention in a particular way; on purpose, in the present moment and non-judgmentally” (Kabat-Zinn, 2016).	An online resource that is provided by the University; Therapy Assistance Online (TAO) will be utilized by all second-year nursing students. Students will log onto the website and practice mindfulness exercises online for 4 weeks. There is a total of 12 mindfulness sessions.

## **Methods**

### **Design**

A quasi-experimental one-group pretest-posttest was used for this study. A quasi-experimental one-group pretest-posttest study allowed the researcher to use one set of repeated measurements taken before and after treatment on one group of students (Portney & Watkins, 2015).

### **Population & Sample**

A non-probability convenience sample was used; all second-year undergraduate nursing students at a university in Texas were utilized. The researcher is an assistant professor at the university but does not teach second-year students. The participants are fourth-semester (second year) nursing students across three campuses. Each campus is taught by the same professors connected via live video. The main campus had 72 students, and the regional campuses had 11 (site two) and 38 students (site three). Interested participants were screened to assure eligibility criteria were met.

Eligibility criteria included: (a) age 18 and over (b) enrolled as a fourth-semester undergraduate nursing student, (c) able to read and speak English. Exclusion criteria are (a) non-nursing students (b) faculty and staff, (c) first year or third-semester nursing students.

A priori statistical power analysis was performed using G power analysis 3.1 for sample size (Faul, Erdfelder, Buchner, & Lang, 2009). An accepted minimal power level of 0.80 was utilized in order to avoid a Type I error (Cohen, 1988). Previous studies provided sample sizes but lack effect sizes. This study aimed to achieve a medium effect of Cohen's  $d = 0.5$ . Therefore, using an alpha = .05, a total sample size of 19 participants were required. Allowing for 10% attrition, 21 participants were needed. The potential participant pool was 121 second-year nursing students.

### **Protection of Human Subjects**

Institutional Review Board was initiated at the University of Texas at Tyler as well as the Texas Tech Health Science Center. The researcher addressed all concerns and obtained permission from both institutions before conducting the study.

The researcher used a post hoc consent process, as the intervention was part of the students' required course content. The course facilitator presented the course content, required tests, and intervention to the students on the first day of class. Students had to complete the pre and post-test for their coursework; however, they had the choice of opting-out of sharing their results with the researcher. All students developed a participant ID that consisted of an eight-digit code. The code was the birth month and day of the students' mother, followed by the last four numbers of the mother's telephone number, or the student's next of kin. This number was the first question on the students'

pre- and post-tests. The investigator provided an anonymous Qualtrics link to the course facilitator that was embedded in the learning management system to the mindfulness module. The pretest opened during a specified time in the course, and the posttest opened two weeks after completion of the intervention. Participants in the study were linked through the unique participant ID from pretest to posttest. The Qualtrics link was developed by the investigator. However, for ethical considerations, data monitoring occurred by a research assistant involved with the study rather than the course facilitator or the primary investigator. Upon completion of the course and final grade entry, the research assistant accessed Qualtrics and exported the data, removing data for students who wished not to participate.

The research assistant informed the participants of study details after the data collection process was complete. The study information sheet that was provided for student consideration was written using clear and concise wording, and all questions were answered before acknowledgment was obtained. The study information sheet does not have any names, only the participant's ID code, and the participant wrote out “I agree” or “I disagree” to allow my results to be included in this research study. The research assistant kept a hard copy of the completed information sheets in a locked office in the School of Nursing. The risks of participating in this research were minimal, as this study’s intervention examined already existing course assignments. The pre/post-tests were a psychological test that may have made students feel their privacy was invaded. The test was anonymous, and students had the right to opt-out of sharing their results. If a student opted out of sharing their results, the research assistant removed the student's results before data was sent to the researcher. Students’ were informed post hoc on the

study information sheet form that the study will in no way hinder their education or grades. Students were informed that potential benefits may include students' having a decrease in depressive symptoms, anxiety, and stress, and increased coping strategies.

### **Instruments**

Depression, Anxiety, and Stress Scale (DASS-21) has been commonly used for the detection of mental health problems (Lovibond & Lovibond, 1995). The DASS-21 consists of a three-factor structure with seven questions on each of the three variables: depression, anxiety, and stress (Appendix B). The DASS-21 is a self-report questionnaire, where scores are reported on a scale from 0 (did not apply to me at all) to 3 (applied to me very much). Scores range from 0-63, lower scores indicate less depression, anxiety, and stress, whereas higher scores indicate more extreme levels of depression, anxiety, and stress. The tool has been validated and is reliable when evaluating depression, anxiety, and stress (Le et al., 2017). A test re-test of the DASS-21 was administered to 1,745 high school students in Hanoi, Vietnam (Le et al., 2017). The Pearson correlation for the Le et al. (2017) study = .90. The internal consistency coefficient of the DASS-21 Cronbach alpha = 0.906 (Le et al., 2017). The scale is available for public use, and a reference to the DASS (2018) website has been included in the reference section. The DASS-21 has shown good internal reliabilities and discriminant validity across a range of reporting conditions (Beaufort, Oene, Bwalda, Leeuw, & Goudriann, 2017; Le et al., 2017). In this study the DASS-21 had a Cronbach alpha = .91 pretest and Cronbach alpha = .93 posttest.

The Coping Strategies Inventory Short-Form (CSI S-F), which is a short form of the Coping Strategies Inventory (CSI), was used to evaluate coping, a dependent variable

(Addison et al., 2007) (Appendix C). The CSI was originally (Addison et al., 2007) a 78-question questionnaire, and the short form reduced the questions to 16. The CSI S-F has four subcategories that focus on problem-focused engagement (items 1, 2, 8, and 9), problem-focused disengagement (items 4, 7, 12, and 14), emotion-focused engagement (items 5, 6, 11, and 13), and emotion-focused disengagement (items 3, 10, 15, and 16). The CSI S-F is a self-report questionnaire, where scores are reported on a Likert-type scale from 0 (least adherent to that strategy) to 4 (most adherent to that strategy). Individuals receive summed scores for each first-tier subscale (engagement and disengagement: range = 0-32), as well as each of the four-second tier subscales (problem-focused engagement, problem-focused disengagement, emotion-focused engagement, and emotion-focused disengagement: scores range from 0-16). Past results have yielded various reliability, and after extensive conversations and modification, the author and researcher worked together on testing and developing this tool further. Permission from Dr. Addison by personal communication was obtained on September 6, 2019, to use the scale. Samuel and Kannappan (2011) utilized CSI-SF while measuring the coping abilities of students studying in their first year of physiotherapy. They reviewed how males and females coped while in paramedical school, and the internal consistency was Cronbach alpha = .78 (Samuel & Kannappan, 2011). The CSI S-F was also used to examine coping skills in the Jackson Heart Cohort Study that was comprised of 5302 participants. The internal consistency was alpha = 0.58-0.72, with emotion-focused disengagement being 0.58 (Addison et al., 2007). In an additional publication, the CSI S-F was used to measure coping strategies in hemodialysis patients across 13 countries (Speyer et al., 2016). The internal consistency of various subscales ( $\alpha=0.56-0.80$ ) was

seen in the scales of the study (Speyer et al., 2016). An alpha of 0.58 and 0.56 are low, and the subcategory emotion-focused disengagement brought the internal consistency below average in both studies but requires further testing in nursing students. In this study, the overall internal consistency of the pretest was Cronbach alpha= .61 and Cronbach alpha=.79 in the posttest. Problem and emotion-focused disengagement results brought the internal consistency below the acceptable average of Cronbach alpha=.80. See Table 3 for additional results on the CSI S-F.

Demographic data was collected at baseline to include participants' age, gender, ethnicity, semester enrolled in nursing school, history of depression, history of anxiety, and if the student utilized mindfulness before participating in the study (Appendix D). Open-ended questions were asked post-test to examine students' use of mindfulness outside the module and to explore any perceived benefits students' experienced from the online mindfulness module (Appendix E).

## **Intervention**

**Mindfulness.** A module that explains how to access Therapy Assistance Online (TAO), the mindfulness exercises, were distributed to students on the first day of coursework (Appendix G). The course facilitator reviewed the module with students on the first day of class. The University where the study was conducted purchased TAO in 2019. This was the first-time students have been shown or utilized TAO. In the middle of the semester, all second-year students logged onto the TAO website and utilized mindfulness exercises at their own pace for four weeks. TAO provides content focused on different strategies of mindfulness, such as mindful breathing, letting go, take a vacation with your mind, mindfully walking, and noticing yourself. There were twelve

mindfulness exercises. Students watched and practiced three of the twelve exercises each week for a total of four weeks. Therefore, students practiced twelve different mindfulness exercises over the four-week period. Each exercise ranged from two to eleven minutes. The course facilitator monitored student participation in the intervention.

### **Data Collection**

Mid-semester, one week prior to starting the online intervention, students took a pre-test that consisted of demographic data, the DASS-21, and the CSI-SF. The mindfulness intervention was available to all students via an online platform TAO. Students logged onto TAO, three times a week for four weeks and practiced mindfulness exercises. Each week different mindfulness exercises were taught and practiced. Students completed 4 weeks of documentation by submitting a screenshot of the finished modules and their unique 8 digit code weekly. The course facilitator reviewed the screenshots each week. A post-test that consisted of the students' 8 digit code, DASS-21, and the CSI-SF were administered to students two weeks after the intervention was completed. Once final grades were in, the faculty member de-identified the students and sent the documents to the research assistant. The research assistant removed student data from the students who did not consent to participate. The research assistant then sent the researcher the de-identified data of students consenting.

No one involved with students had enough information to know who participated and who did not. The faculty member for the course requiring the test module is the only person who has access to data and names (that faculty is not participating in the research other than serving as the host). The Research Assistant did not see the names of the students, only the ID and data. The faculty member sent the de-identified information to

the research assistant who, in return, deleted participants who did not wish to participate per their consent. Then the researcher received the data for only those who consented. The research assistant and the primary investigator did not see the weekly screenshots only the excel sheet that had been de-identified by the course facilitator.

Upon completion of the course and final grade entry, the research assistant accessed Qualtrics and exported the data. The faculty member sent the research assistant the de-identified data of students' participation in the intervention. The research assistant then removed all students who wished not to participate and sent all de-identified data to the primary investigator. The data were stored in an Excel format on a password-protected computer.

### **Data Analysis**

Descriptive statistical analysis was conducted for the study sample and measures (Portney & Watkins, 2009). Sample descriptives and frequencies were obtained using SPSS. The data were then examined for the number of responses, missing data, responses outside the expected range, and normal distribution of data. The data was reviewed and cleaned prior to analysis in order to address concerns regarding the accuracy of data entry and missing data. Data for all cases were within the expected range and included all items essential for calculation of variable scores. However, eight cases were deleted because the identifier that linked the pre-test to the post-test could not be matched.

Each variable was analyzed to determine if parametric assumptions were met, and depending on the outcome of meeting these assumptions, the appropriate statistical test was performed. The statistical analyses were completed in IBM SPSS version 24 (IBM



Corporation, 2015), with a 95% confidence interval. The excel data file was imported into SPSS and saved in an SPSS file format for running the various statistical tests (Field, 2013). The analysis used paired t-tests to explore differences in depression, anxiety, stress, and coping pre and post-test. T-tests were one-tailed with a p-value < 0.05 to be considered statistically significant. Where applicable, confidence levels were set at 95%. Seventy-six complete cases were considered adequate for the use of the paired t-tests. Demographic data were collected and are described in Table 4 Demographics.

### **Procedures to enhance control**

This study examined course artifacts upon completion of the learning activities and after final grades were entered. At that time, according to the study information sheet (Appendix H), the research assistant excluded students who wished not to participate in the study. The research assistant also pulled the data from Qualtrics, excluded students who wished not to participate by their eight-digit code. Once excluded students were removed from the data file, the research assistant transferred the de-identified Microsoft Excel document to the investigator through a secure email system. The de-identified data in the electronic Microsoft Excel database is maintained on a password-protected computer in the researcher's locked office.

The mindfulness intervention was provided to students mid-semester when they were busy with clinical, simulation, and exams. The likelihood of stress was high, and it was theorized strategies for managing stress was needed. No other coping education or mindfulness exercises were offered through the nursing school in this time period. Threats to internal validity include maturation, such as stress going away on its own, not from the intervention (Portney & Watkins, 2015). Threats to external validity include the

study only being conducted at one nursing school across three campuses, that most nursing students in this cohort are female, and that there is no monitoring of a control group. However, they are still considered one cohort across three campuses.

### **Findings/Results**

One hundred twenty-one students participated in the mindfulness module. Forty-five students were excluded from the research for the following reasons. Twenty-one participants did not agree to participate in the research; an additional eleven did not fill out a consent form. Furthermore, six students did not complete the pre and post quizzes, and two participant identifiers that linked the pre- to the post-test could not be matched with the study information sheet, and five students did not complete the mindfulness exercises. The final data set included 76 nursing students resulting in a 62.8% response rate.

### **Demographics**

Participant demographics are presented in Table 4 Demographics. The sample was mostly female (89.5%), with most participants identifying as either white (Caucasian/White/European/Anglo), Black (African/Black/African American), Hispanic (Hispanic/Latino/Puerto Rican), or Asian (Asian/Taiwanese). The average age was 22.28 ( $SD = 2.99$ ) years, and the median age was 22 years. All (100%) were enrolled in the fourth semester of nursing school. The campuses where students attended school are the original campus (65.8%), site two (3.9%), and site three (30.3%). Many participants (81.6%) had never been diagnosed with depression or (78.9%) anxiety. Fifty-six percent did not currently practice mindfulness; therefore, forty-three percent did. Of the 43%, 14

practiced at least once weekly, 4 practiced more than once per day, 6 practiced once daily, and 8 practiced several times weekly.

*Table 4 Demographics*

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<i>Demographics (N = 76)</i>		
<i>What is your gender?</i>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Male	8	10.5
Female	68	89.5
<i>What is your race?</i>	<b>n</b>	<b>%</b>
Caucasian/White	47	61.8
Black/African American	6	7.9
Hispanic/Latino	20	26.3
Asian	1	1.3
Other	2	2.6
<i>Do you Currently practice Mindfulness?</i>	<b>n</b>	<b>%</b>
Yes	33	43.4
No	43	56.6
<i>If Yes, how often do you practice Mindfulness?</i>	<b>n</b>	<b>%</b>
More than once per day	4	5.3
Once Daily	6	7.9
Several Times Weekly	8	10.5
At least once Weekly	14	18.4
<i>Have you ever been diagnosed with Depression?</i>	<b>n</b>	<b>%</b>
Yes	14	18.4
No	62	81.6
<i>Have you ever been diagnosed with Anxiety?</i>	<b>n</b>	<b>%</b>

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Yes	16	21.2
No	60	78.9
<i>What Campus do you attend?</i>	<i>n</i>	<i>%</i>
Original Campus	50	65.8
Site Two	3	3.9
Site Three	23	30.3
<i>What semester of Nursing School are you Currently Enrolled in?</i>	<i>n</i>	<i>%</i>
Fourth	76	100

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<i>What is your age in years?</i>	19	40	22.28	2.996

Table 5 presents the Cronbach's alpha for assessing the internal consistency of the Depression, Anxiety, Stress Scale 21(DASS 21), and the Coping Strategies Inventory Short-Form (CSI S-F) subscales. The DASS 21 had a good internal consistency throughout the pretest ( $\alpha = 0.91$ ) and posttest ( $\alpha = 0.93$ ). The CSI S-F had an internal consistency of ( $\alpha = 0.61$ ) for the pretest and ( $\alpha = 0.79$ ) for the posttest.

*Table 5 Cronbach's alpha for assessing the Depression, Anxiety, Stress Scales 21(DASS 21) and the Coping Strategies Inventory Short-Form (CSI S-F)*

Instrument/Scale (N = 76)	Reliability Scale	Reliability Total
DASS 21 Pretest		$a = 0.91$
Anxiety	$a = 0.82$	
Depression	$a = 0.88$	
Stress	$a = 0.87$	
DASS 21 Posttest		$a = 0.93$
Anxiety	$a = 0.81$	
Depression	$a = 0.88$	
Stress	$a = 0.87$	
CSI S-F Pretest		$a = 0.61$
PFE	$a = 0.80$	
EFE	$a = 0.85$	
PFD	$a = 0.54$	
EFD	$a = 0.55$	
CSI S-F Posttest		$a = 0.79$
PFE	$a = 0.86$	
EFE	$a = 0.86$	
PFD	$a = 0.78$	
EFD	$a = 0.61$	

PFE: Problem-Focused Engagement; EFE: Emotion-Focused Engagement  
PFD: Problem-Focused Disengagement; EFD: Emotion-Focused Disengagement

## **Quantitative Component**

Paired sample t-tests were used to determine if there was a statistically significant mean difference between key variables before and after an online mindfulness intervention. Outliers were detected that were more than 1.5 box-lengths from the edge of the box in a boxplot. The data were analyzed with and without outliers. There were no differences in significance to the hypotheses, and therefore, all data is reported with outliers included. After close examination, outliers were retained because they appear to be accurate. The assumptions of normality were not violated, as assessed by Q-Q plots and bootstraps.

### **Research Question One**

Research question 1 asked if second-year baccalaureate nursing students had decreased levels of depression after participating in an online mindfulness intervention. Participants scored lower on depression after the mindfulness intervention ( $M = 2.7$ ,  $SD = 3.6$ ) as opposed to prior to the mindfulness intervention ( $M = 3.0$ ,  $SD = 3.6$ ). The mindfulness intervention did not elicit a statistically significant decrease in depression over four weeks compared to their initial depression levels at the beginning of the semester  $M = .31$  points,  $t(75) = 0.89$ ,  $p > .05$ , 95% CI (1.01, .38). There was not a statistically significant difference between means ( $p < .05$ ), and therefore, the null hypothesis is not rejected.

*Table 6 Paired T-Test for main study variable Depression*

Depression	Mean X1	Mean X2	P-value
	Minimum – Maximum	Minimum – Maximum	
	3.05	2.74	.374
	0 – 17	0 – 20	

### **Research Question Two**

Research question two asked if second-year baccalaureate nursing students had decreased levels of anxiety after participating in an online mindfulness intervention. Participants scored lower on anxiety after the mindfulness intervention ( $M = 3.1, SD = 3.3$ ) as opposed to prior to the mindfulness intervention ( $M = 4.1, SD = 4.0$ ). The mindfulness intervention elicited a statistically significant decrease in anxiety over four weeks compared to their initial anxiety levels at the beginning of the semester  $M = .97$  points,  $t(75) = 2.4, p < .018, d = .29, 95\% CI (1.77, .16)$ . There was a statistically significant difference between means ( $p < .05$ ), and therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted.

*Table 7 Paired T-Test for main study variable Anxiety*

Anxiety	Mean X1	Mean X2	P-value
	Minimum – Maximum	Minimum - Maximum	
	4.10	3.13	.018
	0 – 19	0 – 13	



### Research Question Three

Research question three asked if second-year baccalaureate nursing students had decreased levels of stress after participating in an online mindfulness intervention. Participants scored lower on stress after the mindfulness intervention ( $M = 4.5$ ,  $SD = 4.2$ ) as opposed to prior to the mindfulness intervention ( $M = 6.4$ ,  $SD = 4.7$ ). The mindfulness intervention elicited a statistically significant decrease in stress over four weeks compared to their initial stress levels before beginning the intervention  $M = 1.84$  points,  $t(75) = 4.5$ ,  $p < .005$ ,  $d = .45$ , 95% CI (2.64, 1.04). There was a statistically significant difference between means ( $p < .05$ ), and therefore, we reject the null hypothesis and accept the alternative hypothesis.

*Table 8 Paired T-Test for main study variable Stress*

Stress	Mean X1	Mean X2	P-value
	Minimum-Maximum	Minimum-Maximum	
	6.43	4.59	.005
	0 – 19	0 – 17	

### Research Question Four

Do second-year baccalaureate nursing students have increased levels of positive coping after participating in an online mindfulness intervention? Participants scored lower on engagement coping after the mindfulness intervention ( $M = 20.66$ ,  $SD = 6.43$ ) as opposed to prior to the mindfulness intervention ( $M = 21.66$ ,  $SD = 5.88$ ). The mindfulness intervention did not elicit a statistically significant increase in engagement coping over four weeks compared to their initial engagement coping levels before beginning the intervention  $M = 1.00$  points,  $t(75) = 1.9$ ,  $p = .060$ , 95% CI (.523, 2.942).

There was not a statistically significant difference between means ( $p < .05$ ), and therefore, we fail to reject the null hypothesis. Problem-focused engagement is a component of the coping scale and did elicit a statistically significant decrease over four weeks compared to their initial problem-focused engagement levels at the beginning of the semester  $M = .74$  points,  $t(75) = 2.33$ ,  $p = .022$ , 95% CI (1.37, .11). Emotion-focused engagement is an additional subscale which did not elicit a statistically significant decrease over four weeks compared to their initial emotion-focused engagement levels at the beginning of the semester  $M = .263$  points,  $t(75) = .850$ ,  $p = .398$ , 95% CI (.880, .354).

*Table 9 Paired T-Test for main study variables Engagement Coping*

	Mean X1	Mean X2	P-value
	Minimum-Maximum	Minimum-Maximum	
Engagement Coping	21.66 3-32	20.66 4-32	.060
Problem-Focused Engagement	12.03 3-16	11.29 3-16	.022
Emotion-Focused Engagement	9.63 0-16	9.37 0-16	.398

### **Research Question Five**

Do second-year baccalaureate nursing students have decreased levels of negative coping after participating in an online mindfulness intervention? Participants scored lower on disengagement coping after the mindfulness intervention ( $M = 14.58$ ,  $SD = 5.39$ ) as opposed to prior to the mindfulness intervention ( $M = 15.11$ ,  $SD = 4.15$ ). The

mindfulness intervention did not elicit a statistically significant decrease in negative coping over four weeks compared to their initial negative coping levels at the beginning of the semester  $M = .526$  points,  $t(75) = .936$ ,  $p = .352$ , 95% CI (1.65, .593). There was not a statistically significant difference between means ( $p < .05$ ), and therefore, we fail to reject the null hypothesis. Neither the problem-focused disengagement component  $M = .026$  points,  $t(75) = .080$ ,  $p = .937$ , 95% CI (.683, .630) nor the emotional-focused disengagement  $M = .50$  points,  $t(75) = 1.482$ ,  $p = .143$ , 95% CI (1.17, .172), elicited a statistically significant decrease over four weeks compared to their initial problem-focused engagement levels at the beginning of the semester.

*Table 10 Paired T-Test for main study variables Disengagement Coping*

	Mean X1	Mean X2	P-value
	Minimum-Maximum	Minimum-Maximum	
Disengagement Coping	15.11 4-25	14.58 4-32	.352
Problem-Focused Disengagement	6.18 0-14	6.16 0-16	.937
Emotion-Focused Disengagement	8.92 2-15	8.42 0-16	.143

### **Research Question Six**

Two open-ended questions were added to the Qualtrics link posttest, and a thematic analysis was used to analyze the data. The aim of the qualitative questions was to gain knowledge and understanding of online mindfulness activities. When adding a qualitative question to a survey, it is important that the researcher clearly describe how themes were identified and how the codes are built and applied to support the study rigor.

The researcher completed the following to assure a rigorous analysis was completed by following Braun & Clarke's recommendations (2006). First, the researcher comprehensively explored as much data related to thematic analysis as possible and familiarized self with the data. Second, the researcher generated initial codes. Third, the researcher searched for themes and placed each response in the different theme categories. Fourth, the researcher reviewed the themes to assure accuracy. Fifth, the researcher defined each theme, and sixth the researcher produced a final report of analysis. The two questions were:

1. Did you practice mindfulness outside this module?
2. What benefits, if any, did you experience from the mindfulness activities?

Fifty-six students reported they practiced mindfulness outside the module, and thirty-six students answered question number two. Two common themes emerged from the benefits students experienced from the mindfulness activities. The two themes are beneficial and time.

Student nurses reported that the online mindfulness activities were beneficial in decreasing stress, assisting with relaxation, and decreasing levels of stress. One student reported the grounding technique of mindfulness assisted in decreasing stress and decreasing the number of panic attacks experienced. Another student reported practicing mindfulness assisted in decreasing stress in the clinical learning environment.

Time was the other theme that emerged. Student nurses reported that setting aside a few minutes a day assisted in positive breathing strategies that decreased stress throughout the day. Student nurses reported being very busy; they reported that mindfulness should be practiced from day one of nursing school because it only takes a

few minutes. Student comments include:

“I learned to be conscious of my breathing when I'm feeling stressed, and I learned ways to relax myself.”

“I was able to use grounding techniques to reduce the stress/panic attacks that I experience.”

“The mindfulness activities allowed me to channel my thoughts and feelings and relax. I experienced a lot of anxiety and pressure throughout nursing school, and this would be extremely helpful if it was incorporated all throughout the program. This was a very positive experience.”

“It allowed me to practice being present instead of constantly thinking about something else.”

“Less stress, an improved mood, more relaxation.”

A few students were indifferent about the mindfulness intervention and felt it could be better used in different settings. One student stated mindfulness is helpful, just not in this situation.

### **Discussion**

This study is important because it adds to the literature by providing evidence that an online four-week mindfulness program can be effective in managing anxiety and stress. Other studies believe that an eight-week mindfulness program that is face to face must be in place to decrease anxiety and stress (Shapero, Greenberg, Pedrelli, de Jong, & Desbordes, 2018; Song & Lindquist, 2015). It is noteworthy to add the open-ended questions brought forth positive results of mindfulness. Additional qualitative studies are recommended to explore the results.

The first research question asked if second-year baccalaureate nursing students had decreased levels of depression after participating in an online mindfulness intervention. The finding of this study does not support a four-week online mindfulness intervention is effective in decreasing depression. A possible reason is depression is usually a chronic condition that needs a longer intervention to assist in improvement (Bekhet, Zauszniewski, Matel-Anderson, Suresky, & Stonehouse, 2018). The mean score of depression did decrease from pre to post-test in this study and should be researched further with a longer intervention. Student nurses may also need a face-to-face intervention to decrease depression as the study completed by Song & Lindquist (2015), had positive results. It is important to add that only fourteen of the seventy-six student nurses reported being diagnosed with depression. This leaves the question, are student nurses feeling depressed or not, and is that the reason for the non-significant results.

The second research question was important to student nurses and asked if students had decreased levels of anxiety after participating in an online mindfulness intervention. The results were significant, and students' open-ended responses supported the online mindfulness intervention. Anxiety can be chronic or acute and rise in stressful situations (Duty, Christian, Loftus, & Zappi, 2016). The results from this study are promising, as this online intervention only takes two to eleven minutes per day to complete and can help with different levels of anxiety. Online mindfulness is important to the literature as it adds an intervention to assist nurse educators in helping student nurses who are suffering from anxiety.

The third research question asked if second-year baccalaureate nursing students had decreased levels of stress after participating in an online mindfulness intervention.

Nursing student's levels of stress are the primary empirical outcomes of this study, which indicated a significant decrease between the pre and posttest. Stress in nursing students has been studied for decades, yet stress continues to affect the success of students within nursing programs negatively. The results from this study are encouraging and add to the literature that an online four-week mindfulness intervention can be used for years to come to decrease stress. The online mindfulness intervention can be used by clinical faculty to assist students in decreasing stress in the clinical setting, which is a major factor of stress as noted in the literature (Deasey et al., 2014; de Souza et al., 2015; Graham et al., 2016; Gurkova & Zelenikova, 2018; Labrague et al., 2018; McCarthy et al., 2018). Faculty members can allow students to use TAO while in the hospital setting to take a few minutes out of their day and care for their own mental health. Additionally, student affairs offices can utilize online mindfulness interventions to assist students with stress as they are waiting to get students into counseling centers. Since it takes two to four weeks to see a counselor face to face (Pattani, 2016), the online mindfulness intervention can be utilized in the meantime to assist with stress management skills.

Although the mean scores of depression, anxiety, and stress decreased they were in normal range pre and post-test according to the DASS 21 with the exception of anxiety. Anxiety with a  $M = 4.11$  at time-one (mild anxiety) reduced to normal range  $M = 3.13$  at time-two. Anxiety is a common complaint among nursing students, due to the heavy course and clinical burden (McCarthy et al., 2018). Meaning that it is likely that the mindfulness intervention made a difference in the way students managed their anxiety. Minimizing depression, anxiety, and stress in their last semester of nursing school helps students to focus on synthesizing material and experiences that they will

need to enter practice in a highly stressful environment. Learning the benefits of a mindfulness practice at this stage of professional development may not only help students complete their studies successfully but may also provide them with a skill they can employ in their future practice.

The fourth research question asked if second-year baccalaureate nursing students have increased levels of positive coping after participating in an online mindfulness intervention. Although the results were non-significant, they are promising with a Cronbach alpha = .060. Based on the scale (CSI-SF), there are two subcategories that address positive coping; problem-focused engagement; and emotion-focused engagement. The problem-focused engagement subscale did have significant results, which means that student nurses were engaged in focusing on the problem or whatever it was that was causing the stress before the mindfulness intervention but not after. Student nurses were also not engaged in emotion-focused engagement, which is changing their perception of the stressful situation, although the mean scores did not change from pre- to post-tests. Perhaps a qualitative study can add to the literature addressing problem and emotion-focused coping by evaluating student nurses' perceptions of stressful situations and how students focus on stress.

Furthermore, the fifth question asked if second-year baccalaureate nursing students have decreased levels of negative coping after participating in an online mindfulness intervention. The results were not significant for problem and emotional-focused disengagement. It is noteworthy to add that the CSI-SF did not show good internal consistency on the disengagement subscales. Further psychometric testing on the CSI-SF should be adapted for construct and internal validity before assumptions can be



made.

Student nurses had easy access to the online four-week mindfulness intervention. Students can practice mindfulness at any time of day, anywhere, and in any setting, as TAO can be downloaded as an app on a smartphone. The students did not have to attend a face to face mindfulness exercise. The online mindfulness results are promising to decrease anxiety and stress in the clinical setting and warrant further studies.

Further research is warranted on the use of an online mindfulness program to decrease depression and increase coping strategies. However, this study provides positive results that an online mindfulness intervention can assist with anxiety and stress, which is a huge step in student wellness and mental health. Furthermore, the results of this study addressed the gap in the literature of an online four-week mindfulness intervention that can decrease anxiety and stress in second-year nursing students.

### **Strengths & Limitations**

The strengths of the study include a strong theoretical framework that has been used in many studies. Additional strengths include a valid and reliable instrument in the DASS 21. The open-ended questions supported the results of decreased anxiety and stress. Additionally, the use of three different campuses at one University brings a diversity of students.

Limitations in this study include a small homogeneous sample from one nursing school. The study used self-reported assessments that could impede a student's veracity. An additional limitation is the lack of a control group. However, pre-test scores were used as a form of control. Additionally, time would be confounding in that there was no way to know if mindfulness is what assisted in the decrease of anxiety and stress or

something unrelated, that helped with anxiety and stress. To address time, the researcher only had a four-week intervention, which was administered when students were heavily engaged in the clinical setting.

The construct validity of the emotional coping disengagement scale of the CSI S-F has been problematic in other populations, which may have contributed to the non-significant results, both construct and internal validity of this study. The CSI S-F requires further testing.

### **Recommendations**

The findings from the study warrant additional research in student nurses' and the use of online mindfulness intervention. Adding more qualitative questions to the study could strengthen the study. It is recommended that this study be replicated in first-year student nurses to see if results are parallel. A longitudinal study that's aim is to see the relationship between an online mindfulness intervention and the retention of student nurses is necessary.

This is the first study to support the four-week online mindfulness intervention by using the DASS 21 and CSI-SF in decreasing student's anxiety and stress. In contrast, instruments that are tested with the student population and modifying the CSI-SF can bring more reliable results with the coping aspect of the study. Further psychometric testing is warranted on the CSI-SF, especially the areas of problem and emotion-focused disengagement.

Furthermore, practicing mindfulness does not cost the student anything and is a therapeutic approach that can be self-managed. Mindfulness is a more practical and less costly approach than medications and professional counseling for students who only need

strategies to help with stress reduction. Faculty, staff, and student affairs offices across the nation can utilize TAO with students who suffer from anxiety and stress. Results from this study show that faculty can refer students to TAO to utilize mindfulness while waiting to be seen by a counselor or physician. Assisting students in recognizing the importance of mindfulness and the effects it can have on their success is important. Additionally, nursing schools need to look into adopting a policy to assist students with their wellness by adding mindfulness to their curriculum. By utilizing mindfulness, it may help with the retention of nursing students.

With positive results, it is recommended that chief nursing officers look into allowing staff the opportunity to use mindfulness while on the job. It has the potential to help with the burnout rate, anxiety, and help nurses who are under stress on the job. It is recommended that the study be replicated to look at nurses in the hospital setting and see if it does help with burnout, anxiety, and stress.

### **Summary**

Student nurses are under stress throughout nursing school that impedes on their academic success (de Souza et al., 2016; Rathnayake & Ekanayaka, 2016; Zhang & Zheng, 2017) and personal lives (de Souza et al., 2016; Rathnayake & Ekanayaka, 2016). This research was needed to understand the effects of a four-week online mindfulness intervention on depressive symptoms, anxiety, stress, and coping (White, 2014). Assisting students to develop skills to manage stress (de Souza et al., 2016; Graham et al., 2016) and initiate positive coping strategies (Deasy et al., 2014; Malinski & Todaro-Franceschi, 2011) is necessary.

Individual personalities, life experiences, and adaptation to new situations

contribute to how individuals cope. Understanding nursing students coping abilities, competencies, and the effects coping have on students' depressive symptoms, anxiety, and stress is needed in order to further existing research. This manuscript fills the gaps in the literature by deploying an intervention online, such as mindfulness meditation, to decrease second-year nursing students' stressors (Bamber and Schneider, 2016; Manocchi, 2017; White, 2014). Findings support the use of an online mindfulness intervention to effectively decrease nursing students' anxiety and stress. This study is beneficial to nursing educators to assist students with anxiety, stress, and positive coping mechanisms.

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## Chapter 5

### **Summary and Conclusions**

Student nurses are more vulnerable to depression, anxiety, and stress (Deasey, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014; Rathnayake & Ekanayaka, 2016) than non-nursing students (Barlett, Taylor, & Nelson, 2016). The amount of stress student nurses face on a daily basis may impede students' abilities to complete nursing school successfully. The wait time to see a counselor has increased over the years, making it difficult for students to get immediate assistance with coping strategies to mitigate the issue (Pattani, 2016). This issue is further complicated when students are unable to attend time-intensive programs or interventions on campus that focus on stress reduction.

Eight-week mindfulness programs are well documented in the literature (Shapero, Greenberg, Pedrelli, de Jong, & Desbordes, 2018; Song & Lindquist, 2015). Nurse educators are in an optimal position to be able to implement such a program in order to assist students. Therapy Assistance Online (TAO) was a new program being offered to students at the university where this study was conducted. Due to curriculum time restraints, a four-week mindfulness program was developed using online learning modules. Witnessing the effect anxiety and stress was having on students, it was determined that TAO might be effective in mitigating the issue. A four-week online mindfulness model serves to fill the gap in assisting student nurses with depression, anxiety, stress, and coping. The online mindfulness module decreased anxiety and stress in second-year nursing students. Additionally, the open-ended questions on the benefits

mindfulness had on depression, anxiety, stress, and coping resulted in two themes: beneficial and time worthy.

### **Implications for Nursing Practice**

The implications for using mindfulness in nursing practice and education is evident. Practicing mindfulness can be exercised at no cost and used in any setting, situation, and at any time to assist in positive mental health. Once a nurse educator witnesses a student nurse becoming anxious or stressed, they can assist the student in the use of mindfulness to decrease their anxiety and stress. Based on the literature, the clinical learning environment is a major cause of anxiety and stress for nursing students (Graham, Lindo, Bryan, & Weaver, 2016; Gurkova & Zelenikova, 2018; Manocchi, 2017). Student nurses can utilize TAO once they feel their anxiety and stress are rising to decrease the fears of the unknown while in clinical.

Any healthcare provider can also practice mindfulness when anxiety and stressful times emerge during their shift. Nurses can teach their client's mindfulness as another way of being present in the moment and non-judgemental (Kabat-Zinn, 2016). Mindfulness only takes two to twelve minutes and has shown positive results.

### **Next Steps**

Understanding the importance of mindfulness and the effects it has on nursing students' mental health is valuable, given the outcomes of this study. Although some statistically significant results were identified, an important next step is determining the effectiveness of a four-week mindfulness module in the clinical setting. Other points to consider include a better understanding of the impact of mindfulness on nursing students' success. Therefore, repeating the study in first-year student nurses' and following

students throughout their nursing school endeavor would provide a better understanding of the effects of the impact of the mindfulness intervention.

It will also be important to understand how mindfulness is viewed from a student nurse's perspective. Gaining knowledge from the student's perspective regarding the mindfulness module and the influence it had on their depression, anxiety, stress, coping, and success in a nursing program is a future implication. Additionally, comparing the four-week online mindfulness module to a four-week live face to face mindfulness module would be beneficial and add to the literature. Furthermore, assisting in revising the Coping Strategies Index Short-Form can strengthen the validity and reliability of the instrument. Finally, it would be beneficial to replicate the study while licensed nurses are practicing during shift work.

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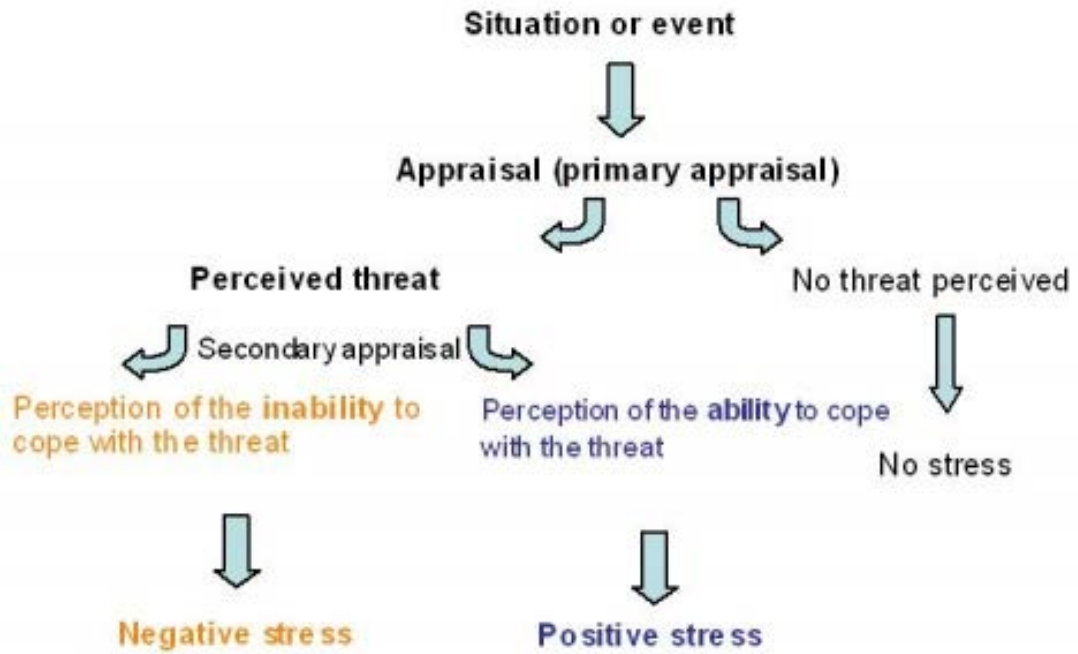
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Appendix A

Figure 2. Lazarus and Folkman's Transactional Model of stress



Lazarus, S. Folkman, 1984

## Appendix B

### Depression, Anxiety, and Stress Scale-21 (DASS-21)

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

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree or a good part of the time

3 Applied to me very much or most of the time

1 (s) I found it hard to wind down 0 1 2 3

2 (a) I was aware of dryness of my mouth 0 1 2 3

3 (d) I couldn't seem to experience any positive feeling at all 0 1 2 3

4 (a) I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion) 0 1 2 3

5 (d) I found it difficult to work up the initiative to do things 0 1 2 3

6 (s) I tended to over-react to situations 0 1 2 3

7 (a) I experienced trembling (e.g., in the hands) 0 1 2 3

8 (s) I felt that I was using a lot of nervous energy 0 1 2 3

9 (a) I was worried about situations in which I might panic and make a fool of myself 0 1 2 3

10 (d) I felt that I had nothing to look forward to 0 1 2 3

- 11 (s) I found myself getting agitated 0 1 2 3
- 12 (s) I found it difficult to relax 0 1 2 3
- 13 (d) I felt down-hearted and blue 0 1 2 3
- 14 (s) I was intolerant of anything that kept me from getting on with what I was doing 0 1 2 3
- 15 (a) I felt I was close to panic 0 1 2 3
- 16 (d) I was unable to become enthusiastic about anything 0 1 2 3
- 17 (d) I felt I wasn't worth much as a person 0 1 2 3
- 18 (s) I felt that I was rather touchy 0 1 2 3
- 19 (a) I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat) 0 1 2 3
- 20 (a) I felt scared without any good reason 0 1 2 3
- 21 (d) I felt that life was meaningless 0 1 2 3

\*Lovibond, S.H. & Lovibond, P.F. (1995).

## Appendix C

### Coping Strategies Inventory Short-Form (CSI S-F) and Approval Letter

	<b>English Version: COPING STRATEGIES</b> <b>0: never 1:seldom 2:sometimes 3:often 4:almost always</b>
1	I make a plan of action and follow it
2	I look for the silver lining or try to look on the bright side of things
3	I try to spend time alone
4	I hope the problem will take care of itself
5	I try to let my emotions out
6	I try to talk about it with a friend or family
7	I try to put the problem out of my mind
8	I tackle the problem head-on
9	I step back from the situation and try to put things into perspective
10	I tend to blame myself
11	I let my feelings out to reduce the stress
12	I hope for a miracle
13	I ask a close friend or relative that I respect for help or advice
14	I try not to think about the problem
15	I tend to criticize myself
16	I keep my thoughts and feelings to myself

\*Addison, Campbell-Jenkins, Sarpong, Kibler, Singh, Dubbert,...& Taylor, 2007

## Permission to Use the Coping Strategies Inventory Short-Form

**From:** [Clifton Addison](#)  
**To:** [Franco, Hollis](#)  
**Cc:** [Brenda Jenkins](#); "[Gregory Wilson](#)"  
**Subject:** RE: Use of the Coping Strategies Inventory Short-Form  
**Date:** Friday, September 6, 2019 5:53:00 PM  
**Attachments:** [image004.png](#)  
[CSI-SF Instrument\(Approach to Life B\) \(1\).doc](#) [CSI-SF questionnaire \(1\).doc](#)  
[CSI-SF Scales.pdf](#)  
[CSI-SF-The Survey Items of the CSI-SF.docx](#)

**CAUTION:** This email originated from outside of TTUHSC. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you very much for your interest in our work. You have permission to use the CSI-SF for your research. I am attaching some files with information that will be helpful. Please keep me informed of your progress.

Dr. Clifton  
Addison  
Senior  
Research  
Scientist  
Jackson Heart Study Graduate Training and  
Education Center Associate Professor  
Department of Epidemiology  
and Biostatistics School of  
Public Health  
Jackson State University  
350 West Woodrow  
Wilson Drive Suite  
2900B  
Jackson, MS  
39213  
Phone: [\(601\)-  
979-8765](tel:(601)979-8765)  
e-mail: [clifton.addison@jsums.edu](mailto:clifton.addison@jsums.edu)



***Jackson Heart Study Graduate Training and Education Center***

***Facebook:***

***<https://www.facebook.com/GraduateTrainingEducationCenter>***

***Website: <http://www.jsums.edu/gtec/>***

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**From:** Franco, Hollis [<mailto:Hollis.Franco@ttuhsc.edu>]

**Sent:** Thursday, September 5, 2019 12:30 PM

**To:** [clifton.addison@jsums.edu](mailto:clifton.addison@jsums.edu)

**Subject:** Use of the Coping Strategies Inventory Short-Form

Good afternoon,

I am writing in hopes of gaining access to the Coping Strategies Inventory Short-Form.

I want to use this tool to measure nursing students coping strategies before and after the use of mindfulness intervention. May I have your permission to use this tool?

Thank you for your  
consideration. Hollis

Franco

**Hollis Franco MSN, RN-BC**

## Appendix D

### Demographic Survey

Please answer the following questions:

1. What is your age? \_\_\_\_\_
2. What is your gender? Male \_\_\_\_\_ Female \_\_\_\_\_ Transgender \_\_\_\_\_ Other \_\_\_\_\_  
\_\_\_\_\_ Prefer not to answer \_\_\_\_\_
3. What is your ethnicity? White \_\_\_\_\_ Hispanic or Latino \_\_\_\_\_ Black or African American \_\_\_\_\_  
Native American or American Indian \_\_\_\_\_ Asian/Pacific Islander \_\_\_\_\_ Other \_\_\_\_\_
4. Do you practice mindfulness based stress reduction currently? Yes \_\_\_\_\_  
No \_\_\_\_\_  
If yes How often do you practice mindfulness?  
More than once a day \_\_\_\_\_ Once per day \_\_\_\_\_ Several times weekly \_\_\_\_\_  
Once a week \_\_\_\_\_ -
5. Have you ever been diagnosed with Depression? Yes \_\_\_\_\_ No \_\_\_\_\_
6. Have you ever been diagnosed with Anxiety? Yes \_\_\_\_\_ No \_\_\_\_\_
7. What semester of Nursing School are you currently enrolled in?



## Appendix E

### Open-ended questions

1. Did you practice mindfulness outside the module?
2. What benefits, if any, did you experience from the mindfulness activities?

## Appendix F

### Mindfulness Module

#### **Introduction**

The purpose of this module is to add an additional coping strategy for senior nursing students. Students will learn basic mindfulness strategies, review 12 exercises over mindfulness, and practice using mindfulness techniques. Students will also learn how to manage stress by using mindfulness as a coping strategy.

#### **Mindfulness Module Objectives**

Upon completion of the Mindfulness Module, students will:

1. Understand the importance of mindfulness.
2. Identify mindfulness strategies.
3. Demonstrate understanding of mindfulness techniques.
4. Examine current stress management techniques and incorporate the use of mindfulness as an additional coping strategy

#### **Pre-test**

1. You will be assigned 1 pre-test (in the quiz section of canvas) which will open **October 9<sup>th</sup> at 0800** and are due **October 9<sup>th</sup> at 2155**.

*Quiz 1- Demographics; DASS 21 (Depression, Anxiety, and Stress Scales; Coping Strategies Inventory-Short Form*

During this course, you will be asked to take surveys that will measure your depression, anxiety, stress, and coping. If you score extremely severe on any component, you are encouraged to reach out to the counseling center at 806-743-3596. These scores are anonymous, and faculty or staff will not be able to link the survey score to individual students. Additionally, if you have thoughts of suicide, please call 911 immediately.

#### **Learning Activities**

Starting **October 14<sup>th</sup>**, Mindfulness Exercises will be open for you to view. You have 4 weeks to complete 12 Exercises. You are encouraged to truly clear your mind and participate in mindfulness activities. In order to get the most out of this module, you are encouraged to practice mindfulness 3 times a week for 4 weeks utilizing the activities provided. The Modules will close on **November 11<sup>th</sup>**. The instructor will be able to view your progress to ensure the modules were utilized via the online platform.

[Log onto](#)

*[thepath.taoconnect.org](http://thepath.taoconnect.org)*

*Click the blue box that says, “sign up in self-help with an institution.”*

You will be directed to input your TTUHSC email and password. Make sure you use your TTUHSC email.

Once on the site click on *My TAO Tools*

**Then click on *Mindfulness Library***

*You will see 15 Mindfulness exercises. The first 12 are mandatory to view and utilized, the last 3 are not mandatory but can be utilized if you wish. You must practice mindfulness 3 times a week for 4 weeks utilizing the activities provided. Your instructor can view your progress.*

- Mindfully Walking Mindfulness Exercise Page (**Mandatory**)
  - Take a Vacation In Your Mind - Guided Imagery Page (**Mandatory**)
  - Deep Breathing Page (**Mandatory**)
  - Mindful Examination of a Leaf Page (**Mandatory**)
  - Mindful Eating Page (**Mandatory**)
  - Mindful Breathing #1Page (**Mandatory**)
  - Mindful Breathing #2Page (**Mandatory**)
  - Mindful Awareness Exercise Page (**Mandatory**)
  - Letting Go Page (**Mandatory**)
  - Notice Yourself Page (**Mandatory**)

- Observing Thoughts Exercise Page (**Mandatory**)
- States of Flow Page (**Mandatory**)
- Meditation for Pain #1Page (Not Mandatory)
- Meditation for Pain #2Page (Not Mandatory)
- Meditation for Pain #3 (Not Mandatory)

**Post-test**

1. You will be given 1 post-test (in the quiz section of canvas) which will open **November 26<sup>th</sup>** at 0800 and are due **November 26<sup>th</sup>** at 2155.

*Quiz 1- DASS 21 (Depression, Anxiety, and Stress Scales); Coping Strategies Inventory-Short Form*

## Appendix G

### Study Information Sheet

#### **Texas Tech Health Science Center School of Nursing**

**Title of Research Study:** Effects of an Online Mindfulness Program on Depression, Anxiety, Stress, and Coping among Undergraduate Second-Year Nursing Students

**Project Description:** I am Hollis Franco, a student at The University of Texas at Tyler, and I want to know if mindfulness helps with depression, anxiety, stress, and coping in nursing students.

**Potential Risks:** The risks of participating in this research are minimal, as this study will examine already existing course assignments. Extreme efforts have been taken to protect your anonymity and maintain confidentiality. The researcher will not have any data that is linked to you so the potential for any breach of confidentiality will be as minimal as possible.

**Potential Benefits:** The benefits of participating in this research study may include contributing to teaching and learning best practices on mindfulness. As well as students' having new strategies for decreasing stress, depressive symptoms, as well as anxiety and increasing coping strategies.

**Understanding of Participants:**

1. I have been given a chance to ask any questions about this research study. The researcher has answered my questions. I understand any and all possible risks.
2. If I agree to my data being used, I know it means that:
  - I am taking part in this study because I want to. I chose to take part in this study after having been told about the study and how it will affect me.
  - I know that I am free to not be in this study. If I choose to not take part in the study, then nothing will happen to me as a result of my choice. My grades will not be affected by this study
  - I know that I have been told that if I choose to be in the study, then I can stop at any time. I know that if I do stop being a part of the study, then nothing will happen to me.
  - I know the information that is obtained from me during this study may be shared with other researchers, but if so, my name and any other identifying information will not be with this information. I know the researchers may keep this information for up to (7 years) or until I inform them that I no longer give permission to share it. I know that it is unknown as to how long other researchers will keep my information.
3. I have been promised that my name or other identifying information will not be in any reports (presentations, publications) about this study unless I give my permission. The UT Tyler Institutional Review Board and Texas Tech University Health Science Center

Institutional Review Board (the group that makes sure that research is done correctly and that procedures are in place to protect the safety of research participants) may look at the research documents. This is a part of their monitoring procedure and will be kept confidential.

4. If I have any questions concerning my participation in this project, I will contact the principal researcher: Mrs. Hollis Franco at [hfranco2@patriots.uttyler.edu](mailto:hfranco2@patriots.uttyler.edu) or (806) 252-7424
5. If you would like to speak to someone who is not involved in the study about your rights as a participant, research-related injuries, or any other matter related to the study, you can call the TTUHSC EthicsPoint Hotline: 1-866-294-9352.
6. Or, you can file an EthicsPoint report online: <https://secure.ethicspoint.com/domain/media/en/gui/12958/index.html>. Please choose the "Regulatory Compliance" option when making an online report.
7. Research results from this study may be shared with other researchers for future research, but any identifying information will be removed by the principal researcher of this study before the information is shared.

**Information Sheet/PERMISSION FOR PARTICIPATION IN THIS RESEARCH STUDY**

**This is your copy of this document**

Keep it in a secure place with the rest of the information about this study.

REMEMBER: Since the mindfulness module is part of your course, you need a participant number whether you agree to participate in the study or not, so that the computer program and research assistant can be sure only that data from students who agree to participate is included in the study database. Agreeing or disagreeing to participate will no way hinder your grades

Your ID is 8 digits long.

The first 4 digits are your mother's birth month and day (MMDD): \_\_\_\_\_

The last 4 digits are the last 4 numbers of your mothers' telephone number:

\_\_\_\_\_

In the case you do not know your mothers' information, please input your significant others information, just remember the numbers.

1. **Put them together** (no spaces): \_\_\_\_\_  
MMDD#### (This is your study number)

**This is the research assistant's copy of this document. Complete it and place it in an envelope provided.**

Your ID is 8 digits long.

The first 4 digits are your mother's birth month and day (MMDD): \_\_\_\_\_  
The last 4 digits are the last 4 numbers of your mothers' telephone number:

\_\_\_\_\_

In the case you do not know your mothers' information, please input your significant others information, just remember the numbers.

1. **Put them together** (no spaces): \_\_\_\_\_

MMDD#### (This is your study number)

REMEMBER: Since the mindfulness module was part of your course, you need a participant number whether you agree to participate in the study or not, so that the computer program and research assistant can be sure that only that data from students who agree to participate is included in the study database.

1. **Choose 1 option below and complete fully:**

a). AGREEMENT TO PARTICIPATE

In consideration of all the information I have received, I agree to take part in this study and allow the investigators to use my scores in the study database

\_\_\_\_\_  
Write out the words: *I agree*

Date: \_\_\_\_\_ (Must be dated by the subject)

**OR**

b). REFUSAL TO PARTICIPATE

In consideration of the information I have received, I choose not to participate in this research study and will not allow my scores to be used in the study database. I understand that although I refuse to take part in this study, I still need to participate in the activities in the mindfulness module and take the pretest and posttest. I also understand that my data will be removed by the Research Assistant for the study and destroyed. It will not be included in the analysis or results of the study.

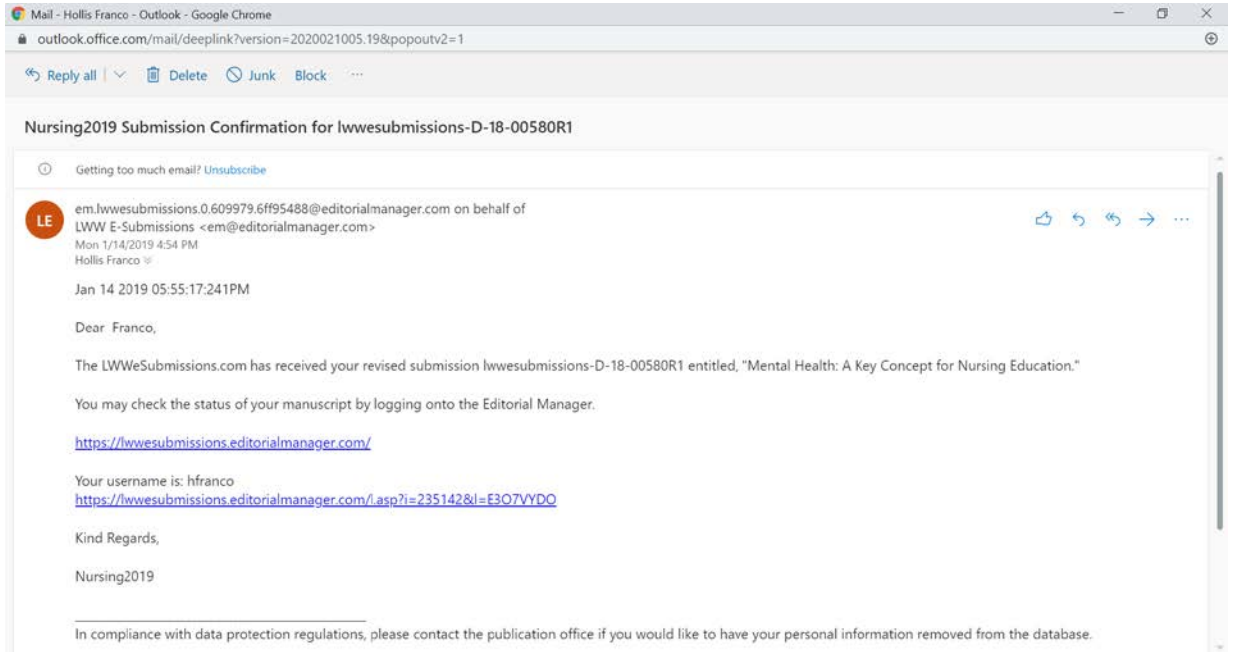
\_\_\_\_\_  
Write out the words: *I do not agree*

Date: \_\_\_\_\_ (Must be dated by the subject)

The University of Texas at Tyler  
Study Information Sheet  
Institutional Review Board  
Approval Date: 11-4-19

# Appendix H

## Mental Health Manuscript Submission





## Appendix I

### Institutional Review Board Permission – The University of Texas at Tyler



INSTITUTIONAL REVIEW BOARD

uttyler.edu/research • Fax: 903-565-5858

11/04/2019

Dear Ms. Franco,

Your request to conduct the study, *Effects of an Online Mindfulness Program on Depression, Anxiety, Stress, and Coping among Undergraduate Second-Year Nursing Students*, IRB Fall 2019-19 has been approved by The University of Texas at Tyler Institutional Review Board under expedited review, Category 7. The approval includes waiver of signed consent and your assurance of participant knowledge of the following prior to study participation: this is a research study; participation is completely voluntary with no obligations to continue participating, and with no adverse consequences for non-participation; and assurance of confidentiality of their data.

In addition, please ensure that any research assistants are knowledgeable about research ethics and confidentiality, and any co-investigators have completed human protection training within the past three years, and have forwarded their certificates to the Office of Research and Scholarship (research@uttyler.edu).

**Please review the UT Tyler IRB Principal Investigator Responsibilities, and acknowledge your understanding of these responsibilities and the following through return of this email to the IRB Chair within one week after receipt of this approval letter:**

- Prompt reporting to the UT Tyler IRB of any proposed changes to this research activity.
- **Prompt reporting to the UT Tyler IRB and academic department administration will be done of any unanticipated problems involving risks to subjects or others.**
- Suspension or termination of approval may be done if there is evidence of any serious or continuing noncompliance with Federal Regulations or any aberrations in original proposal.
- Any change in proposal procedures must be promptly reported to the IRB prior to implementing any changes except when necessary to eliminate apparent immediate hazards to the subject.

Sincerely,

*Gloria Duke, PhD, RN*

Gloria Duke, PhD, RN  
Delegated Reviewer  
The University of Texas at Tyler

## Appendix J

### Institutional Review Board Permission – Texas Tech Health Science Center



**INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS**  
**FWA # 00006767                      LUBBOCK/ODESSA IRB #00000096**

**EXEMPT FROM FORMAL IRB REVIEW**

November 25, 2019

**IRB #:** L20-044

**STUDY:** Effects of an Online Mindfulness Program on Depression, Anxiety, Stress, and Coping among

Undergraduate Second-Year Nursing Students

**PRINCIPAL INVESTIGATOR:** Hollis Franco

**SUBMISSION REFERENCE #:** 082058

**TYPE OF REVIEW:** ADMINISTRATIVE

**DATE CLASSIFIED AS EXEMPT:** 11/25/2019

**APPLICABLE FEDERAL REGULATION:** 45 CFR 46.104(d)(4)(ii)

**RECOMMENDATION:** This project is acknowledged as meeting criteria for exemption from formal IRB review in accordance with 45 CFR 46.104(d)(4)(ii). The research does not include medical record review; therefore, HIPAA regulations do not apply.

This application was screened for exempt status according to TTUHSC policies and the provisions of applicable federal regulations. The study was found not to require formal IRB review because the research falls into one of the categories specifically designated as exempt per 45 CFR 46.104(d).

**Do not use any subject names or identifiers when presenting or publishing the study results.**

There is no expiration date for studies which have been classified as Exempt from formal IRB review.

**Study Personnel Currently Approved to Conduct the Research:** Amy Boothe

**Reporting:** Modifications to this research proposal must be submitted to and acknowledged by the IRB prior to the implementation of the modification. You must report to the IRB any serious problem, adverse effect, or outcome that occurs in conjunction with this project. You are also required to notify the IRB when this study is completed.

The Texas Tech University Health Sciences Center Institutional Review Board is duly constituted (fulfilling FDA requirements for diversity) allows only those IRB members who are independent of the investigator and sponsor of the study to vote/provide opinion on the study, has written procedures for initial and continuing review, prepared written minutes of convened meetings, and retains records pertaining to the review and approval process; all in compliance with requirement defined in 21 CFR (Code of Federal Regulations) Parts 50 and 56 and ICH (International Conference on Harmonization) guidance relating to good clinical practice.

Please retain this letter with your research records. Research records include all Institutional Review Board submissions and responses and must be kept in the principal investigator's file for a minimum of three (3) years after completion of the study.

The Texas Tech University Health Sciences Center (TTUHSC) IRB Policies and Procedures are available for reference on the TTUHSC Human Research Protection Program Website (<http://www.ttuhscc.edu/research/hrpo/irb/>).

**TTUHSC Lubbock/Odessa Institutional Review Board**  
**3601 4<sup>th</sup> Street STOP 8146**  
**Lubbock, TX 79430**  
**806-743-4753**

Appendix K

**BIOGRAPHICAL SKETCH**

NAME: Hollis Franco, MSN, RN-BC

POSITION TITLE: Assistant Professor

**EDUCATION/TRAINING**

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Covenant School of Nursing Lubbock, Texas	RN	05/2008	Nursing
Lubbock Christian University Lubbock, Texas	BSN & MSN	05/2012	Nursing
The University of Texas at Tyler Tyler, Texas	Ph.D.	present	Nursing Philosophy and Research

**A. Personal Statement**

My nursing career started in a behavioral health facility. I staffed days in the behavioral health unit and took care of patients who were mentally ill. After a year of nursing experience, I was promoted to charge nurse, where I assigned nurses to a 24-bed unit. I worked very closely with physicians, psychologists, and interprofessional team members to provide the best care to our clients. Taking care of clients with mental illness is my passion. I strive to serve and hope to end the stigma of mental health. My next role consisted of case management, charge nurse, dialysis nurse, and unit educator for medical surgical nursing students in a long term acute care facility. The change was to further my career and dreams of becoming a professor one day. Next, I transitioned into academia, where I found myself wanting to learn more about mental health and mental illness through research. I had coworkers seeking their doctorates or had many years in research. After applying to Ph.D. school, I knew my research would involve mental health and

mental illness as I was witnessing nursing students go through difficult times and I felt and wanted to help them with coping strategies.

## **B. Positions and Honors**

### **Positions and Employment**

2008-2011	Nurse/Charge Nurse Behavioral Health Facility
2011-2013	Case Manager/Charge Nurse Long Term Acute Care Center
2013-2016	Instructor, Department of Nursing, Lubbock, TX
2016-2020	Assistant Professor, Department of Nursing, Lubbock, TX

### **Other Experience and Professional Memberships**

2014-2017	Member, National Alliance of Mental Health (NAMI)
2014-present	Member, American Nurses Association (ANA)
2013-present	Member, The Honor Society of Nursing Sigma Theta Tau International (STTI)
2013-present	Member, National League for Nursing (TXLN)

### **Honors**

2015	Novice Faculty Award, Texas Tech University Health Sciences Center, Lubbock
2017	Volunteer Group of the Year, Ted Phea Boys & Girls Club, Lubbock
2017	Exceptional Teaching Award, Texas Tech University Health Sciences Center, Lubbock
2018	Nurse of the Year, Texas Tech University Health Sciences Center, Lubbock

## **C. Contribution to Science**

The three articles will be submitted to journal articles.