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# Stress and Mindfulness Meditation Strategies in Nursing Student Clinical Education and Future Clinical Practice

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Stress and Mindfulness Meditation Strategies in Nursing Student Clinical Education and  
Future Clinical Practice

by

Joanne K. McClave

A DNP project submitted to the faculty of  
Gardner-Webb University Hunt School of Nursing in  
partial fulfillment of the requirements for the degree of  
Doctor of Nursing Practice

Boiling Springs, NC

2018

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## Abstract

The purpose of the DNP project was to assist students to recognize, reduce, and manage their stress. The mindfulness meditation interventions are an effective strategy to manage and reduce stress. The project was set in a southeastern part of the United States at a community college that has an associate degree nursing program. At present, nursing education does not include stress and the management of stress in the curriculum. The project targeted associate degree nursing students to teach students how stress influences their lives and evidence-based strategies to alleviate their stress in clinical practice and in future practice. Two valid and reliable instruments, The Mindfulness Attention Awareness Scale (MAAS) developed by Dr. Kirk Brown and the Perceived Stress Scale developed by Sheldon Cohen, evaluated students' perception of stress and awareness of mindfulness in everyday experiences. Implementation of the project was through Moodle Learning Platform, an electronic learning vehicle at the college, lasting for a duration of nine weeks. The project produced mixed results in some reviewed statistical areas but demonstrated statistical significance in senior students use and perceived benefits of practicing mindfulness meditation strategies post-project implementation. Sustainability of the project would be easily replicated through implementation of face-to-face meetings or through an electronic learning platform.

*Keywords:* stress management, nurses' stress, students' stress, stress reduction strategies, burnout, debriefing, relaxation techniques, mindfulness meditation

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## SECTION I

### Problem Background and Significance

#### Problem Recognition

Nurses provide care in a healthcare system mired in controversial political, philosophical, and economic changes in the United States. The healthcare environment is experiencing rapid transformations in the struggle to remain afloat as an economically solvent system (Patient Protection and Affordable Care Act, 2010; Knickman & Kovner, 2015). Nurses are caring for patients requiring complex treatment regimens. Patients demand an excellent standard of care from their healthcare professionals. The United States healthcare system purported as the most advanced in the world, with sophisticated technology, innovative research, and preparing the best healthcare providers is not without significant negative patient outcomes. More than 18 years ago, two landmark studies from The Institute of Medicine (IOM 1999) report "To Err is Human", and the (IOM, 2001) "Crossing Quality Chasm" imparted disturbing statistics that patients are injured and dying attributable to preventable medical errors. Despite advantages in medicine and education for healthcare professionals, catastrophic errors persist. Partial factors responsible for medical errors include inferior nursing practice, nurses failing to follow protocols, unrealistic workloads causing fatigue, and overwhelming stress (IOM, 1999; 2001).

As the healthcare system goes through enormous transformations, more nurses are needed to fill a variety of roles. Today, current issues create vacancies at the bedside, shortages of advanced practice nurses, and the retirement and aging of nurse educators. These preceding known issues loom over the profession and could lead to dire

consequences. It is essential for the nursing profession to retain and support all nursing members. Consistent with a number of studies, the Health Resources and Services Administration (HRSA) an agency of the U.S. Department of Health and Human Services (USDHHS) published the report, Supply and demand projections of the nursing workforce: 2014-2030 (USDHHS, 2017). The report stated recruiting and replacing an aging nursing workforce is predicted to be challenging. The USDHHS projects the number of registered nurses to reach approximately "3,895,600 full time equivalents in 2030" (USDHHS, 2017, p. 8). The demand for full time registered nurses is projected to increase to 3,601,800 in 2030. The result is a surplus 293,800 of full time registered nurses nationally; however, the surplus is not distributed evenly across the United States. The report projected severe shortages of registered nurses in California, Texas, New Jersey and South Carolina (Exhibit 1 of the USDHHS, 2017). The report published by the Robert Wood Johnson Foundation, Healthcare's Human Crisis: The American Nursing Shortage (2002), expounds the current day nursing shortage crisis is partly to blame for the reduction in the quality of healthcare and affects patients negatively (as cited by Kimball & O'Neil 2002).

### **Deficits in the Current Circumstances and the Identified Need**

These challenges have brought additional unexpected complications for the nursing profession. For over 25 years, multiple studies characterized nurses suffering stress is a powerful psychological influence affecting clinical performance (Aiken, Clarke, Sloane, Lake, & Cheney, 2008; Manzano-Garcia, & Ayala, 2017; Rudman & Gustavsson, 2010; Sarafis et al., 2016; Van Bogaert, Kowalski, Weeks, Van heusden, & Clarke, 2013). Stress is a universal issue for most nurses practicing bedside care. For



over three decades, researchers explored the influence of stress and anxiety and its impact upon the nursing profession. Selye's General Adaptation Syndrome defines stress as a physiological response to a stimulus (Selye, 1976). A person's thoughts, beliefs, attitudes, and perceptions of the stimulus regulates a persons' well-being (Selye, 1976). Lazarus and Folkman's Theory of Stress, appraisal, and Coping, define stress as a relationship between an individual and their internal and external environment. If an individual perceives a lack of resources and support, the individual's ego and self-esteem are threatened (Lazarus & Folkman, 1984).

The research literature suggests several reasons why nurses are stressed in their clinical environment. Nurses describe a lack of support from unit nurse managers and upper administration, unreasonable workloads and high patient-to-staff ratios, and poor nurse/physician relationships (Olds, Aiken, Cimiotti, & Lake, 2017; IOM, 2004; Knickman & Kovner, 2015; Laschinger & Fida, 2014; Laschinger & Leiter, 2006; Mark & Smith, 2012; Van Bogaert et al., 2013). Nurses frequently report the healthcare system undervalues the profession as a valuable asset, limiting nurses' voices in healthcare. The public's perception of the nursing profession in healthcare needs to change from invisibility to appreciating nursing's significant contributions to patients' quality of care and safety (Kimball & O'Neil, 2002, p. 2).

The influence of untoward stress for some nurses in clinical practice may ensue into grievous psychological and psychological responses. These responses may cause nurses to leave the profession, decreased job satisfaction, and injurious patient outcomes. Unhealthy strategies such as avoidance, engaging in alcohol abuse or misuse of prescription medications could eventually manifest into disruptive states of faulty

cognitive processes, emotional upheaval, physical illness, and maladaptive social relationships (Chesak et al., 2015; Hooper, Craig, Janvrin, Wetsel, & Reimels, 2011). Stress may cause call-outs creating a short-staffed unstable clinical situation. Often other nurses are pulled to unfamiliar nursing units creating an unsafe patient care environment and increasing patient to staff ratios (Van Bogaert et al., 2013). Nurses who are distracted because of severe anxiety may find themselves in a tenuous situation of failing to recognize individual patient's values and goals resulting in poor patient satisfaction (Sherman, 2004). Several studies correlate nurses' high levels of unresolved clinical stress, having unfavorable quality patient care outcomes (Aiken, Sloane, Bruyneel, Van den Heede, & Sermeus, 2012; Brady, Malone, & Fleming, 2009). The research literature affirms stressed-out nurses fail to recognize when a patient's status is deteriorating ultimately failing to rescue the patient (Aiken et al., 2008; Laschinger & Fida, 2014). Dangerous nursing practice errors have led to patients dying (Aiken et al., 2008; Aiken et al., 2012; Laschinger & Fida, 2014; Teo, Yeung, & Chang, 2011; Van Bogaert et al., 2013).

Without relief from managing stress many nurses develop burnout. Burnout is defined as a protracted emotional, behavioral, and psychological response to chronic stressors experienced in the clinical environment (Maslach, 2003). An individual experiencing burnout suffers physical, spiritual, and emotional exhaustion secondary to stressful effects of clinical nursing practice (Stamm, 2010). Burnout, unfortunately has become a common occurrence associated with increased levels of stress. Burnout results in feelings of inadequacy, cynicism, lack of confidence in nursing skills and critical thinking, and adverse health effects (Rios-Risquez & Garcia-Izquierdo, 2016). It is

estimated 60% of nurses will leave the profession within eight years of employment because of burnout leading to negative outcomes and costly expenditures for hospitals (Kovner & Brewer, 2009).

Several researchers describe burnout as a cluster of attitudes affecting negative behaviors towards self, colleagues, and at times patients (Lyndon, 2016). Harmful attitudes and behaviors frequently result in adverse patient outcomes and may go so far as to threaten patient safety. Nurses who are prone to burnout may have depersonalized their interactions with patients and end up making mistakes causing patients harm (Lyndon, 2016). Numerous studies describe that nurses self-report low job satisfaction, less connections to patients, increasing somatic complaints, escalating alcohol and substance abuse resulting in inferior clinical practice and low patient satisfaction (Hooper et al., 2011; Maslach, 2003).

The nursing profession is the core of the healthcare system, and its influence on the quality of care and patient safety is a paramount issue. It is urgent healthcare administrators, policy makers in federal and state legislatures, chief operating officers, and education experts collaborate to fix these problems (Amen, 2010). Today, in 2018, the nursing profession continues to fight the same impasse, knowing that overwrought nurses cannot deliver first-class patient care. Changes in practice to support nurses must happen; otherwise, if the impasses are allowed to continue, the profession will lose nurses worsening the nursing shortage and making patients feel less safe.

Questions remain how to solve these urgent clinical matters. The first step is to determine at what point in their careers do nurses start to experience stress and burnout? Is it a pattern developed during their nursing education? Do nursing students experience

stress and exhaustion similar to their colleagues who are licensed to practice? The answer is yes, nurses do begin to experience stress and burnout in nursing school (Rudman & Gustavsson, 2012). Students who persevere through nursing school despite their anxiety and stress, predictably continue to fall into the same cycle of failing to control their stress throughout their nursing career (Rudman & Gustavsson, 2012). Multiple research studies have examined student stress and found clinical practice is the most stressful component of nursing education (Boschini, 2015; Chan, So, & Fong, 2009; Deary, Watson, & Hogston, 2003; Lo, 2002; Wolf, Stidham, & Ross, 2014; Zhao, Lei, He, Gu, & Li, 2015).

Nursing students have been struggling with stress and burnout in their clinical practice and academic education since the 1930's (Al-Zayyat & Al-Gamal, 2014). Jimenez, Navia-Osoria, and Diaz (2010) report negative interactions with patients due to unchecked stress. During clinical practice, nursing students should update their assigned patient's status to the clinical instructor and the primary nurse. However, this is not always the case, as several researchers recounted students report a feeling of helplessness and an inability to communicate effectively with patients, healthcare providers, and instructors (Jimenez et al., 2010; Eifried, 2003; Jack & Wibberley, 2014). Researchers, Jack and Wibberley (2014) and Jimenez et al. (2010) report students' fear of making errors and lack of confidence in clinical judgment sometimes prevents timely notification of significant changes impacting upon patient safety and quality of care. Non-therapeutic interaction by students between patients, instructors, and other healthcare providers affects patient safety and quality of care (Chan et al., 2009). Jimenez et al. provided

numerous examples of students not intervening timely when patients needed pain medication (2010).

In almost all fundamental clinical education courses students are expected to perform procedural skills involving close physical contact with patients. A research study by Al-Zayyat and Al-Gamal (2014), showed students were self-reporting intense stress when performing certain procedures such as giving a bath and inserting urinary catheters (Al-Zayyat & Al-Gamal, 2014). Clinical placements are authentic environments where students will be exposed to human suffering and patient's pain as this knowledge and experience cannot be entirely substituted in a lab simulation or classroom (Dwyer & Revell, 2015). The clinical environment is essential for students to practice nursing skills and critical thinking like a nurse, however, if students are inordinately stressed, learning is impeded, and they may miss out of excellent learning opportunities (Travers, Morisano, & Locke, 2015).

Direct patient care presents students with authentic experiences to critically think and engage with other members of the interprofessional team. The experience may be negatively impacted from incivility coming from nurses and other members of the healthcare team (Thomas, Jinks, & Jack, 2015). Research shows significant relationships exist between stress and burnout and supports the idea stress may lead to adverse behavior changes in students such as feelings of being overwhelmed, using illegal drugs, and or abusing prescription drugs (Shellenbarger & Hoffman, 2016). Intolerable stress has caused psychological distress resulting in adverse behaviors and attitudes toward nursing staff, and clinical instructors (Bodys-Cupak, Majda, Zalewska-Puchala, & Kaminska, 2016). The fear of making mistakes increases students' anxiety and if students

have difficulty interacting with nursing staff and clinical instructors, ultimately patient safety is jeopardized.

One of the most important learning experiences for students in clinical is to learn to collaborate with all members of the inter-professional team. Multiple studies examined common themes of students unsuccessfully working through complicated team building relationships. From these studies, the results demonstrate students' problem-solving skills are hindered, and patient safety is jeopardized (Chesak et al., 2015; Dugan et al., 1996; Levett-Jones, Pitt, Courtney-Pratt, Harbrow, & Rossiter, 2015). The fallout from unmanaged stress eventually affects the student's personal life and professional nursing career (Rudman & Gustavsson, 2012). Before students begin their licensed practice, many choose to withdraw from school due to their failure to adopt effective resiliency strategies (Deary et al., 2013; Stephens, 2012).

It is essential for students to inform their clinical instructor when feeling helpless, overwhelmed, and powerless while in clinical practice. When instructors are made aware, then the instructor has the opportunity to intervene and educate the students about resiliency strategies (Reyes, Andrusyszyn, Iwasiw, Forchuk, & Babenko-Mould, 2015; Eifried, 2003). An essential component of nursing education is to foster and prepare students to practice as competent and safe generalist novice nurses. Nursing students learn how to care for their patients holistically and to practice their nurturing skills. Nurse education experts urge nurse educators to revise their teaching and move away from their outdated, traditional habits. Nurse educators must radically transform educational curriculums into a holistic approach that prepares novice nurses for today's frenetic healthcare system. Burgeoning technological advances and the complexity of the

healthcare system necessitates nurses to be resilient, flexible, and intelligent to recognize a patient's sudden deterioration (Benner, Sutphen, Leonard, & Day, 2010; IOM, 2011). Benner's theoretical concepts and the authors of the IOM report, *The Future of Nursing: Leading Change, Advancing Health* (2011) stand firm in their convictions that nursing education meet the challenge to foster students' growth in the fluid, hectic clinical environment. Nurse educators' responsibility is to prepare students to think and intervene as safe and competent beginner nurses. However, nursing curriculums fall short by neglecting to inform students of stress and resiliency strategies (Heinen et al., 2013). Unfortunately, it is evident through an extensive search in the literature nursing education does not deliver stress and resiliency concepts in the curriculum (Shirey, 2007).

A gap exists in nursing education, that there are few curriculum courses addressing stress and resiliency strategies for nursing students (Eng & Pai, 2015). Nursing education experts and robust research studies should inspire nurse educators to integrate concepts of burnout, stress and resiliency strategies as a part of the nursing curriculum (Jameson, 2014). Research shows that those students who have resiliency strategies to manage their stress are more likely to remain resolute and continue their nursing education (Chamberlain et al., 2016). Eng and Pai (2015) reported students who utilize strategies to manage their stress in clinical practice show significant improvements in their patient care, and collaboration with interprofessional teams and faculty. Nursing education has the responsibility, the time, and the burden to prepare students for the role of professional nurse.

The purpose of this Doctor of Nursing practice project is to educate students about stress and incorporate mindfulness interventions into nursing education to promote

stress reduction practice in nursing students' clinical environment and their future clinical practice.



## SECTION II

### Needs Assessment

Surprisingly, even though most faculty know students encounter stressful situations in clinical, the evidence demonstrates nursing curriculums do not support education and coping strategies for nursing students (Reyes et al., 2015; Marker, 2001). Researchers, Thomas and Revell (2016) published an integrative review of the literature on the state of knowledge about coping strategies for nursing students. Their research reported nursing faculty were aware of their duty to incorporate stress management strategies into nursing education. Thomas and Revell (2016) further explained stress management education should be an essential component in nursing curriculums, and faculty must nurture students to prepare for the challenges of the healthcare system of today. However, this is not happening in nursing schools today and nursing education has a long way to go before stress management and strategies are integrated (Thomas & Revell, 2016). “The concept of resilience in nursing students is in its infancy” (Thomas & Revell, 2016, p. 461). Perhaps the reason why the inclusion of stress education is not well received, is that nursing faculty traditionally have believed other departments within the college or university are better tasked to handle students' stress (Marker, 2001; Thomas & Revell, 2016).

Studies show promising results that as students gain knowledge about stress and resiliency or coping strategies, students develop a “sense of coherence” in their abilities to cope (Skodova & Lajciakova, 2013, p. 1313). These findings apprise nurse educators of the reality for many nursing students is they are overwhelmed by tremendous stress creating an urgency to initiate resources within nursing education. Realistically it is

possible for nursing education to integrate stress and coping strategies into nursing education. The literature is replete with resources to assist nursing faculty to move forward towards successful integration.

### **The Literature Review for Best Practice**

The following key words were utilized to conduct the literature review: stress management, nurses' stress, students' stress, stress reduction strategies, burnout, debriefing, relation techniques and mindfulness meditation. The following data bases were searched: CINAHL, PROQUEST (Nursing & Allied Health Database), PsychINFOR, ProQuest Dissertations & These: Humanities and Social Sciences Collection and EBSCO. Peer-reviewed journals were reviewed between the years of 1976 and 2017.

### **Coping Strategies**

Resiliency measures or coping strategies should be an essential proficiency skill necessary to progress successfully and healthily through nursing school and eventually into the workplace environment (Chamberlain et al., 2016). Numerous researchers reported coping strategies counter balance burnout and stress (Chamberlain et al., 2016; Hart, Brannan, & de Chesnay, 2014; Reyes et al., 2015). As students begin to understand stress and practice resiliency strategies, eventually hardy qualities are strengthened, and an overall positive perspective permeates students' confidence in their abilities to practice (Reyes et al., 2015). Similar affirmative improvements in clinical practice and the classroom, become evident as student's increase their skills to problem-solve and manage conflicts within the clinical environment (Reyes et al., 2015). Hart et al. (2014) research supports that the process of strengthening an individual's resiliency behaviors, acquired

through resources available in academia, are critical factors to influence successful management of stressful clinical environments for student nurses (Hart et al., 2014). Through their discovery of stress and associated coping strategies, students develop empowerment to appreciate the clinical environment and their practice of nursing (Hodges, Keeley, & Troyan, 2008; Laschinger, Finegan, & Wilk, 2009).

Students benefit learning about effective coping strategies from faculty because of the significant bonding relationships between students and faculty (Chen, 2011; Hodges, Keeley, & Grier, 2005). Nurse educators coach students to develop resiliency behaviors focusing on solutions and alternative methods of care for the next day (Hodges et al., 2008). Effective strategies such as resiliency interventions counterbalance stress and burnout (Hegney et al., 2014; Hodges et al., 2005). Resiliency strategies mitigate the effects of stress and protect against burnout. Five common principles related to resiliency include:

- “Rising above to overcome adversity
- Adaptation and adjustment
- Ordinary magic
- Good mental health as a proxy for resilience
- Ability to bounce back” (Aburn, Gott, & Hoare, 2016, pp 992-993).

An integrative literature review by researchers Aburn et al. (2016) found that the type of environment a person inhabits, and their social and professional relationships affects whether the person has the capacity for resiliency. Their research showed the importance to frame a supportive clinical environment and foster empathetic relationships

between students, nursing faculty, and nurse administrators (Aburn et al., 2016).

Manojlovich and Laschinger (2007) conducted a study showing that novice and student nurses have higher work satisfaction, and patients have fewer adverse outcomes when nursing administration is supportive of students and staff.

Stress is not always harmful. Stress may be an opportunity for personal growth. Allowing that individuals who develop the capacity to endure and accurately appraise stressful situations as opportunities for personal growth through challenging circumstances and adverse occurrences, the individual builds resiliency (McCleary & Figley, 2017; Smith, Saklofske, Keefer, & Tremblay, 2015). Understanding the concept of resiliency and practicing effective resiliency strategies, the student nurse reframes his/her appraisal of the circumstances and becomes hopeful to control difficult issues in practice (Hart et al., 2014). Nurses who possess high levels of resiliency are often referred to “moving through” the stressful situation, (Hodges et al., 2008, p.83).

A supportive, and deliberate approach to advise students about stress and coping strategies should be integrated throughout the curricula. Faculty must create a learner-centered, stable environment founded on the principles of positive experiences, preeminent standards and expectations (McAllister & McKinnon, 2008). McAllister and McKinnon (2008) suggest three recommendations for integrating resiliency education in undergraduate nursing programs:

- a discussion of resiliency and coping strategies throughout nursing curricula
- exposure to role-models who demonstrate positive resiliency traits

- mentorship programs where there is shared storytelling through seminars/conferences (McAllister & McKinnon, 2008).

McAllister and McKinnon (2008) findings also support evidence that coping strategies may be taught and learned to develop. Nursing schools have the platform for inspiring students to think critically, develop their personal empowerment strategies, and improve their problem-solving capabilities through the integration of resiliency strategies into their schema. Faculty should begin teaching coping skills early in the curriculum, especially in programs where students begin clinical within a few weeks after orientation (Beddoe & Murphy, 2004; Jackson, Firtko, & Edenborough, 2007).

An expanded literature research review focused on resiliency and coping strategies to mitigate stress. A mindfulness meditation strategy has shown to be beneficial for student nurses to diminish their stress. Many beneficial strategies noted in the literature are based on some type of relaxation and mindfulness strategies (Beddoe & Murphy, 2004; Chamberlain et al., 2016; Galbraith & Brown, 2011; Kang, Choi, & Ryu, 2009; Malinski & Todaro-Franceschi, 2011; Ryan, Shochet, & Stallman, 2010; Spadaro & Hunker, 2016; Turner & McCarthy, 2016). Possible solutions for nursing students included a variety of meditation, and relaxation strategies.

Several studies implemented innovative methods as part of the study design. One study was tailored specifically for millennium students via Twitter® accounts messaging encouraging notes and relaxation tips from the researcher to the students (Stephens, 2012). Another research study employed a mobile phone application aimed towards oncology nurses; however, the results did not show significant results reducing burnout (Jakel et al., 2016).

An example of a study implementing an innovative mindfulness approach is the “Tea for the Soul.” The project started at a southeastern hospital and recruited interprofessional healthcare providers. The session lasted between 60- 90 minutes is based upon the American Nurses Code of Ethics (ANA, 2015). ANA Ethic Code Five (2015) states every nurse has a responsibility to take care of his/her self to maintain safety, and competence for their practice and growth in the profession. During the session, a Pastor from the facility read poetry, served hot tea, and home-baked cookies while the participants painted or colored a mandala. (M. Palmer personal communication, March 29, 2017). Additional studies examined evidence-based solutions to reduce stress for oncology and pediatric nurses working in intensive care units (Potter et al., 2013; MacKenzie, Poulin, & Seidman-Carlson 2006).

Mindfulness meditation strategies (MBSR) have benefited cancer patients suffering from intractable pain, patients with mental illnesses, and patients diagnosed with chronic illness (Kabat-Zinn, 2013). The strategies are founded upon the tenants of Jon Kabat-Zinn, Originator of the Center for Mindfulness in Medicine, Healthcare, and Society (CMMHCS, 1979). Kabat-Zinn pronounces mindfulness is “paying attention on purpose, in the present moment, and nonjudgmentally, to the unfolding of experience moment to moment.” (Introduction to Mindfulness, 2017). MBSR is a proven scientific therapy for patients who have chronic pain, anxiety, depression, eating disorders, heart disease and sleep disorders (CMMHCS, 1979). For almost 38 years, MBSR has helped more than 22,000 people (CMMHCS, 1979). People who have used the program for stress reduction reported a 43% reduction in psychological and emotional stress. Many research studies have used these techniques or a slightly modified version to fit their

needs.

The original MBSR course lasts eight weeks and participants attend a weekly meeting of approximately two to three hours. Participants commit to daily practice of mindfulness behaviors outside of the course. The components of the course include: brief yoga stretches, awareness of breath, sitting meditation, walking meditation, mindful eating, speaking and listening, being aware of body sensations, body scan, and instructor reading poetry (MBSR Authorized Curriculum Guide © 2017).

In Korea, nursing students practiced MBSR in an eight-week long course and showed significant reduction in student's stress (Kang et al., 2009; Song & Lindquist, 2015). Another study used an innovative mindfulness strategy on the university's online informatics platform that targeted DNP, MSN, and RN-BSN nurses (Spadaro & Hunker, 2016). The course lasted eight weeks based on MBSR from the Kabat-Zinn's model. The results showed statistical significant reductions in stress. After 24 weeks a follow-up survey was given to the same participants who continued to report lower stress levels (Spadaro & Hunker, 2016). A study also based on the MBSR strategy, lasting eight weeks, added journal keeping for reflection. The results showed significant reductions in stress in nursing students (Beddoe & Murphy, 2004). A study that examined generic college students used a randomized control study and found MBSR reduced stress among college undergraduates (Oman, Shapiro, Thoresen, Plante, & Flinders 2008). A seven-week stress management and mindfulness program by van der Riet, Rossiter, Kirby, Dluzewska and Harmon (2015) found those students who participated focused on their self-care behaviors and had quicker and greater awareness of stress by utilizing mindfulness techniques (van der Riet et al., 2015). Galbraith and Brown (2011)

published a literature review of intervention strategies found those studies that were grounded on nursing theorists and Lazarus and Folkman theory were more robust.

There are many other studies in the literature investigating mindfulness as a stress reduction strategy in medical interns, graduate nurses, advanced practice nurses, and registered nurses working in acute facilities taking care of patients. The research shows mindfulness meditation is an effective strategy used by healthcare providers to reduce stress, and burnout. The mindfulness strategies include: the body scan, awareness of the breath, yoga whether it is simple stretching or guided meditations, and formal and informal mindfulness practices. Any of these techniques could be modified to fit busy time schedules and locations to practice (Beddoe & Murphy, 2004).

#### **Population/Community PICOT Statement**

**P** = Associate Degree Nursing (ADN) freshman students in their first semester and senior levels students in their fourth semester of nursing school in a community college located in southeastern part of the United States

**I** = interventions are two-fold:

- a. Educational session with freshman, senior level faculty, and Division Head of Associate Degree Program about stress experienced by students and the mindfulness meditation strategy.
- b. Educational session with students: described stress, the harmful effects on students' mental and physical health, and students' ability to recognize stress.
- c. Mindfulness meditation intervention(s) introduction, materials, handouts, access to Moodle Learning Platform for scheduled modules.



- d. Invitation and consent letter to participate
- e. Administration of three instruments: Mindfulness Attention Awareness Scale (MAAS), Perceived Stress Scale (PSS), and Brief COPE

**C** = control or comparison consisted of student's response to the project educational interventions in understanding stress, the impact of stress physically and emotionally, and the strategies from pre-intervention status.

**O** = outcomes of this project increase student's understanding of stress and incorporate the use of evidence-based mindfulness meditation strategies to manage stress.

**T** = the time frame, the fall semester for ADN freshman and senior level nursing students. First session (for students) was conducted on campus in the form of a lecture. Remaining sessions were conducted through downloaded guided mindfulness meditations, quotes and tips via the Moodle Learning Platform.

### **Sponsor and Stakeholders**

The sponsor for the DNP project was at a local community college located in the southeastern part of the United States. The Vice President for Academic Affairs approved the project implementation. The DNP Practice Partner (DNPPP) and Committee Member collaborated with the Division Head of Health Programs, faculty team members from the freshmen level and senior level students and the DNP facilitator.

Stakeholders are those interested and need to be made aware of the research findings from the project (Zaccagnini & White, 2017). Those internal stakeholders included:

- College President
- Board of Trustees
- Division Head of Health Programs
- Nursing faculty
- ADN students in first and fourth semester of program

The external stakeholders are the clinical facilities in which the nursing student and faculty perform nursing care.

### **Organizational Assessment (SWOT ANALYSIS)**

#### **Strengths**

The project setting was at a community college located in a southeastern part of the United States. The LPN-to-ADN program option was recently affirmed by Accreditation Commission for Education in Nursing (ACEN). The 2016, NCLEX-RN pass rate was 94%. The 2016 ADN class has a 96% job placement rate noted by the Division Head of Health Services (Division Head of Health Services, personal communication, April 22, 2017). The Division Head of Health Services noted the strengths of the faculty and students include:

- commitment to the college and the program
- dedication to the program; putting in long hours
- faculty working on the reaccreditation process due in the Fall 2017 are given ‘time and half’ for the project
- greater than 75% of the faculty graduated from the project setting school
- faculty may refer students to a facility-based trained counselor to assist students who need psychological resources

- students are motivated to succeed
- fitness area with new exercise equipment for students and faculty
- faculty have three hours of their time during the week to devote to fitness activities. (Division Head of Health Services personal communication, 2017).

### **Weaknesses**

The Division Head of Health Services noted the following as weaknesses at the project setting:

- Increased workload secondary to scheduled reaccreditation visit Fall 2017
- low salary in comparison to University faculty; even though majority hold MSN degrees
- students with less academic preparation and vigor entering the nursing program
- students who are not as well-prepared academically as in the past
- greater number of students with high number of working/employment hours translating to less hours available for study
- yearly completion rates average 59.0 slightly above the NC average of 53.9 (North Carolina Board of Nursing, Annual On-time Completion Rates for all Nursing Education Programs, 2012-2013).

### **Opportunities**

The project county has the largest number of migrant and seasonal farmworkers in the project state (Carter, 2017). The nursing program is the beneficiary of the Area Health Education Centers Clinical Site Development Grant. The program partners with a community wellness group and a migrant wellness center in the project state. The goal for the partnerships is to improve the healthcare for migrant and seasonal workers

(Carter, 2017). The Foundation of the College offers many scholarships to nursing students and emergency funds dependent on the student situation.

### **Threats**

The project setting was located in a rural area of the state where there are shortages of master's degree nurses to teach in an academic environment. The faculty reported a significant area needing further development is the recruitment of master's degree nurses to work as part-time clinical instructors. Because the community college is located in a rural southeastern part of the state, the school cannot offer competitive salaries impacting the recruitment of master's prepared nurses for full-time and part-time vacancies. To offset this threat, the faculty is developing strong relationships with graduate schools of nursing to serve as preceptors in order to expand the recruitment possibilities for potential faculty/clinical instructors for employment.

An additional threat is the lack of retention of nursing students. This is an area faculty have worked to strengthen. All faculty members have input into developing solutions to increase program completion and serve on the Retention Committee. The implementation for the Retention Plan was in 2017. The benchmark three-year completion rate for NC ADN programs (2014-2016) was 58.8%. The project setting college's benchmark is set at 60%. In 2017 the program completion rate was 56% as reported in the Accreditation Report for 2017. The faculty are working diligently to increase the program completion rate through discussion at faculty meetings and researching evidence-based literature related to student retention.

Several solutions were identified by the faculty to increase retention of ADN students. One solution includes individual counseling sessions with at-risk students. If

faculty feel a student may not progress, the faculty member will refer the student for counseling to the counseling department at the school or will refer the student to the Nursing Instructor/Nursing Academic Tutor, a new position created in 2017. This faculty member devotes 50% workload for academic tutoring and coaching for at-risk students. Faculty are also considering utilizing successful senior students as potential tutors for the Fall semester where the freshmen student drop-out rate is highest.

Additional plans based on evidence-based practices are employing individual test reviews with the Nursing Instructor/Nursing Academic Tutor if students score less than 80. Those at-risk students must also complete supplemental ATI resources to enhance their critical thinking skills and test taking strategies.

After these solutions were put in place, faculty evaluated the results of the Retention Plan. The evaluation revealed that the retention rate for NUR 111 in 2017 increased from 58% to 70.5%, a 12.5% increase. To further strengthen retention of students, the college's Department of Institutional Effectiveness reviewed the admission selection process for the most recent three years of completion rates. The data based on the ATI TEAS parameters, validated that those students who complete the nursing program, scored highest in science and reading. Based on these results, faculty adjusted the point system to award higher points in science and readings for admission. Students who were selected based on the new admission selection parameters will graduate in May 2018.

The Division of Health Services is adding new programs resulting in a need of office space for additional faculty. There is a need for a new study and lounge area for students and a new space for a nursing lab. And as stated previously, recruitment of

graduate level faculty remains an ongoing concern as new programs are developed and to sustain current program and expected routine faculty attrition.

### **Team Selection**

Project team selection is critical to the success of the DNP project. The project team had expertise of nursing faculty and facility administrators. The team consisted of members of the ADN program including: Division Head of Health Services, freshman level Course Coordinator of Nursing 111, Fundamentals, senior level Course Coordinator of Nursing 114, Holistic Health Concepts, DNP Practice Partner, and DNP facilitator.

### **Cost Benefit Analysis**

The cost benefit analysis demonstrated the real-time costs of the project balancing the benefits (Zaccagnini & White, 2017). A scarcity of the economic benefits of mindfulness strategies exist in the literature (Edwards, Bryning, & Crane, 2015). Mindfulness strategies are increasing in the healthcare domain with great success for patients with mental illness; and have shown to be effective in school populations and in workplaces (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Kuyken et al., 2013; Chaskalson, 2011). The cost benefits of mindfulness strategies for nursing students have not been fully examined in the literature. The benefit for the nursing profession of students practicing mindfulness meditation strategies to reduce stress should be measured by the number of students who are retained in nursing school and then licensed in the nursing profession (Beddoe & Murphy, 2004). In addition, the multiple studies have shown the positive benefits of mindfulness meditation strategies in the improvement of patient outcomes and increased collaboration among members of the interprofessional

team (Kang et al., 2009; Spadaro & Hunker, 2016; Song & Lindquist, 2015; van der Riet et al., 2015).

It is difficult to estimate the indirect costs such as facility and lighting costs of the classroom/lab however, the use of these facilities should be considered as cost to the college. Several instruments used to evaluate student's awareness of mindfulness, student's perceptions of stress and student's coping mechanisms tools are available for no cost to the DNP candidate and students. In addition, the DNP project will not evaluate the dollar benefit of student retention to the program, however, it is realistic to assume if students successfully manage stress the student is more likely to persevere in the nursing program. The project benefited the Division Head of Health Programs and faculty members by increasing their understanding of students' stress and the effective use of mindfulness meditation invention(s) to prepare their students for a stressful clinical and workforce environment. The nursing profession also benefits from the student's ability to cope with stress; and when students enter the workforce, they will be effective, and safe nurses.

### **Scope of the Problem**

The purpose of the DNP project was for students to recognize, reduce, and manage their stress. The mindfulness meditation interventions are an effective strategy to manage and reduce stress. The following barriers were expected to impact implementation of the project:

- students' various class time scheduling
- faculty schedules
- team member meetings

- reservation of classroom/labs
- DNP time scheduling (working full-time at a community college approximately 30 miles away)
- limited timeframe (eight weeks)
- students would self-report their practice of the mindfulness meditation strategies; however, this could not be validated
- student's inability or lack of desire to check in (through Moodle learning platform)
- DNP facilitator not on campus as a resource
- students' commitment to practice mindfulness meditation strategies everyday



## SECTION III

### Goals, Objectives, and Mission Statement

#### Goals

The goals for the DNP project were generalized and broadly stated. The goals demonstrated future implications and provide an outline for the project and expected outcomes (Zaccagnini & White, 2017).

- Reduce the emotional, physical, psychological effects of stress in nursing students
- Increase the use of mindfulness meditation intervention(s) to offset the effects of stress

#### Objectives

The objectives outlined the SMART acronym to measure the target population, the realistic outcomes, actual interventions, and when the project was implemented (Zaccagnini & White, 2017).

- Specific population was Associate Degree Nursing students (freshmen and senior level) at a community college located in the southeastern part of the United States
- goals are **M**easured and used reliable, valid instruments
- the **A**ttainable outcomes are indicated under the goals
- **R**ealistic and sustainable evidence-based mindfulness meditation intervention(s)
- **T**ime of the intervention was the Fall of 2017

The DNP facilitator:

- promoted understanding of stress to faculty and students
- educated faculty and students about the negative effects (emotionally, physical, and psychological) of stress
- educated faculty and students about the concept of mindfulness meditation and its benefits
- educated and promoted the understanding of mindfulness meditation to faculty and students
- educated faculty and students how to use and practice mindfulness meditation intervention(s).

### **Mission Statement**

The mission statement is to enrich faculty and student's understanding of the negative impact of stress through evidence-based research. The project served to improve student's abilities to successfully recognize and manage stress through evidence-based mindfulness meditation intervention(s). Students' increased knowledge of stress, and their routine practice of mindfulness meditation strategies provides a safer and healthier clinical environment for faculty, students and the patients.

## SECTION IV

### Theoretical/Conceptual Framework

The essence, the heart, and the center of nursing is caring. Caring is an action, a purposeful intention, a practice attending to genuine thoughts, feelings and cultivating loving-kindness for self and others (Watson, 2008). Jean Watson's Theory of Human Caring/Caring Science (THCS) is appropriate for nursing education, clinical practice, and as the framework for the DNP project. The Theory of Human Caring/Caring Science is embodied in the nurse opening and allowing herself/himself mind/body/spirit honoring others and one's uniqueness and life histories together, connecting in unity of the transpersonal caring relationship (Watson, 2008).

For many nursing students entering nursing, their heartfelt truism is "I want to help others," or "I want to learn how to care for others." Students' desire to care for others is the quintessential heart and soul of THCS. THCS supports students' aspirations for becoming an authentic nurse (Watson, 2008). First, the student must realize that to become an archetypical caring nurse, their own practice of self-care is the starting point. As the literature demonstrates, students encounter stressful situations in their clinical practice. At times, stress may be overwhelming and going so far to derail a student's pursuit of becoming that authentic nurse. Overpowering stress may lead to self-criticism, loss of self-confidence, poor clinical judgment, engaging in adverse lifestyle behaviors and so on. The THCS model supports students' learning to care for their own self before caring for others (Watson, 2008).

### **Watson's Theory of Human Caring**

Jean Watson's Theory of Human Caring provided the framework for the DNP project. Dr. Watson's theory was first published in 1979. According to Dr. Watson, her theory is not based on the traditional biomedical model that most nurses practice today. Watson defined her theory to give nursing a language to support a caring foundation of caring, healing, and transpersonal caring relationships (Watson, 2013). Her theory is grounded in her experiences clinically, in her experiences through experiential research, and a philosophical background. Much of her work is based on theorists, Carl Rogers, Abraham Maslow and graduate studies in psychiatric-mental health nursing (Watson, 2013). Watson's meaning of transpersonal caring relationships came from her experiences influenced by transpersonal psychology and through her global travel excursions. Her work has been greatly influenced by Eastern and Western perspectives and values and has led to an enrichment of the mind/body/spirit dimensions (Rafael, 2013).

Watson's THCS conceptualizes human beings existing in harmony within the mind/body/soul/spirit. Humans have the power for seeking knowledge and veracity for self-healing and going beyond this world to realize ontological consciousness (Rafael, 2013). Health is believed by Watson to be a "unity and harmony within body-mind-spirit and with the world" (Watson, 1988, p. 41). Watson expounds upon illness as a disharmony within body-mind-spirit (Watson, 1988).

Watson's conceptualization of the environment evolved from her revisiting Nightingale's treatise of facilitating healing within an environment (Turkel, 2013). Watson expanded the healing environment to include a spiritual and sociocultural

environment in which the patient and the nurse are integral parts (Turkel, 2013). The patient is the one sharing, opening and allowing his or her subjective human experience and life history to connect with the nurse who is authentically present and open, allowing the unexpected and unfathomable phenomenon to occur (Watson, 2008).

**Major core concepts of THCS.** THCS is a science of caring. As caring is the core of nursing, Watson's core concepts are seven-fold. A synthesis of these fundamental concepts of Watson's THCS caring is rooted in a philosophical moral, and ethical premise whereby love is valued. Caring for oneself is the essential starting point before caring for others is possible. Caring develops and is enriched through and in a "transpersonal caring relationship" by connecting with oneself and with the other (Watson, 2008, p. 34). The relationship is created intentionally in a "caring occasion or a caring moment" bridging two people together with the intention of openness, honoring oneself and the other by sharing life histories (Watson, 2008, p. 34). The nurse understands that their practice of loving-kindness is created intentionally, with a purpose to raise their consciousness to "come together in a human-to-human transaction" (Watson, 2008, p. 34). A caring nurse makes positive changes to create an environment where the patient feels respected, welcomed, and enjoined in a partnership (Watson, 2008, p. 34).

Watson's recent work expanded the 10 Carative Factors to the Caritas Processes (Watson, 2008). Caritas is translated from Latin to mean "cherish, appreciate, or give special attention to" as quoted in Alligood and Tomey's text (as cited in Butts & Rich, 2015). Watson asserts the 10 Caritas Processes are part of core concepts of THCS. Many of the Caritas Processes strengthen the characteristics of caring by further describing the

transpersonal caring relationship. Other Caritas Processes center on the nurse and the remaining Caritas explain the process or intentionality of caring. A practical application of the 10 Caritas is as follows:

1. “Sustaining humanistic-altruistic values by the practice of loving-kindness, compassion, and equanimity with self/others” (Watson Caring Science Institute, n.d.). The nurse role models self-care and caring for others in practice. The nurse honors herself or himself talents and gifts. The nurse treats self and others with respect and loving-kindness, through actions of acceptance and paying close attention.
2. “Being authentically present, enabling faith/hope/belief system; honoring subjective inner, life-world of self/others” (Watson Caring Science Institute, n.d.). When the nurse listens attentively, the nurse acknowledges the patient’s beliefs, values, and in listening gives the patient a sense of hope and faith.
3. “Being sensitive to self and others by cultivating own spiritual practices; beyond ego-self to transpersonal presence” (Watson Caring Science Institute, n.d.). The nurse practices self-care in the self-reflection process through prayer, journaling, meditation, or drawing/painting a picture that has a meaning of the experience. The Caritas focuses on being non-judgmental to practice gratitude and thankfulness, forgiving and realizing the uniqueness and worthiness of self and others. The nurse is sensitive to the other and transforms nursing duties into “healing transactions” (Watson Caring Science Institute, 2008, p. 34).
4. “Developing and sustaining loving, trusting-caring relationships” (Watson Caring Science Institute, n.d.). Pragmatically the nurse embraces self and the other in an

attitude of unrestricted love and esteem. The nurse practices and connects with the other through the present moment being authentic and honest.

5. “Allowing for expression of positive and negative feelings – authentically listening to another person’s story” (Watson Caring Science Institute, n.d.). The nurse creates a safe place for self and the other to allow articulation of feelings and hesitation in the telling of life stories and experiences.
6. “Creatively problem-solving ‘solution-seeking’ through the caring process; full use of self and artistry of caring-healing practices via the use of all ways of knowing/being/doing/becoming” (Watson Caring Science Institute, n.d.). The nurse creatively draws upon ethical, moral, aesthetic, artistic, other means of knowing to use herself or himself in the caring process and caring-healing practice.
7. “Engaging in transpersonal teaching and learning within context of caring relationship; staying within other’s frame of reference and coaching the patient forward to an optimistic view of expanded health/wellness” (Watson Caring Science Institute, n.d.). The nurse engages in the teaching and learning process to foster growth and independence in the patient. The nurse learns from the patient’s life histories and experiences to understand the patient’s perspective and beliefs. The nurse assists the patient to discover what questions they may need to be answered.
8. “Creating a healing environment at all levels; subtle environment for energetic, authentic caring presence” (Watson Caring Science Institute, n.d.). The nurse may create a physical space in the environment for healing, using principles of

lighting, water, art, noise, privacy, bathing, and respecting the other's time limitations. The nurse may attend to the simple act of handwashing as symbols of purification, physically and psychologically centering herself, himself and the other.

9. "Reverentially assisting with basic needs as sacred acts, touching mind/body/spirit of the spirit of the other; sustaining human dignity" (Watson Caring Science Institute, n.d.) The nurse sees the other as within the whole of the caring moment, connecting to the patient's needs for the provision of comfort, relaxation, sleep, allowing for the expression of spiritual beliefs and prayers and caring for the body with reverence and dignity.
10. "Opening to spiritual, mystery, unknowns-allowing for miracles" (Watson Caring Science Institute, n.d.). The nurse nurtures hope, the belief that the inexplicable may occur, allowing for mysteries of the physical and spiritual dimensions, and care for self and for the "one-being-care for" (Watson, 2008, p.34).

***Watson's THCS model supports the DNP project framework for stress***

***implications and management for nursing students.*** THCS is an applicable model for the DNP project. The theory fits students' perceptions that nursing is a caring profession. Watson's model leads the student to an expanded understanding that caring is the essence of nursing. THCS provides a guided pathway to cultivate human caring for self and others. The theory implies there should be a balance of scientific, evidence-based knowledge with humanistic, moral, ethical, and philosophical practice behaviors for caring.



Nurses who do not know how to practice self-care or who neglect self-care are in danger of lacking essential compassionate caring (Turkel & Ray, 2013). Turkel and Ray illustrate their point stating, “Healing self is walking the talk” (Turkel & Ray, 2013 p. 16). For those students who lack the skills for managing stress, it becomes the responsibility of a caring faculty to integrate stress management.

The student introduces herself/himself to the patient in a clinical setting. The Caritas Process of knowing humanistic-altruistic encourages the student to care for himself or herself first before patient care. When the student learns to honor self and appreciate their own unique gifts and talents then the student realizes a deeper understanding of caring for patients. Their simple nursing actions moves the student through a process of respect and their nursing care becomes intentional acts of loving-kindness.

The student learns the therapeutic and authentic presence evolves through caring moments addressed in the second Caritas Process. Listening carefully without thinking of what is expected next, honors the patient’s beliefs, values, and instills a sense of hope and faith. The simple act of being sensitive to one self and to patients opens a door for quiet reflection. Reflection without a non-judgmental attitude and self-criticism opens a portal into thinking about one self’s uniqueness and worthiness. This Caritas Process helps the student to forgive their self and instills hope to create a better experience next time.

The fourth Caritas Process is the creation and sustainability of a loving, trusting-caring relationship. Students who practice safe and competent nursing care are aware the patient is a human being within multiple dimensions of the mind/body/spirit. Possessing a deeper awareness places the student into a transpersonal caring relationship with the

patient. It allows greater sensitivity from the student as they realize how their behaviors affect the patient. At this point, the student and patient work together to explore alternatives and solutions for outcomes that best meets the patient's needs.

The Caritas Process of transpersonal teaching and learning inspires hopeful results that students will know how to manage their stressful lives and strive towards becoming a Caritas nurse in the future. As students apply this knowledge, it frees the student from the turmoil and creates a healing environment within themselves. The simple caring act of pausing a moment to reflect upon the patient and the patient's need even before entering the room, and the ritual of handwashing, gives the student and the patient a moment of rest and quiet. These moments preserve honor, and respect and a brief respite for the student and the patient. Encouraging students to reflect and expand their human consciousness to a higher level of metaphysics to search for the meanings of life and why do we (humans) exist. Thinking beyond here and now opens student's minds and imaginations to the possibility of mysterious experiences and possible miracles in their own life.

Students learn valuable, practical, concepts from Watson's THCS model to keep caring in the center and heart of nursing. For many students, they regain an appreciation of the reasons why they want to be a nurse. Students become a vital part of the healing-environment engaging in acts of loving-kindness through giving a bath, thoughtfully administering the correct medication, or sitting by the bedside listening to a story if only for just a moment. As students honor their self, they are closer to becoming a caring, Caritas nurse.

## **SECTION V**

### **Work Planning**

#### **Synopsis of the Problem Recognition**

The nursing profession reports the highest levels of stress of all healthcare occupations (National Institute for Occupational Safety and Health, 2008). The nurse is the patient's primary advocate and provides the most significant amount of hands-on care for the patient out of all healthcare professionals. Recent sentinel reports from Institute of Medicine (IOM), and a report sponsored by the Robert Wood Johnson Foundation, examined evidence if nurses are stressed without relief, their patients suffer poor to life-threatening outcomes (IOM, 1999, 2001, 2004 & 2011; Kovner & Brewer, 2009). It is evident from the research, nurses who cannot manage their stress have a difficult time recognizing when patients' status is deteriorating (Aiken et al., 2008).

The management of stress educational programs mitigates stress in clinical and shows evidence of better patient outcomes. Magnet-designated hospitals reap financial benefits, higher nursing retention rates, and more autonomy for nurses, higher levels of satisfaction and exemplary quality of care (Drenkard, 2010). The model of care in a Magnet® hospital has shown to improve the clinical practice for nurses by increasing nurse's competency and job satisfaction and less burnout (Drenkard, 2010). Magnet® hospitals ensure staff have education about resiliency and provides resources for those nurses who are experiencing burnout and stress (Renter & Allen, 2014).

Evidence supports patterns of unresolved management of stress begins in nursing school and continues throughout a nurse's professional career (Rudman & Gustavsson, 2012). A literature review was conducted to find nursing programs that included stress

management. There are few nursing curriculums to support educating nursing students to manage stress (Boyle, 2000).

This DNP project proposes that students' stress is evident from the time the student enters nursing school. This stress creates an imbalanced psychological and physiological state hindering therapeutic communication between students and patients, poor clinical performance, high levels of anxiety, poor critical thinking processes, and exposure of patients to injury (Mason & Nel, 2012; Aiken et al., 2008). In addition, unresolved stress has shown to cause attrition rates from nursing schools potentially adding to the nursing shortage crisis (Del Prato, Bankert, Grust, & Joseph, 2011).

The transformative healthcare environment is bringing expansive changes in technology, budgeting, and shortages of healthcare professionals. The amount of responsibility placed on nurses today, has increased the level of stress overall for the nursing profession. Healthcare organizations need to begin developing strategies to alleviate stress on local levels.

This project proposes that if stress management strategies were integrated into nursing curriculums, students would benefit by applying those resiliency strategies to diminish their stress in clinical practice. Additional benefits for students include a sense of empowerment in their role in the profession and improvement in their relationships with faculty, and increased retention in nursing programs (Chamberlain et al., 2016; Hodges et al., 2008). When students reduce and manage their stress better patient outcomes result because of therapeutic communication, respect and behaviors that promote patient dignity and respect (Reyes et al., 2015).

### **Problem Statement**

The purpose of this DNP project was to provide an educational program about stress and the incorporation of mindfulness interventions into nursing education to promote stress-reduced practice in nursing students' clinical environment and future clinical practice.

### **Summary of Significant Findings**

An extensive literature review examined whether nursing students experience the most stress either in clinical or the classroom. Evidence has shown clinical to be the most stressful of all the experiences encountered by nursing student (Boschini, 2015). Students spend far more time in clinical experiences than in the classroom and report higher stress levels in clinical (Al-Zayyat & Al-Gamal, 2014; Boschini, 2015; Chan et al., 2009; Deary et al., 2003; Lo, 2002; Wolf et al., 2014; Zhao et al., 2015). For students to gain the maximum benefit from strategies designed to reduce stress levels, the education process should begin early in nursing curriculums and carried throughout the program (Beddoe & Murphy, 2004; Jackson et al., 2007).

The faculty are significant stakeholders in the process of incorporating content into the curriculum, and research shows many faculty are aware of student's stress (Reyes et al., 2015). Research states though faculty are mindful of student's stress in clinical, few faculty take on the responsibility of assisting students. Instead, faculty often think it is other departments at the school or university to help students with stress (Marker, 2001).

The literature review did not find any nursing curriculum courses that addressed stress management for nursing students. Since the literature review revealed there is a

lack of stress education for students, a search was completed to determine if nursing textbooks had content about stress from the students' perspective. Unfortunately, there was not a nursing textbook discussing stress from the student's perspective.

One study describing possible solutions to reduce stress for nursing students is the research conducted by Del Prato, Bankert, Grust, and Joseph (Del Prato et al., 2011). Del Prato et al. (2011) suggested faculty create a caring learning environment based on Jean Watson's Theory of Caring. Additional solutions encourage faculty to exemplify a teacher example instead of an evaluator role in the clinical setting. The study suggested students should write reflection journals to think deeper about their nursing practice and relationships with faculty and patients. Del Prato et al. (2011) urged faculty to integrate management of stress solutions including mindfulness as an intervention into nursing curricula.

The research confirms nursing students are stressed, and few nursing curriculums provide nursing students with the tools to manage stress levels. However, there are multiple research studies suggesting evidence-based workable and sustainable solutions to integrate into nursing curriculums. Research has shown mindfulness meditation strategies would benefit students through simple, effective implementation tools into nursing curriculums throughout the entire program.

### **Project Management Tools**

A key stakeholder was the practice partner, who is a DNP-prepared nurse and Department Chair of the ADN program where the project was implemented. The DNP project leader collaborating with faculty and the practice partner met in several face-to-face meetings, phone conversations, and emails to discuss goals, objectives, and

implementation strategies. The practice partner suggested several ideas, including the efficient and time-saving action of posting mindfulness information of Moodle versus face-to-face weekly meetings with the students involved in the project. The Moodle Learning Platform was familiar to all the nursing students and faculty. It was suggested to keep the modules open and available throughout the project and allow access to all the faculty in the ADN program. Another key member of the project team was a senior faculty member of the ADN program. The senior faculty member, as well as the DNP practice partner (DNPPP), assisted by posting weekly modules and announcements to the freshmen and senior students on the Moodle Learning Platform. At the close of the project implementation, the senior faculty member and the DNPPP assisted the DNP Project Leader in distributing the post-implementation surveys to the students. Finally, the project was successfully implemented through the support of the Vice President for Academic Affairs and Administration, and Division Head of Health Services by approving the project implementation.

There were ample resources accessible for the development and implementation of the project. University library resources were readily available to access evidence-based research for the project. Faculty were committed to student success and were enthusiastic about the project. The facilities on the campus were modern and used the latest technology for lectures and PowerPoints.

### **Work Breakdown and Milestones**

The timeline for the DNP project noted in this paper in a modified Gantt chart. The Figures 1 includes preparation for each week and implementation for senior and freshmen students. Implementation of the project was a total of nine weeks beginning on

September 2017, after receiving university IRB approval. The project implementation part closed on November 2017.

The timeline:

- Introduce project implementation project - September 2017: Met with freshmen faculty, Division Head of Health Services, and DNPPP.
  1. Met with freshmen nursing students 30 minutes at the end of class in NUR 111.
  2. distributed pre-survey instruments
  3. distributed informed consent
  4. met with faculty, and practice partner briefly after class
  5. arrangements finalized with the senior faculty member to implement the project for meet senior students the following week during class-time
  6. Met with senior faculty and DNPPP to upload the first module onto Moodle for freshmen and senior students. This module was an introduction to mindfulness and two guided meditations.
  7. The Mindfulness Meditation Practice Workbook with additional resources and links were uploaded on Moodle
- Week two-

The project leader posted the first module, Non-judging which introduced students to Dr. Kabat-Zinn's Seven Attitudes of mindfulness posted by the DNP practice partner and senior faculty member (Kabat-Zinn, 2013) and a brief announcement for students



- Week three-  
The project leader posted the second module, Patience with a short announcement for students
- Week four-  
The project leader posted the third module, Beginner's Mind, and a brief announcement
- Week five-  
The project leader posted the fourth module, Trust in oneself, and an announcement for students
- Week six-  
The project leader posted the fifth module, Non-striving, and a brief announcement
- Week seven-  
The project leader posted the module about acceptance and an announcement for students
- Week eight-  
The project leader posted the final module, Letting Go and an announcement for students.

The project leader posted an announcement that a meeting with senior and freshmen students would occur shortly to complete three post-implementation surveys, the Mindfulness Attention Awareness Survey, the Perceived Stress Scale and the Evaluation of the Project Survey.

- Week nine-

Meeting with senior students and faculty, and met with freshmen faculty and students, to close the project:

8. Distributed the following surveys to senior and freshmen students:

- the Mindfulness Attention Awareness Survey
- the Perceived Stress Scale
- the Evaluation of the Project Survey

9. Requested senior and freshmen faculty to close the modules on Moodle

The next phase of the work planning is detailing the timeline and essential indicators that demonstrated progress towards project completion. Below are two Gantt charts for more information of the timeline, and tasks to complete the project. (Figure 1)

**GANTT Chart**

Tasks	Week 1 preparation	Week 2 preparation	Week 3 preparation	Week 4 preparation	Week 5 preparation	Week 6 preparation	Week 7 preparation	Week 8 preparation
Contact DNP practice partner (DNPPP)	Sept. 5 phone conversation with DNPPP to set up meeting on 9.8.2017. Sept. 13 call to DNPPP IRB approved				Phone call for appointment post-surveys meetings with students			
Introduction to Project to faculty	Sept. 8 Meeting with faculty							
Prepare surveys & informed consent for students	Approval for informed consent & surveys	Made copies of consent form & surveys						
Prepare modules for students		Module 1 sent 9.24	Module 2 sent 10.1	Module 3 sent 10.8	Module 4 sent 10.15	Module 5 sent 10.22	Module 6 sent 10.29	Module 7 sent 11.5
Email/phone contact with faculty	Email to senior faculty verifying posting	Email to faculty & DNPPP modules	Email to senior faculty & DNPPP	Email to senior faculty & DNPPP	Email to senior faculty	Email to senior faculty & DNPPP	Email to senior faculty & DNPPP	emails to senior faculty & freshmen faculty
Prepare post-surveys implementation for senior & freshmen students							All copies made for post-implementation	

Tasks	Week 1 Implementation Introduction to Project (freshmen on <i>Sept. 14</i> & seniors on <i>18<sup>th</sup></i> )	Week 2 Implementation (Module 1- non- judging) <i>September 25</i>	Week 3 Implementation (Module 2- patience) <i>October 2</i>	Week 4 Implementation (Module 3- beginner's mind) <i>October 9</i>	Week 5 Implementation (Module 4- trust) <i>October 16</i>	Week 6 Implementation (Module 5- non-striving) <i>October 23</i>	Week 7 Implementation (Module 6- acceptance) <i>October 30</i>	Week 8 Implementation (Module 7- letting go) <i>November 6</i>
Introduction to Project to faculty	Sent faculty designed PowerPoint & synopsis	Faculty have access	Faculty have access	Faculty have access	Faculty have access	Faculty have access	Faculty have access	Faculty have access
Meetings with freshmen students	* Met with freshmen students to introduce project							*11.16: Meeting to announce project closure
Distribute pre- implementation surveys & informed consent	* Pre- implementation surveys and consent to both student groups							
Posting of modules to Moodle		DNP & fac. posted non- judging module to Moodle	DNP & fac. posted patience module to Moodle	DNP & fac. posted beginner's mind module	DNP & fac. posted trust module to Moodle	DNP & fac. posted non- striving to Moodle	DNP & fac. posted acceptance module	DNP & fac. posted letting go to Moodle
Meetings with senior students	* Met with seniors to introduce project							*11.13: meeting to announce project closure
Distribute post- implementation surveys								11.13 senior students & 11.16 freshmen students *

*Figure 1. Gantt Chart for Preparation Timeline*

Note. Gantt Chart Post-Implementation and Milestones Indicated by\*

## **Budget Development**

The budget for the project as mentioned in the cost-benefit analysis was less than \$200. Several book purchases were made. Printing costs were \$60.00 for color brochures to distribute to faculty. The modules were developed and saved on a personal flash drive which cost less than \$20.00. Traveling to and from the implementation site was 48 miles. Gas expenses were approximately \$72.00 and made up the largest part of the budget. Sustainability would be simple and inexpensive to reproduce. All modules could be loaded to the electronic learning platforms for future access for faculty to integrate into nursing curriculums.

## **SECTION VI**

### **Evaluation Planning**

The project was implemented to ascertain if the intervention, mindfulness meditation strategies would reduce nursing students' stress in the clinical environment. This project collected qualitative and quantitative data in pre-and post-implementation surveys to measure if there was a change in stress levels in the target population. The data findings will provide reliable and valid information for future implication and sustainability.

### **Tools to Measure Outcomes**

An instrument was used to measure students' mindfulness awareness in everyday experiences. The Mindfulness Attention Awareness Scale (MAAS) developed by Dr. Kirk Brown is a 15-item questionnaire evaluating student's experience of everyday mindfulness awareness (Appendix A) (Brown & Ryan, 2003). The MAAS tool is in the public domain and does not require special permission to use in research. The scale is validated for college students who were the target population of the project. This scale is quick to administer, easy to collect and reports quantitative data. The MAAS has demonstrated evidence for "psychometric adequacy and validity... through exploratory factor analysis and CFA. The MAAS was shown to be a reliable and valid instrument with internal consistency levels (Cronbach's alphas) ranging from .80 to .90 for use in both college student and general adult populations" (Brown & Ryan, 2003, p. 843). The MAAS for this project was administered pre-implementation of the project and post-implementation to identify any change in ADN students' mindfulness attention in

everyday occurrences. Students' survey participation was voluntary and there were opportunities throughout the project to voice questions or concerns from participants.

The second survey, which examines students' perceptions of stress, is the Perceived Stress Scale (PSS) (Cohen, 1994). The scale is a 10-item questionnaire developed by Sheldon Cohen (Appendix B). It was designed for people with at least a junior high school education and demonstrated internal consistency using Cronbach's coefficient was .89, "Our findings indicate that the PSS-10 is a reliable and valid self-report measure of perceived stress within a nonclinical, multisite sample of U.S. college students" (Roberti, Harrington, & Storch, 2006, p. 143). This scale is appropriate for the target ADN student nurses and was administered pre-and post-implementation of the project. Students' PSS survey participation was voluntary and there were opportunities throughout the project to voice questions or concerns from participants.

The third survey, which examined students' evaluation of the project, is the Project Evaluation of the Mindfulness Meditation Strategies Survey. This survey was developed by the DNP project leader (Appendix C). The survey has not been evaluated for validity or reliability, but content was reviewed and approved by the DNP project team and the university IRB committee.

### **Development of Evaluation Methods**

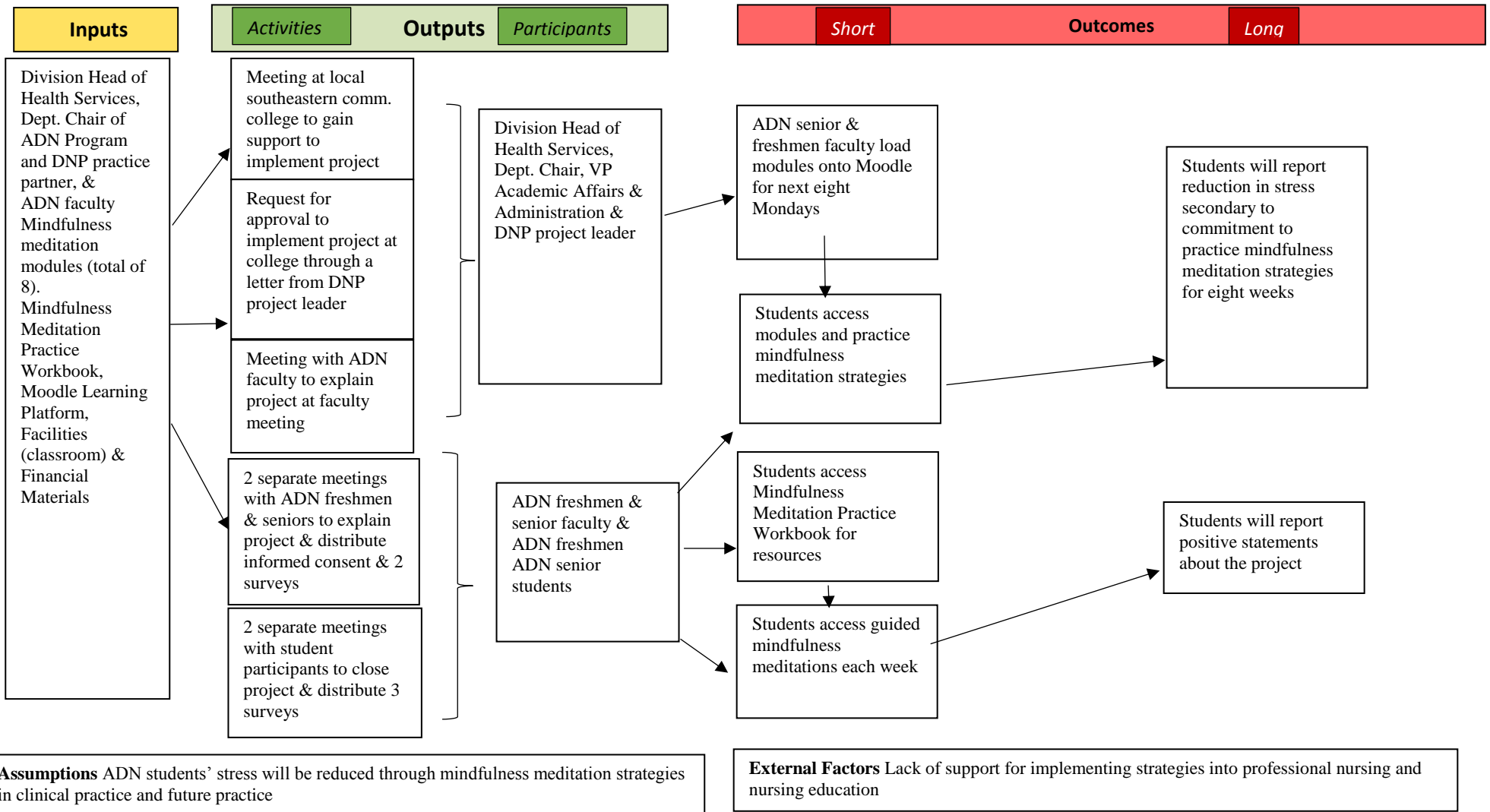
The decision to use the MAAS and the PSS to measure outcomes of stress reduction through mindfulness meditation strategies was carefully considered. The validity and reliability of the instruments were determined to be effective through a literature search. The purpose of this DNP project was to educate students about stress through the utilization of mindfulness meditation interventions to promote stress

reduction in clinical practice and future clinical practice. The MAAS was based on a Likert scale to collect quantitative data with number one as being almost always mindful and number six as almost never being mindfully aware. The PSS instrument based on a Likert scale collects quantitative data with number three as being fairly often stressed to zero never stressed. At the time of the post-implementation, a third survey, Project Evaluation of the Mindfulness Meditation Strategies was distributed to student participants. This survey was based on a Likert scale to collect quantitative data with number one equal to strongly disagree to number seven equal to strongly agree. The survey included descriptive data where students could respond how often they practiced the strategies during the week. Another question on the survey asked, "Will you continue to use mindfulness meditation strategies in the future? The responses were yes, no, or maybe. The last question collected qualitative data by asking student participants to write any suggestions or comments about the project. This survey was developed by the project leader to glean specific data from the project students to aid in gathering information to determine project improvement and sustainability. As this evaluation was developed by the project leader there is no reliability score. It was reviewed by the university IRB and the project team members who are clinically experienced nurses and nursing faculty, who are graduate or doctoral-prepared nurses.

### **Simple Logic Model**

A simple logic model follows in Figure 2 below explaining preparation for the project and steps of implementation to the closure of the project.





**Program:** DNP Stress & Mindfulness Meditation Strategies in Nursing Student Clinical Education Logic Model

**Purpose:** The DNP project will educate students about stress, and the incorporation of mindfulness interventions into nursing education to promote stress reduction practice in nursing students' clinical and future clinical practice

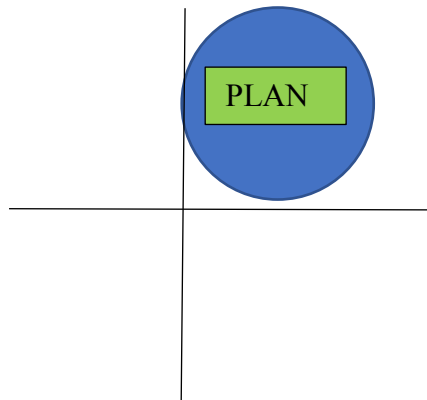
Figure 2. DNP Stress & Mindfulness Meditation Strategies in Nursing Student Clinical Education Logic Model

## Quality Improvement Methods

According to the Institute for Healthcare Improvement (IHI), Plan-Do-Study-Act (Figures 3-6) is a tool to test if there is a change in the target population (IHI, 2017). The target population for the project was associate degree nursing students. The first step for quality improvement according to this model is the development of a plan. This phase focuses on the identification of a problem, and the collection of data about the issue. Problem recognition showed through an extensive literature search that evidence points to the problem that nursing students sometimes experience overwhelming stress in nursing school. The state of unmanaged stress may cause unhealthy behaviors and may create severe imbalances physiologically and physiologically. The test, which is the DNP project intervention, is that pressure is reduced for nursing students through mindfulness meditation strategies.

The DNP project was implemented at a southeastern community college in the United States. The target population was Associate Degree Nursing freshmen and senior nursing students. The project continued for eight weeks after the informational sessions with students. The students accessed mindfulness meditation strategies on the college's Moodle Learning Platform. Students were educated about stress and the impact of stress if it is not managed effectively. The collection of the data pre-and post-implementation of the project included:

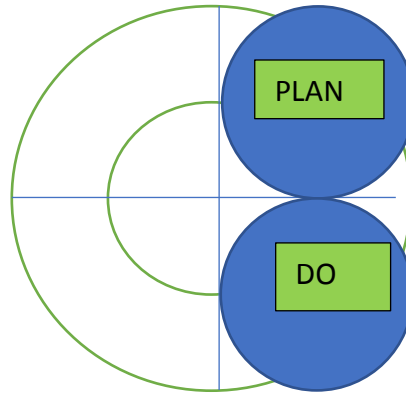
- the Mindfulness Attention Awareness Scale
- the Perceived Stress Scale
- the Project Evaluation of the Mindfulness Meditation Strategies Survey



*Figure 3. Plan*

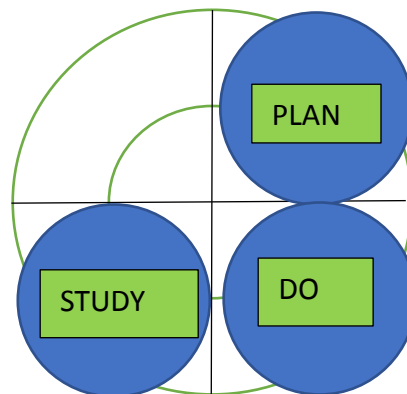
The next phase of the quality improvement cycle is “do”. The “do” phase first performs a test on a small scale. For this DNP project, two surveys, the MAAS and the PSS were distributed and completed by all-volunteer student participants. These instruments provided baseline information about students' awareness of mindfulness and their perception of stress. The intervention was implemented for eight weeks. Part of the “do” phase is to document any problems or unexpected occurrences. There were no problems or unforeseen events reported to the project leader or any faculty member.

The project closed on November 2017 and post-implementation surveys including the MAAS, the PSS, and the Evaluation of the Project surveys were completed and collected. All data was copied and then sent to the project statistician for analysis of the data.



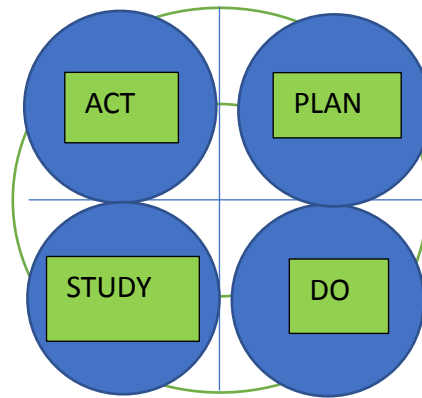
*Figure 4. Do*

The third phase of the PDCA model is “study”. For this part, there must be an analysis of the data, and interpretation of the data and a comparison of the results to the original problem statement. This part of the project was completed by the statistician March 2018. After data analysis, results were reviewed and future implications for practice were developed based on project data.



*Figure 5. Study*

The final phase of quality improvement using the PDSA is to “act”. After data analysis, results were reviewed and determined the actions needed for improvement and sustainability.



*Figure 6. Act*

## **SECTION VII**

### **Implementation**

#### **IRB Approval**

IRB project approval was received after university application and review process was completed. IRB approval was granted in September 2017, prior to project implementation. The southeastern community college selected for project implementation met approval by the Vice President of Academic Affairs and Administration on August 2017. The nursing department faculty reported enthusiasm about the project and agreed the implementation would take place during student's class-time.

The informational sessions were conducted separately for the freshmen and senior students. The sessions presented a PowerPoint and a 10-minute discussion during class-time to discuss the project. After the information session, freshmen and senior students voluntarily completed the informed consent, the MAAS and the PSS.

Following the second information session, the project leader collaborated with faculty to post the first-week module on the Moodle Learning Platform. The nursing department chair, also serving as the DNP practice partner, agreed to publish the modules on Moodle for the freshmen students, and a faculty member agreed to post the weekly modules for the senior students.

#### **Implementation of the Project**

A southeastern community college in the United States was selected for the project implementation. The school has an associate degree nursing program. The DNP Project focused on stress reduction for first-semester nursing students and fourth-

semester senior nursing students through mindfulness meditation intervention strategies. A meeting was scheduled with the senior and freshmen faculty prior to the student meetings. The project leader provided the project outline and informational PowerPoint to faculty.

After IRB approval, the project leader met with freshmen and senior students in separate informational sessions. The informational session for freshmen and senior students was scheduled for September 2017 and was held during class-time on the campus in the classroom. The informational sessions included a PowerPoint describing an overview of the project and the effects of stress physiologically and psychologically. The students were introduced about the benefits of mindfulness meditation strategies to mitigate stress in their current clinical environment and future clinical practice.

In September 2017, following the information session, the project leader collaborated with senior and freshmen faculty to post the modules on the Moodle Learning Platform. For the next eight Mondays, senior and freshmen faculty opened access to the mindfulness mediation strategies modules. Each module remained open and accessible by the students and faculty throughout the implementation process. The Moodle Learning Platform allowed faculty to ensure the modules are available 24-hours a day, seven days a week. In addition to the various mindfulness meditation strategies modules on Moodle, students could also access the Mindfulness Meditation Practice Workbook on Moodle which contained additional resources, mandalas to color, and links for mindfulness meditation mobile applications. All faculty members also had access to the modules.

Each module provided education to the students about basic mindfulness meditation strategies. Every module focused on one of the seven attitudes of mindfulness practiced at the Mindfulness Meditation Stress Reduction Clinic founded by Dr. Jon Kabat-Zinn at the University of Massachusetts Medical School (CMMHCS, 1979.). A brief description of the seven attitudes follows:

- non-judging- paying attention moment to moment
- patience- accept things in our lives as they unfold
- beginner's mind- seeing everything for the first time
- trust- oneself and those feelings that accompany the journey to trust
- non-striving- allowing everything and anything
- acceptance- open to pleasure and pain
- letting go- non-attachment (Kabat-Zinn, 2013).

Each module featured a guided mindfulness meditation intervention by various mindfulness meditation experts. The meditations varied from 10 minutes to 29 minutes in length. The meditations directed students to practice sitting on the floor, a chair, and lying down postures. One guided meditation taught the principles of loving-kindness towards oneself. Other meditations included a mountain meditation sitting posture that lasted for 20 minutes, a thought labeling session lasting 10 minutes, meditation focusing on forgiveness towards oneself and an additional meditation about trust. Week six module conveyed a 29-minute guided mindfulness meditation paying attention to the body by scanning and allowing the mind to gently center on each part of the body while lying down and accepting the various sensations of the body. Week seven concentrated on acceptance by contacting a friend or significant other who supports your progress.



The module introduced mindfulness meditation through yoga postures which was guided by Dr. Kabat-Zinn. The final module focused on letting go and accepting the willingness to let life take you to new places, create new understandings about oneself, and offered encouragement to students who soon will enter licensed professional practice. The guided meditation demonstrated how to let go and be in the moment. This meditation was approximately 15 minutes.

Each module expounded basic information about each of the seven attitudes. For every module, the project leader used announcements in each module to create an environment conducive to meditation practice. Included in every module was an evidence-based research study demonstrating the value of mindfulness meditation strategies. Each module lesson plan included journal prompts for students who wanted to reflect on their personal experiences about mindfulness and stress. The Mindfulness Meditation Practice Workbook was referenced in every module to remind student about where to look for additional mindfulness information and resources.

For the next eight weeks, the project leader corresponded with the DNP practice partner and senior faculty via email. In each email, the project leader wrote a short announcement to the students about the upcoming lesson plan for that week and faculty and the practice partner posted these messages. There were no technical issues or complaints throughout the project expressed by students or participating faculty.

### **Threats and Barriers**

When the project was first discussed with DNP practice partner it was agreed the project leader should have access to the electronic Moodle Learning Platform to post each module. Threats according to Zaccagnini and White (2017) may be predicted or

unpredicted. Early in the development of the project, the DNP Practice Partner initially received permission from the Information Technology Department to grant access to Moodle for the project leader. However, an unforeseen barrier prevented the project leader from accessing Moodle. Through effective collaboration and a workable schedule from all team members, a solution was found to overcome the obstacle. Senior and freshmen faculty agreed to be responsible for posting the weekly modules on Moodle. The ADN faculty and the project leader agreed for the next eight Sundays, the project leader would email the modules and announcements to the faculty. Every Monday, the faculty posted the announcement and appropriate module for students to access.

Students were not affected by these changes. The senior and freshmen students received the same module information posted on Moodle. This threat or barrier was quickly resolved without further problems.

Another unforeseeable threat became apparent when scheduling issues prompted needs to reschedule instructional meetings for project faculty. This threat was resolved by the project leader by emailing all faculty a PowerPoint which gave an overview of the project, the implementation process, and a brief synopsis of the project. Each faculty member was provided the project leader's email in case they had questions or wanted further information.

An additional barrier or threat, which was a known possibility that might occur was a time limit imposed for the informational sessions during class time. Because this was a potential the project leader developed a briefer PowerPoint to present to the students. The informational session ended up lasting a total of 30 minutes. The PowerPoint was delivered in 20 minutes, followed by a 10-minute discussion about the

surveys and the informed consent. Students had time during the 10-minute discussion to ask questions; however, there were no questions from the students. The students voluntarily participated and had time to complete all documents. All student participants were instructed to contact their nursing faculty if there were further questions about the documents or the project. The faculty reported there were no further questions or inquiries about the project at any time.

### **Project Closure**

To close the project, the project leader met with the senior students and faculty on November 2017. During this time, the student participants completed post-implementation surveys, the MAAS, the PSS and the Project Evaluation of the Mindfulness Meditation Strategies Survey. Each survey was collected in a large envelope at the back of the classroom by the project leader. The senior faculty were then notified to close the student's access on Moodle to the project. The completion of the project for the senior students ended after this meeting.

The next meeting occurred later that week with freshmen students to close the project. The freshmen students completed all post-implementation surveys including the Project Evaluation of the Mindfulness Meditation Strategies. All data was collected in a large envelope at the back of the classroom. The project leader personally thanked the faculty who assisted with the project. The project implementation was officially complete at the conclusion of this meeting.

All data was separated into freshmen pre-implementation surveys and post-implementation surveys including the Project Evaluation of the Mindfulness Meditation Strategies Survey. The senior survey data was also separated into pre-and post-

implementation surveys including the same Project Evaluation of the Mindfulness Meditation Strategies Survey. The data was copied and kept in a locked file cabinet in the project leader's office, which was locked and secured. The data was compiled and mailed to the project statistician for interpretation, utilization and reporting of results.

## SECTION VIII

### Interpretation of Data

#### Quantitative Data

The Doctorate of Nursing (DNP) project focuses on stress and the practice of mindfulness meditation strategies for nursing students. The corresponding populations are the freshmen and senior level nursing students in the project setting in southeastern part of the United States. The focus of this research project was to obtain inferences on whether the quantitative tools, the Mindful Attention Awareness Scale (MAAS) and the Perceived Stress Scale (PSS) will lead to a stress reduction in nursing students' clinical environment and future clinical practice. The education about stress reduction and the incorporation of mindfulness interventions into nursing education may be considered as important factors.

The Mindful Attention Awareness Scale (MAAS) is a quantitative tool that measured the nursing students' awareness of mindfulness. The MAAS has 15 statements. The 15 statements are as follows:

1. I could be experiencing some emotion and not be conscious of it until sometime later
2. I break or spill things because of carelessness, not paying attention, or thinking of something else
3. I find it difficult to stay focused on what's happening in the present
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way

5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention
6. I forget a person's name almost as soon as I've been told it for the first time
7. It seems I am "running on automatic", without much awareness of what I'm doing
8. I rush through activities without being really attentive to them
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there
10. I do jobs or tasks automatically, without being aware of what I'm doing
11. I find myself listening to someone with one ear, doing something else at the same time
12. I drive places on 'automatic pilot' and when wonder why I went there
13. I find myself preoccupied with the future or the past
14. I find myself doing this without paying attention
15. I snack without being aware that I'm eating

There is an ordering of the realizations (the possible responses to these 15 statements). Specifically, the above statements can be considered as categorical random variables of the ordinal type.

The possible responses to these statements are: Almost Always (1) Very Frequently (2) Somewhat Frequently (3) Somewhat Infrequently (4) Very Infrequently (5) and Almost Never (6). The possible subject responses for the 15 statements (in the pre-implementation stage and in the post-implementation stage) can be considered as the categorical sample data.

The MAAS pre-implementation stage and the post-implementation stage data for the freshmen students is discussed in the tables and results. A simple random sample of (n) 30 freshmen students have been considered in this data analysis.

Consider the following statistical hypothesis.

The H<sub>0</sub> (Null Hypothesis) freshmen nursing students' awareness of mindfulness will not increase as demonstrated through MAAS scoring.

The H<sub>a</sub> (Alternative Hypothesis) freshmen nursing students' awareness of mindfulness will increase as demonstrated through MAAS scoring. In the inferential statistical analysis, the t-tests are applied on the sample data. The statistical hypothesis can be further described as:

The H<sub>0</sub> (Null Hypothesis) The average awareness of mindfulness of a freshmen nursing student before the implementation of the project educational intervention and the average awareness of mindfulness of a freshmen nursing student after the implementation of the project educational intervention will be the same as demonstrated through MAAS scoring.

The H<sub>a</sub> (Alternative Hypothesis) The average awareness of mindfulness of a freshmen nursing student after the implementation of the project educational intervention is greater than the average awareness of mindfulness before the implementation of the project educational intervention as demonstrated through MAAS scoring. The null and alternative hypothesis are being tested using the freshmen pre-implementation of the project educational intervention data and the freshmen post-implementation of the project educational intervention data. Table 1 summarizes the hypothesis testing.

Table 1

*Paired t-Test Output for the MAAS for Freshmen*

Categorical variable considered in the paired t-test (statement of interest)	Sample mean of the difference	Paired t-test statistic	P-value
1. I could be experiencing some emotion and not be conscious of it until sometime later	0.3333333	0.95197	0.1745
2. I break or spill things because of carelessness, not paying attention, or thinking of something else	-0.03333333	-0.090142	0.5356
3. I find it difficult to stay focused on what's happening in the present	0.4666667	1.4392	0.08039
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	0	0	0.5
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention	0.3333333	0.91816	0.1831
6. I forget a person's name almost as soon as I've been told it for the first time	-0.2333333	-0.47793	0.6819
7. It seems I am "running on automatic", without much awareness of what I'm doing	-0.2333333	-0.8035	0.7859
8. I rush through activities without being really attentive to them	0.2666667	0.8391	0.2041
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	0.2333333	0.69042	0.2477
10. I do jobs or tasks automatically, without being aware of what I'm doing	0.4666667	1.5639	0.06434
11. I find myself listening to someone with one ear, doing something else at the same time	0.1	0.28826	0.3876
12. I drive places on 'automatic pilot' and when wonder why I went there	0.5	1.1464	0.1305
13. I find myself preoccupied with the future or the past	0.4333333	1.0905	0.1422
14. I find myself doing this without paying attention	0.3	0.72662	0.2366
15. I snack without being aware that I'm eating	0	0	0.5



### **Results of Paired t-Test Analysis for the MAAS for the Freshmen**

For this test, the significance level ( $\alpha$ ) is set at the 5%. At the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

From the Paired t-test there is no sufficient evidence to conclude that the average awareness of mindfulness of a freshmen nursing student after the implementation of the project educational intervention is greater than the average awareness of mindfulness of a freshmen nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring. But it is worth noting that since this data is categorical, it is important to apply a non-parametric statistical test to test the following statistical hypothesis.

### **The Wilcoxon Signed Rank Sum Test for the MAAS for the Freshmen**

In the inferential statistical analysis, the Wilcoxon Signed rank sum test is applied on the sample data. This test can be used in place of a paired t-test for ordered categorical data. Here the data is such it is possible to rank the observations.

The statistical hypothesis are as follows:

The  $H_0$  (Null Hypothesis) The median awareness of mindfulness of a freshmen nursing student before the implementation of the project educational intervention and the median awareness of mindfulness of a freshmen nursing student after the implementation of the project educational intervention are the same as demonstrated through MAAS scoring.

The  $H_a$  (Alternative Hypothesis) The median awareness of mindfulness of a freshmen nursing student after the implementation of the project educational intervention

is greater than the median awareness of mindfulness of a freshmen nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

The above null and alternative hypothesis were tested using the freshmen pre-implementation stage and the freshmen post-implementation stage data.

Table 2 summarizes the hypothesis testing.

Table 2

*Wilcoxon Signed Rank Sum Test Output for the MAAS for Freshmen*

Categorical variable (statement of interest)	Wilcoxon statistic	Approximate P-value
1. I could be experiencing some emotion and not be conscious of it until sometime later	175.5	0.1264
2. I break or spill things because of carelessness, not paying attention, or thinking of something else	113	0.5419
3. I find it difficult to stay focused on what's happening in the present	197.5	0.0843
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	175.5	0.5051
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention	189	0.1323
6. I forget a person's name almost as soon as I've been told it for the first time	132.5	0.6979
7. It seems I am "running on automatic", without much awareness of what I'm doing	136	0.7722
8. I rush through activities without being really attentive to them	204	0.2339
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	197.5	0.2878
10. I do jobs or tasks automatically, without being aware of what I'm doing	148	0.05227
11. I find myself listening to someone with one ear, doing something else at the same time	135	0.3963
12. I drive places on 'automatic pilot' and when wonder why I went there	136	0.126
13. I find myself preoccupied with the future or the past	221	0.2205
14. I find myself doing things without paying attention	187	0.2573
15. I snack without being aware that I'm eating	148.5	0.5229

### **Results of Wilcoxon Signed Rank Sum Test Output for the MAAS for Freshmen**

The significance level ( $\alpha$ ) is set at the 5%. At the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

From the Wilcoxon Signed rank sum test there is no sufficient evidence to conclude that the median awareness of mindfulness of a freshmen nursing student after the implementation of the project educational intervention is greater than the median awareness of mindfulness of a freshmen nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

### **Senior Students Pre- and Post-implementation of the Project Educational Intervention**

Next consider the pre-implementation stage and in the post-implementation stage data for the senior students. A simple random sample of ( $n$ ) 11 have been considered in this data analysis. Consider the following statistical hypothesis.

The  $H_0$  (Null Hypothesis) The Mindful Attention Awareness Scale (MAAS) quantitative tool measured the nursing students' awareness of mindfulness will not increase the senior nursing students' awareness of mindfulness.

The  $H_a$  (Alternative Hypothesis) The Mindful Attention Awareness Scale (MAAS) quantitative tool measuring the nursing students' awareness of mindfulness will increase the senior nursing students' awareness of mindfulness.

In the inferential statistical analysis, the t-tests are applied on the sample data. The statistical hypothesis can be further described as:

The  $H_0$  (Null Hypothesis) The average awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention and the average awareness of mindfulness of a senior nursing student after the implementation of the project educational intervention as demonstrated through MAAS scoring were the same.

The  $H_a$  (Alternative Hypothesis) The average awareness of mindfulness of a senior nursing student after the implementation of the project educational intervention is greater than the average awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

The above null and alternative hypothesis were tested using the senior pre-implementation stage and the senior post-implementation stage data.

Table 3 summarizes the hypothesis testing.

Table 3

## Paired t-Test Output of the MAAS for the Seniors

Categorical variable considered in the paired t-test (statement of interest)	Sample mean of the difference	Paired t-test statistic	P-value
1. I could be experiencing some emotion and not be conscious of it until sometime later	1.090909	1.8833	0.04452
2. I break or spill things because of carelessness, not paying attention, or thinking of something else	1	1.7014	0.05985
3. I find it difficult to stay focused on what's happening in the present	1.636364	3.331	0.003802
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	1.363636	2.4333	0.01762
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention	0.2727273	0.375	0.3577
6. I forget a person's name almost as soon as I've been told it for the first time	1	1.748	0.05552
7. It seems I am "running on automatic", without much awareness of what I'm doing	1.454545	2.5887	0.0135
8. I rush through activities without being really attentive to them	0.7272727	1.3047	0.1106
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	0.9090909	1.7733	0.05329
10. I do jobs or tasks automatically, without being aware of what I'm doing	0.8181818	1.4796	0.08489
11. I find myself listening to someone with one ear, doing something else at the same time	1.090909	2.128	0.02961
12. I drive places on 'automatic pilot' and when wonder why I went there	0.8181818	1.1717	0.1342
13. I myself find preoccupied with the future or the past	1.272727	3.5446	0.002658
14. I find myself doing things without paying attention	1	2.1409	0.02897
15. I snack without being aware that I'm eating	0.9090909	0.9787	0.1754

### **Results of Paired t-Test for the MAAS for Seniors**

Here the significance level ( $\alpha$ ) is set at the 5%. For statements 1, 3, 4, 7, 11, 13, and 14 in the MAAS quantitative tool, at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are less than the significance level. So, the null hypothesis is rejected.

For statements 1, 3, 4, 7, 11, 13, and 14 in the MAAS quantitative tool, the Paired t-test concludes there is sufficient evidence to conclude that the average awareness of mindfulness of a senior nursing student after the implementation of the project educational intervention is greater than the average awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

For statements 2, 5, 6, 8, 9, 10, 12, and 15 in the MAAS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

For statements 2, 5, 6, 8, 9, 10, 12, and 15, the Paired t-test concludes that there is no sufficient evidence to conclude that the average awareness of mindfulness of a senior nursing student after the implementation of the project educational intervention is greater than the average awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

### **The Wilcoxon Signed Rank Sum Test for the MAAS for Seniors**

The  $H_0$  (Null Hypothesis) The median awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention and the median awareness of mindfulness of a senior nursing student after the implementation of

the project educational intervention are the same as demonstrated through MAAS scoring.

The  $H_a$  (Alternative Hypothesis) The median awareness of mindfulness of a senior nursing student after the implementation of the MAAS quantitative tool is greater than the median awareness of mindfulness of a senior nursing student before the implementation of the MAAS quantitative tool.

The above null and alternative hypothesis were tested using the Senior pre-implementation stage and the senior post-implementation stage data.

Table 4 summarizes the hypothesis testing.



Table 4

*Wilcoxon Signed Rank Sum Test Output of the MAAS for Seniors*

<i>Categorical variable (statement of interest)</i>	<i>Wilcoxon statistic</i>	<i>Approximate P-value</i>
1. I could be experiencing some emotion and not be conscious of it until sometime later	38	0.03509
2. I break or spill things because of carelessness, not paying attention, or thinking of something else	28.5	0.07787
3. I find it difficult to stay focused on what's happening in the present	51	0.008577
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	47	0.02524
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention	30.5	0.398
6. I forget a person's name almost as soon as I've been told it for the first time	37	0.04551
7. It seems I am "running on automatic", without much awareness of what I'm doing	41	0.01467
8. I rush through activities without being really attentive to them	33.5	0.1023
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	36	0.05829
10. I do jobs or tasks automatically, without being aware of what I'm doing	48	0.09418
11. I find myself listening to someone with one ear, doing something else at the same time	38	0.03318
12. I drive places on 'automatic pilot' and when wonder why I went there	40	0.1084
13. I find myself preoccupied with the future or the past	51.5	0.007043
14. I find myself doing things without paying attention	45	0.03907
15. I snack without being aware that I'm eating	36	0.204

### **Results of the Wilcoxon Signed Rank Sum Test for the MAAS for Seniors**

For statements 1, 3, 4, 6, 7, 11, 13, and 14 in the MAAS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are less than the significance level. So, the null hypothesis is rejected.

For statements 1, 3, 4, 6, 7, 11, 13, and 14 in the MAAS quantitative tool, the Wilcoxon Signed rank sum test concludes that there is sufficient evidence to conclude that the median awareness of mindfulness of a senior nursing student after the implementation of the project educational intervention is greater than the median awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

For statements 2, 5, 8, 9, 10, 12, and 15 in the MAAS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

For statements 2, 5, 8, 9, 10, 12, and 15, the Wilcoxon Signed rank sum test concludes that there is no sufficient evidence to conclude that the median awareness of mindfulness of a senior nursing student after the implementation of the project educational intervention is greater than the median awareness of mindfulness of a senior nursing student before the implementation of the project educational intervention as demonstrated through MAAS scoring.

### **The Perceived Stress Scale (PSS)**

The Perceived Stress Scale (PSS) quantitative tool that measured perception of stress of a nursing student. The PSS considers the following ten statements.

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and “stressed”?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

There is an ordering of the realizations (the possible responses to these 10 statements). Specifically, the above statements can be considered as categorical random variables of the ordinal type. The possible responses to these statements are: Never (0) Almost Never (1) Sometimes (2) Fairly Often (3).

The possible subject responses for the 10 statements (in the pre-implementation stage and in the post-implementation stage) can be considered as the categorical sample data.

### **The Perceived Stress Survey for Freshmen**

Consider the PSS pre-implementation stage and in the post-implementation stage data for the freshmen students. A simple random sample of ( $n$ ) 30 have been considered in this data analysis. Consider the following statistical hypothesis.

The  $H_0$  (Null Hypothesis) The Perceived Stress Scale (PSS) quantitative tool which measured the nursing students' perception of stress will not decrease the freshmen nursing students' perception of stress.

The  $H_a$  (Alternative Hypothesis) The Perceived Stress Scale (PSS) quantitative tool which measured the nursing students' perception of stress will decrease the freshmen nursing students' perception of stress.

The statistical hypothesis can be further described as:

The  $H_0$  (Null Hypothesis) The average perception of stress of a freshmen nursing student before the implementation of the project educational intervention and the average perception of stress of a freshmen nursing student after the implementation of the project educational intervention are the same as demonstrated through PSS scoring.

The  $H_a$  (Alternative Hypothesis) The average perception of stress of a freshmen nursing student after the implementation of the project educational intervention is smaller than the average perception of stress of a freshmen nursing student before the implementation of the project educational intervention as demonstrate through PSS scoring.

The above null and alternative hypothesis are being tested using the freshmen pre-implementation stage and the freshmen post-implementation stage data.

Table 5 summarizes the hypothesis testing.

Table 5

*Paired t-Test Output of the PSS for Freshmen*

Categorical variable considered in the paired t-test (statement of interest)	Sample mean of the difference	Paired t-test statistic	P-value
1. In the last month, how often have you been upset because of something that happened unexpectedly?	-0.2333333	-0.89323	0.1895
2. In the last month, how often have you felt that you were unable to control the important things in your life?	-0.2	-0.68209	0.2503
3. In the last month, how often have you felt nervous and "stressed"?	-0.3666667	-1.5781	0.06269
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0.1333333	0.66037	0.7429
5. In the last month, how often have you felt that things were going your way?	-0.2666667	-1.0922	0.1419
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	-0.06666667	-0.22879	0.4103
7. In the last month, how often have you been able to control irritations in your life?	-0.2333333	-1.2289	0.1145
8. In the last month, how often have you felt that you were on top of things?	-0.2	-0.86232	0.1978
9. In the last month, how often have you been angered because of things that were outside of your control?	-0.03333333	-0.10927	0.4569
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	-0.3	-1	0.1628

### **Results of Paired t-Test Output of the PSS for Freshmen**

Here the significance level ( $\alpha$ ) is set at the 5%. At the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

From the Paired t-test there is no sufficient evidence to conclude that the average perception of stress of a freshmen nursing student after the implementation of the project educational intervention is less than the average perception of stress of a freshmen nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

### **Wilcoxon Signed Rank Sum Test of the PSS for Freshmen**

In the inferential statistical analysis, next the Wilcoxon Signed rank sum test is applied on the sample data. This test can be used in place of a paired t-test for ordered categorical data. Here the data is such it is possible to rank the observations.

The statistical hypothesis are as follows:

The  $H_0$  (Null Hypothesis) The median perception of stress of a freshmen nursing student before the implementation of the project educational intervention and the median perception of stress of a freshmen nursing student after the implementation of the project educational intervention are the same as demonstrated through PSS scoring.

The  $H_a$  (Alternative Hypothesis) The median perception of stress of a freshmen nursing student after the implementation of the project educational intervention is less than the median perception of stress of a freshmen nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

The above null and alternative hypothesis are being tested using the freshmen pre-implementation stage and the freshmen post-implementation stage data.

Table 6 summarizes the hypothesis testing.

Table 6

Wilcoxon Signed Rank Sum Test Output of the PSS for Freshmen

Categorical variable (statement of interest)	Wilcoxon statistic	Approximate P-value
1. In the last month, how often have you been upset because of something that happened unexpectedly?	112	0.2074
2. In the last month, how often have you felt that you were unable to control the important things in your life?	96	0.2502
3. In the last month, how often have you felt nervous and "stressed"?	18.5	0.05593
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	82.5	0.7902
5. In the last month, how often have you felt that things were going your way?	94.5	0.1459
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	121.5	0.4404
7. In the last month, how often have you been able to control irritations in your life?	60	0.1267
8. In the last month, how often have you felt that you were on top of things?	75	0.2097
9. In the last month, how often have you been angered because of things that were outside of your control?	100.5	0.4398
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	116	0.1616

### **Results of the Wilcoxon Signed Rank Sum Test of the PSS for Freshmen**

Here the significance level ( $\alpha$ ) is set at the 5%. At the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

From the Wilcoxon Signed rank sum test there is no sufficient evidence to conclude that the median perception of stress of a freshmen nursing student after the implementation of the project educational intervention is less than the median perception of stress of a freshmen nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

### **The Perceived Stress Survey for Seniors**

Finally, consider the scoring of PSS survey in pre-implementation stage of the project educational intervention and in the post-implementation stage of the project educational intervention data for the senior students. A simple random sample of ( $n$ ) 11 have been considered in this data analysis. Consider the following statistical hypothesis.

The  $H_0$  (Null Hypothesis) The Perceived Stress Scale (PSS) quantitative tool which measures the nursing students' perception of stress will not decrease the senior nursing students' perception of stress.

The  $H_a$  (Alternative Hypothesis) The Perceived Stress Scale (PSS) quantitative tool which measures the nursing students' perception of stress will decrease the senior nursing students' perception of stress.

The statistical hypothesis can be further described as:

The  $H_0$  (Null Hypothesis) The average perception of stress of a senior nursing student before the implementation of the project educational intervention and the average



perception of stress of a senior nursing student after the implementation of the project educational intervention are the same as demonstrated through PSS scoring.

The  $H_a$  (Alternative Hypothesis) The average perception of stress of a senior nursing student after the implementation of the project educational intervention is smaller than the average perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

The above null and alternative hypothesis are being tested using the senior pre-implementation stage and the senior post-implementation stage data.

Table 7 summarizes the hypothesis testing.

Table 7

*Paired t-Test Output of the PSS for Seniors*

Categorical variable considered in the paired t-test (statement of interest)	Sample mean of the difference	Paired t-test statistic	P-value
1. In the last month, how often have you been upset because of something that happened unexpectedly?	-0.5	-1.5275	0.07529
2. In the last month, how often have you felt that you were unable to control the important things in your life?	-0.4285714	-1.104	0.1448
3. In the last month, how often have you felt nervous and "stressed"?	-0.5	-1.9891	0.03408
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0.2142857	1	0.8322
5. In the last month, how often have you felt that things were going your way?	0.7142857	3.2379	0.9968
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	-0.8571429	-2.4815	0.01377
7. In the last month, how often have you been able to control irritations in your life?	0.4285714	2.1213	0.9732
8. In the last month, how often have you felt that you were on top of things?	0.2857143	1.1698	0.8685
9. In the last month, how often have you been angered because of things that were outside of your control?	-0.6428571	-1.8	0.04755
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	-0.9285714	-2.6161	0.01067

### **Results of Paired t-Test Output of the PSS for Seniors**

For statements 3, 6, 9, and 10 in the PSS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are less than the significance level. So, the null hypothesis is rejected.

For statements 3, 6, 9, and 10 in the PSS quantitative tool, the Paired t-test concludes that there is sufficient evidence to conclude that the average perception of stress of a senior nursing student after the implementation of the project educational intervention is less than the average perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

For statements 1, 2, 4, 5, 7, and 8 in the PSS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

For statements 1, 2, 4, 5, 7, and 8, the Paired t-test concludes that there is no sufficient evidence to conclude that the average perception of stress of a senior nursing student after the implementation of the project educational intervention is less than the average perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

### **The Wilcoxon Signed Rank Sum Test of the PSS for Seniors**

Consider the following statistical hypothesis.

The  $H_0$  (Null Hypothesis) The median perception of stress of a senior nursing student before the implementation of the project educational intervention and the median

perception of stress of a senior nursing student after the implementation of the project educational intervention are the same as demonstrated through PSS scoring.

The  $H_a$  (Alternative Hypothesis) The median perception of stress of a senior nursing student after the implementation of the project educational intervention is smaller than the median perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

The above null and alternative hypothesis are being tested using the senior pre-implementation of the project educational intervention stage and the senior post-implementation stage data of the project educational intervention. The Wilcoxon Signed rank sum test has been applied. Table 8 summarizes the hypothesis testing.

Table 8

*Wilcoxon Signed Rank Sum Test Output of the PSS for Seniors*

Categorical variable (statement of interest)	Wilcoxon statistic	Approximate P-value
1. In the last month, how often have you been upset because of something that happened unexpectedly?	10.5	0.07963
2. In the last month, how often have you felt that you were unable to control the important things in your life?	28	0.1083
3. In the last month, how often have you felt nervous and “stressed”?	8	0.04021
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	30	0.8569
5. In the last month, how often have you felt that things were going your way?	50.5	0.9945
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	6	0.02639
7. In the last month, how often have you been able to control irritations in your life?	24.5	0.9766
8. In the last month, how often have you felt that you were on top of things?	31.5	0.8885
9. In the last month, how often have you been angered because of things that were outside of your control?	19	0.05657
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	15	0.01465

### **Results of the Wilcoxon Signed Rank Sum Test Output for the PSS for Seniors**

For statements 3, 6, and 10 in the PSS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are less than the significance level. So, the null hypothesis is rejected.

For statements 3, 6, and 10 in the PSS quantitative tool, the Wilcoxon Signed rank sum test concludes that there is sufficient evidence to conclude that the median perception of stress of a senior nursing student after the implementation of the project educational intervention is less than the median perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

For statements 1, 2, 4, 5, 7, 8, and 9 in the PSS quantitative tool, is set at the 5% significance level ( $\alpha = 0.05$ ), all the P-values are greater than the significance level. Interpretation suggests fail to reject the null hypothesis.

For statements 1, 2, 4, 5, 7, 8, and 9 the Wilcoxon Signed rank sum test concludes that there is no sufficient evidence to conclude that the median perception of stress of a senior nursing student after the implementation of the project educational intervention is less than the median perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring.

### **Strengths**

The strengths of the DNP project demonstrated statistical significance for the Paired t-test for senior nursing students for the following statements of the MAAS tool. The P-values were less than  $\alpha = 0.05$ . The statements included:

1. I could be experiencing some emotion and not be conscious of it until sometime later.
3. I find it difficult to stay focused on what's happening in the present.
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
7. It seems I am "running on automatic," without much awareness of what I'm doing.
11. I find myself listening to someone with one ear, doing something else at the same time.
13. I find myself preoccupied with the future or the past.
14. I find myself doing things without paying attention.

For statements 3, 6, 9, and 10 in the PSS quantitative tool, the Paired t-test concludes that there is sufficient evidence to conclude the average perception of stress of a senior nursing student after the implementation of the project educational intervention is less than the average perception of stress of a senior nursing student before the implementation of the project educational intervention as demonstrated through PSS scoring. The significance level is set  $\alpha = 0.05$  and all the P-values are less than the significance level. The statements included:

3. In the last month, how often have you felt nervous and "stressed"?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?

9. In the last month, how often have you been angered because of things that were outside of your control?

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

### **Qualitative Data**

### **Descriptive Analysis**

#### **Project Evaluation of the Mindfulness Meditation Strategies for Freshmen Student's Survey**

Each of the tables and the figures are based upon the qualitative data results for this survey. Each table (9-15) reflects one of the seven statements from the survey. Each figure (7-13) reflects one of the seven statements. The survey considers the following seven statements for freshmen students:

1. Did the project provide you with helpful information about mindfulness meditation strategies?
2. Did the project provide you with helpful information about stress?
3. Did the project mindfulness meditation strategies lessen your stress in your clinical practice?
4. Has your ability to recognize when you are stressed in clinical practice improved?
5. Overall did the project provide you with helpful information about reducing stress in your clinical practice and your future practice?
6. Indicate how often you practiced mindfulness meditation strategies during a week?

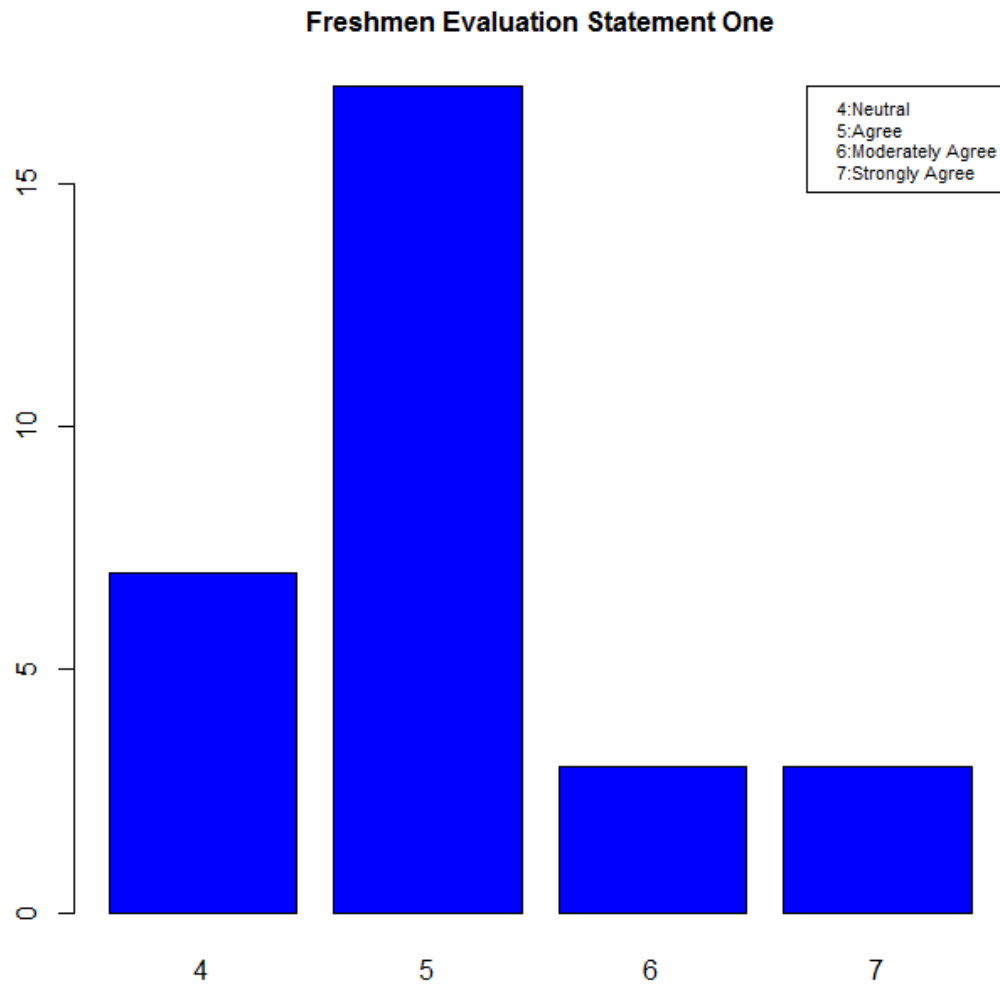


## 7. Will you continue to use mindfulness meditation strategies in the future?

Table 9

*Statement One- Did the project provide you with helpful information about mindfulness meditation strategies?*

Outcome	Frequency
Strongly Agree	3
Moderately Agree	3
Agree	17
Neutral	7
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



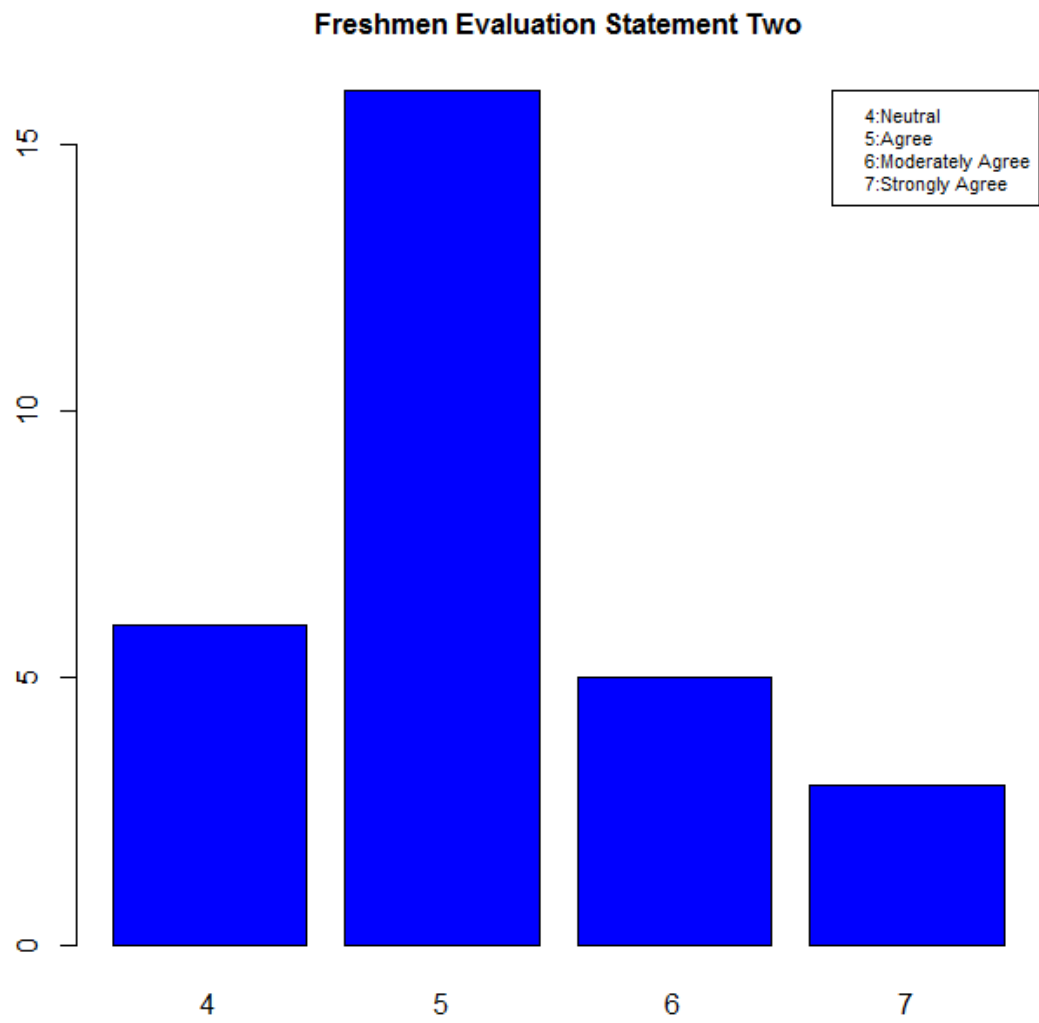
Graph 1: Project Evaluation Statement One

*Figure 7.* Project Evaluation Statement One

Table 10

*Statement Two- Did the project provide you with helpful information about stress?*

Outcome	Frequency
Strongly Agree	3
Moderately Agree	5
Agree	16
Neutral	6
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



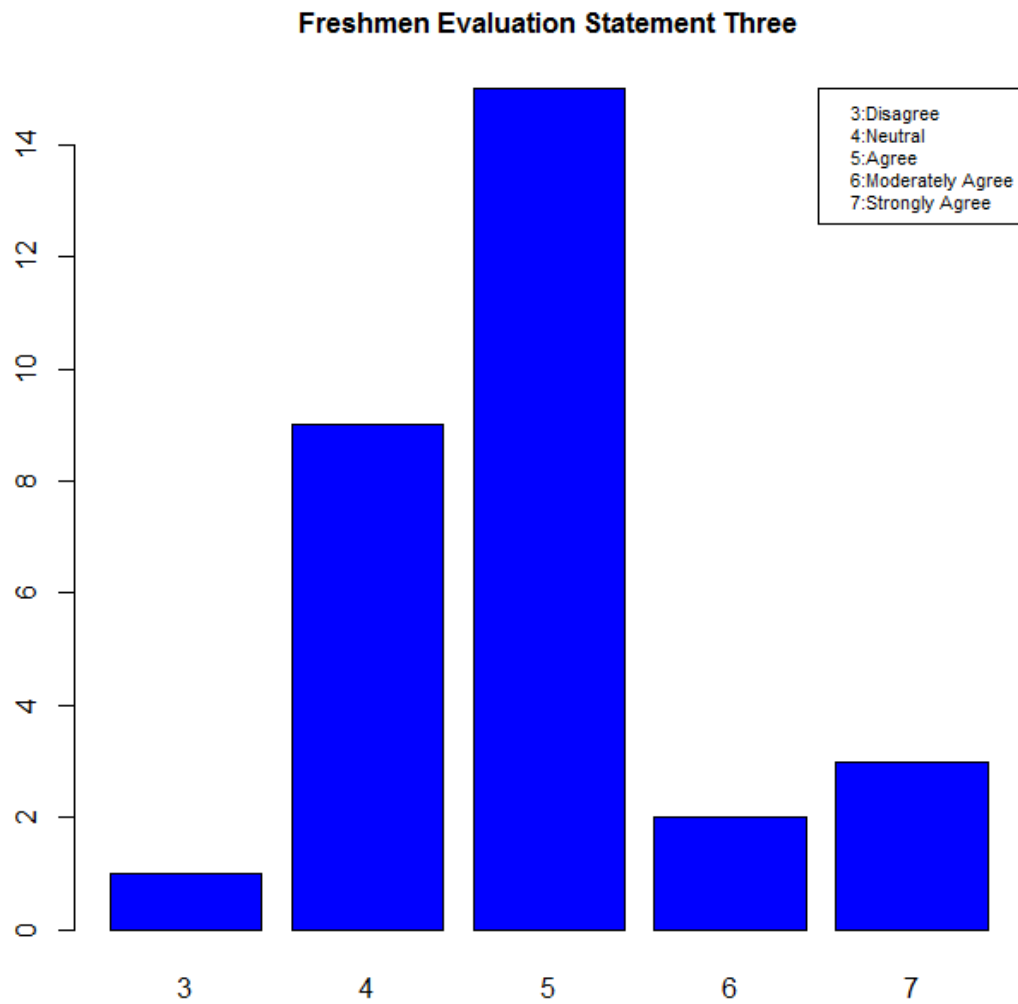
Graph 2: Project Evaluation Statement Two

*Figure 8.* Project Evaluation Statement Two

Table 11

*Statement Three- Did the project mindfulness meditation strategies lessen your stress in your clinical practice?*

Outcome	Frequency
Strongly Agree	3
Moderately Agree	2
Agree	15
Neutral	9
Disagree	1
Moderately Disagree	0
Strongly Disagree	0



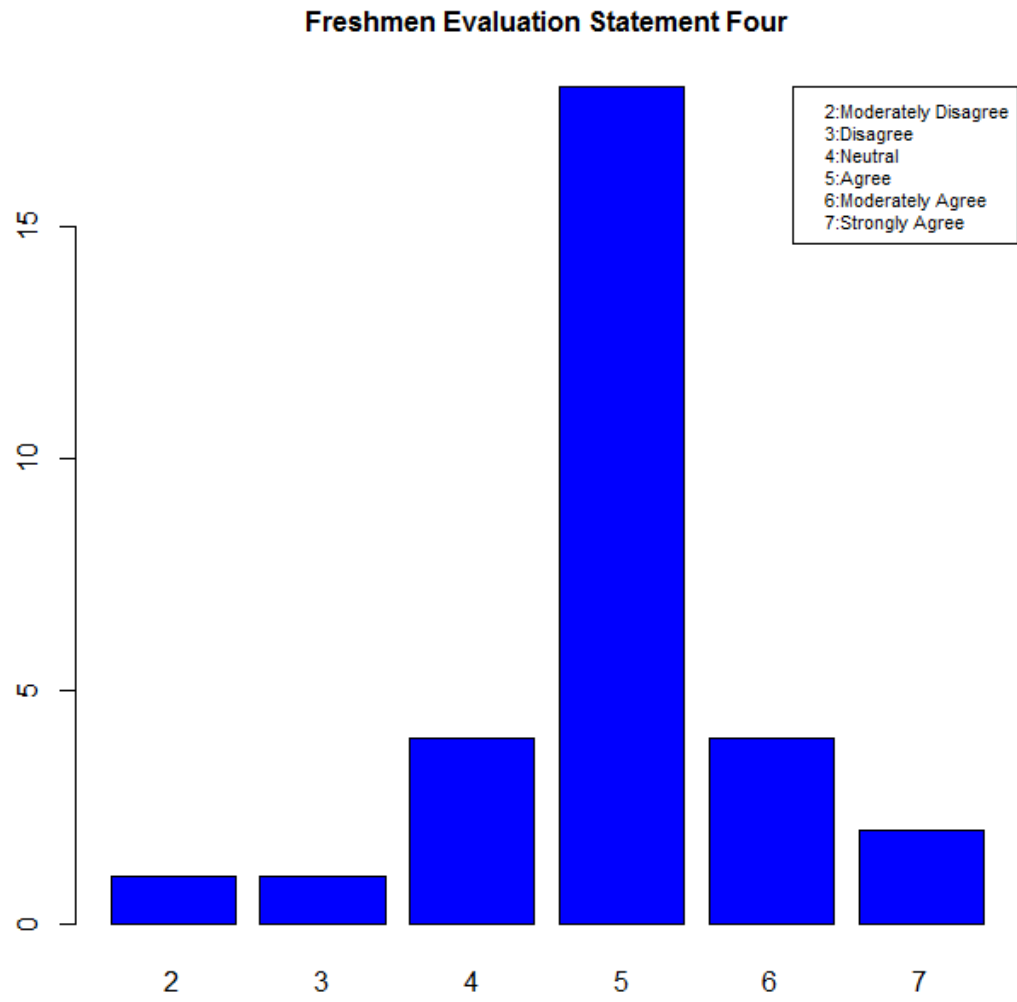
Graph 3:Project Evaluation Statement Three

*Figure 9.* Project Evaluation Statement Three

Table 12

Statement Four- Has your ability to recognize when you are stressed in clinical practice improved?

Outcome	Frequency
Strongly Agree	2
Moderately Agree	4
Agree	18
Neutral	4
Disagree	1
Moderately Disagree	1
Strongly Disagree	0



Graph 4: Project Evaluation Statement Four

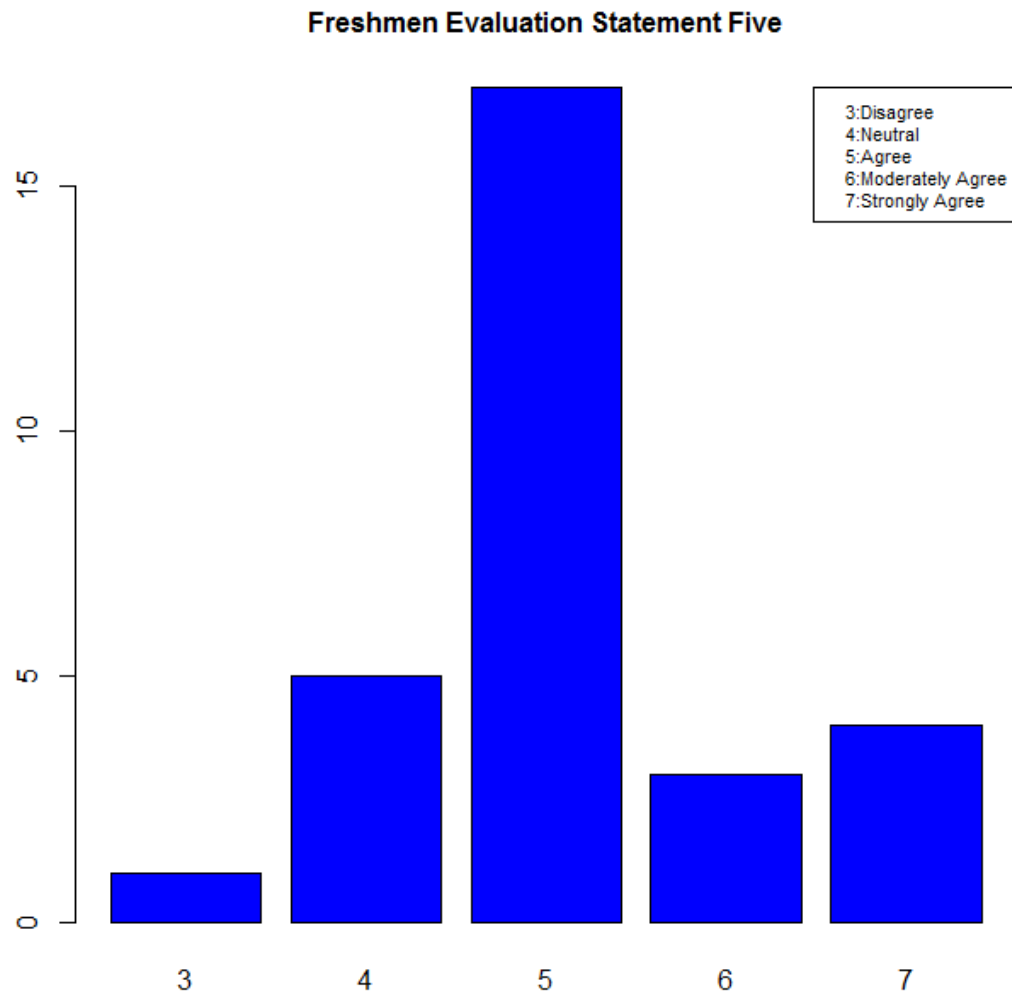
Figure 10. Project Evaluation Statement Four



Table 13

*Statement Five- Overall did the project provide you with helpful information about reducing stress in your clinical practice and your future practice?*

Outcome	Frequency
Strongly Agree	4
Moderately Agree	3
Agree	17
Neutral	5
Disagree	1
Moderately Disagree	0
Strongly Disagree	0



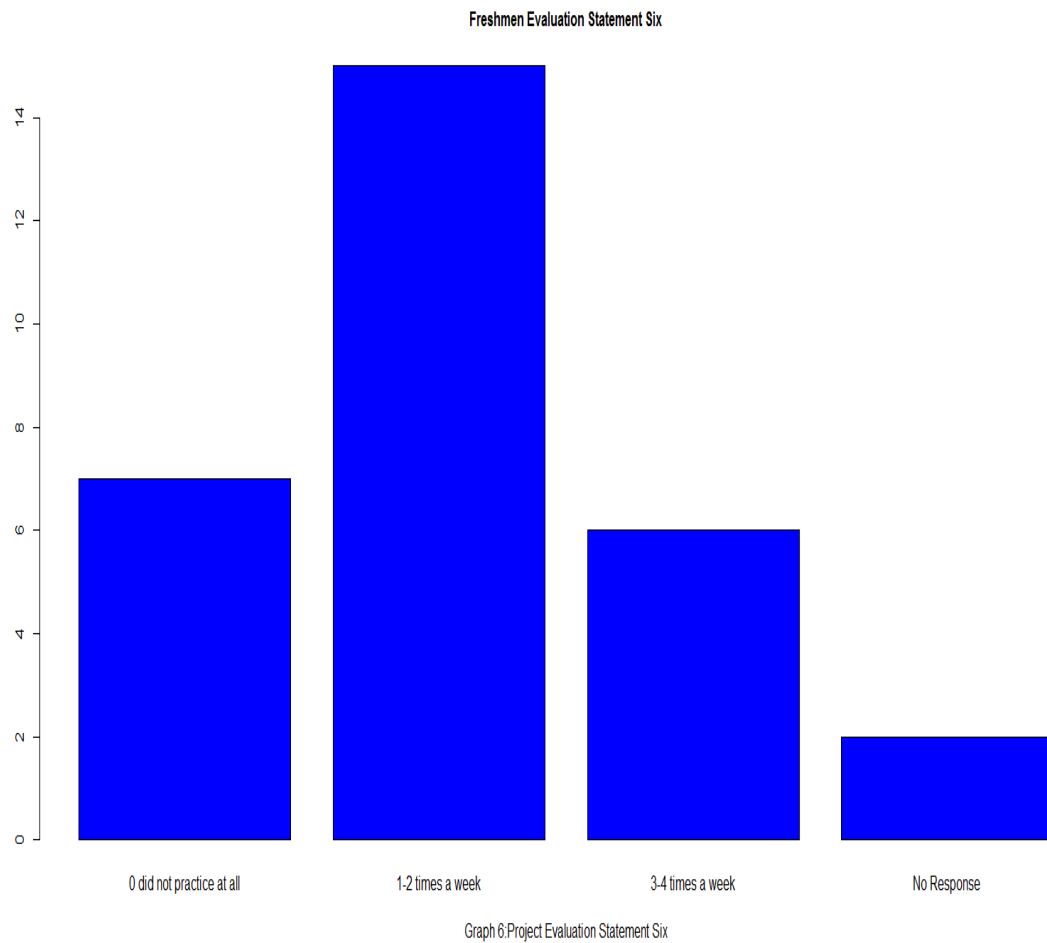
Graph 5:Project Evaluation Statement Five

*Figure 11.* Project Evaluation Statement Five

Table 14

*Statement Six- How often you practiced mindfulness meditation strategies during a week?*

Outcome	Frequency
Did not practice at all	7
1-2 times a week	15
3-4 times a week	6
More than five times a week	0
No Response	2

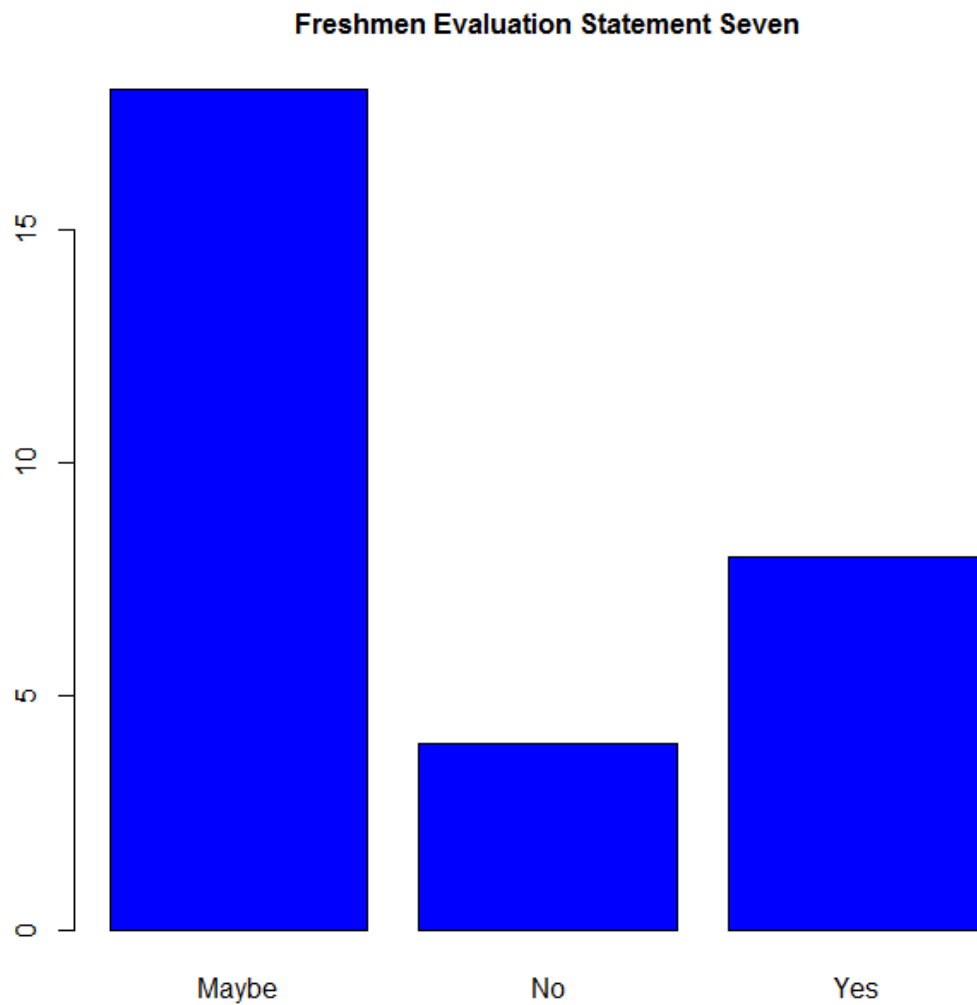


*Figure 12. Project Evaluation Statement Six*

Table 15

*Statement Seven- Will you continue to use mindfulness meditation strategies in the future?*

Outcome	Frequency
Yes	8
Maybe	18
No	4



Graph 7:Project Evaluation Statement Seven

Figure 13. Project Evaluation Statement Seven

### **Project Evaluation of the Mindfulness Meditation Strategies for Senior Student's Survey**

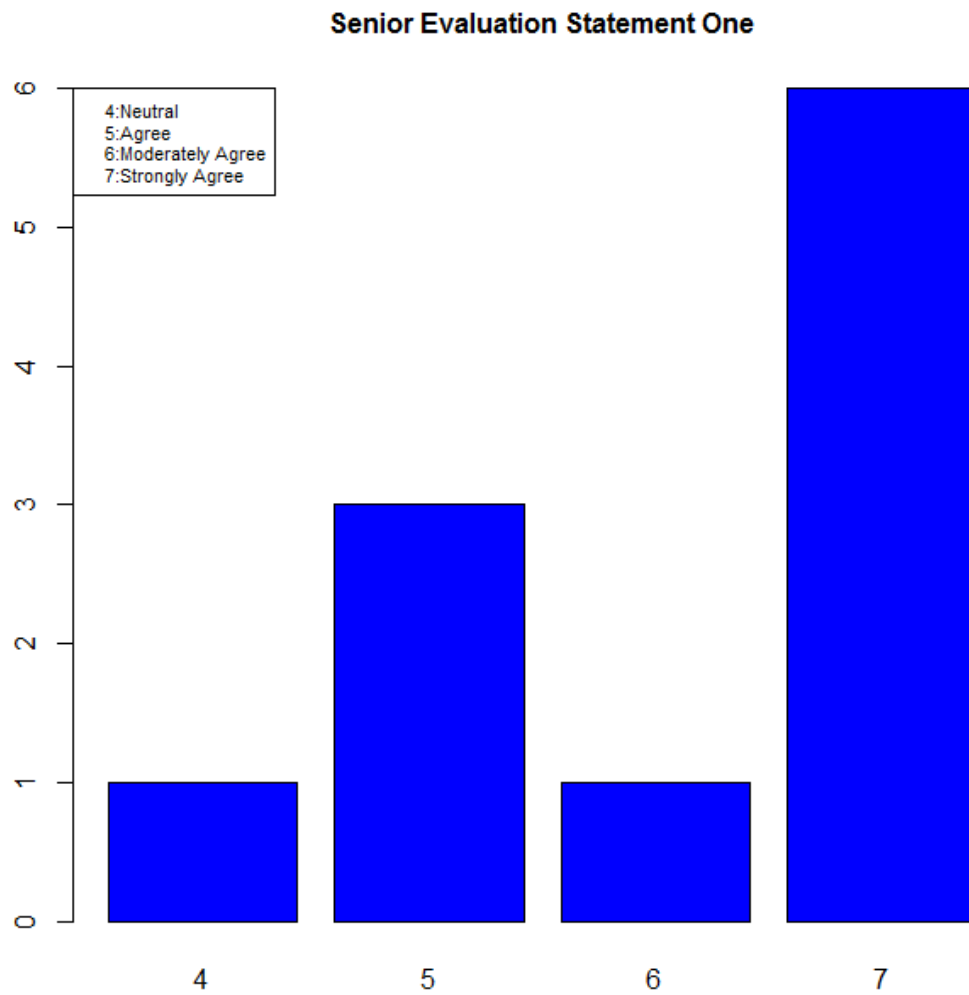
Each of the tables and the figures are based upon the qualitative data results for this survey. Each table beginning with Table 16-22 reflects one of the seven statements from the survey. Each Figure, 14-20, reflects one of the seven statements. The survey considers the following seven statements for senior students:

1. Did the project provide you with helpful information about mindfulness meditation strategies?
2. Did the project provide you with helpful information about stress?
3. Did the project mindfulness meditation strategies lessen your stress in your clinical practice?
4. Has your ability to recognize when you are stressed in clinical practice improved?
5. Overall did the project provide you with helpful information about reducing stress in your clinical practice and your future practice?
6. Indicate how often you practiced mindfulness meditation strategies during a week?
7. Will you continue to use mindfulness meditation strategies in the future?

Table 16

*Statement One- Did the project provide you with helpful information about mindfulness meditation strategies?*

Outcome	Frequency
Strongly Agree	6
Moderately Agree	1
Agree	3
Neutral	1
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



Graph 8: Project Evaluation Statement One

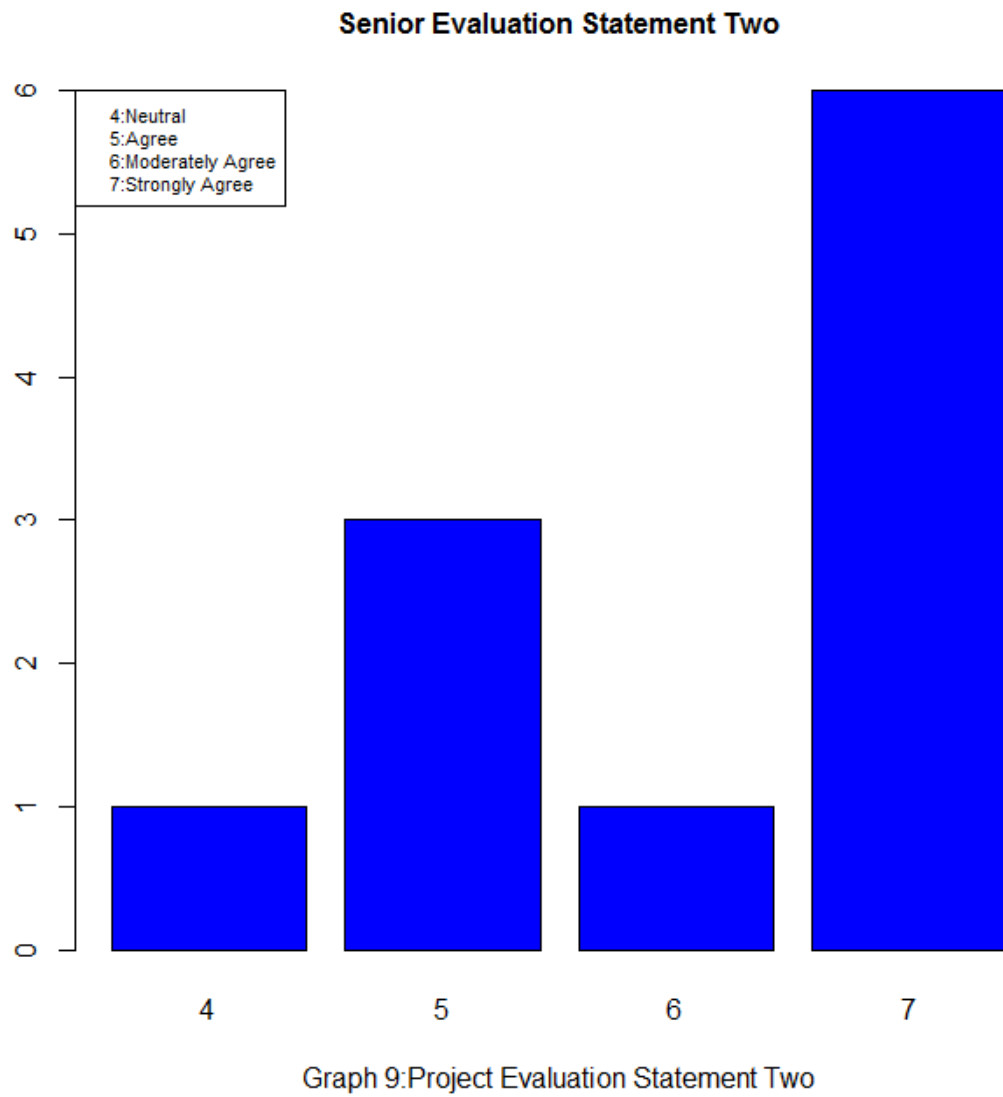
*Figure 14.* Project Evaluation Statement One

Table 17

*Statement Two- Did the project provide you with helpful information about stress?*

Outcome	Frequency
Strongly Agree	6
Moderately Agree	1
Agree	3
Neutral	1
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



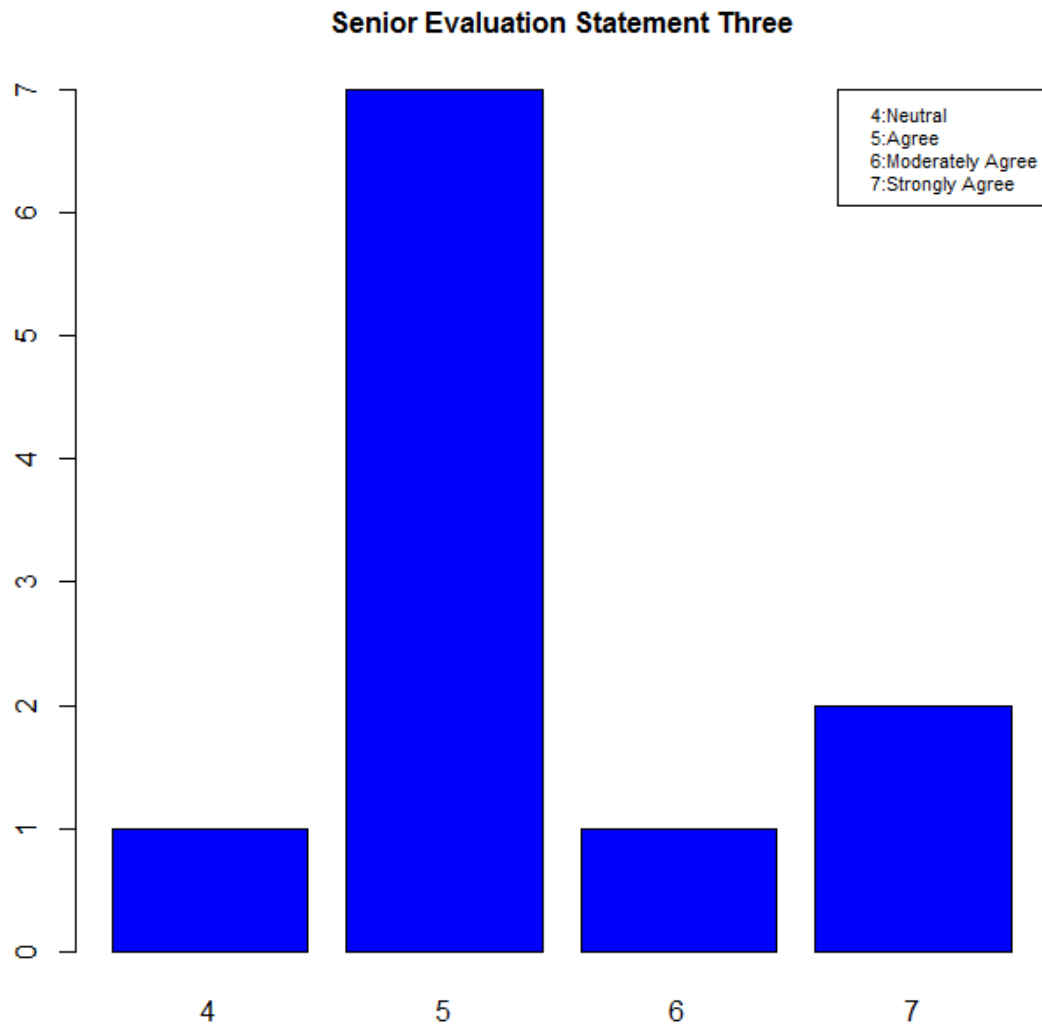


*Figure 15.* Project Evaluation Statement Two

Table 18

*Statement Three- Did the project mindfulness meditation strategies lessen your stress in your clinical practice?*

Outcome	Frequency
Strongly Agree	2
Moderately Agree	1
Agree	7
Neutral	1
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



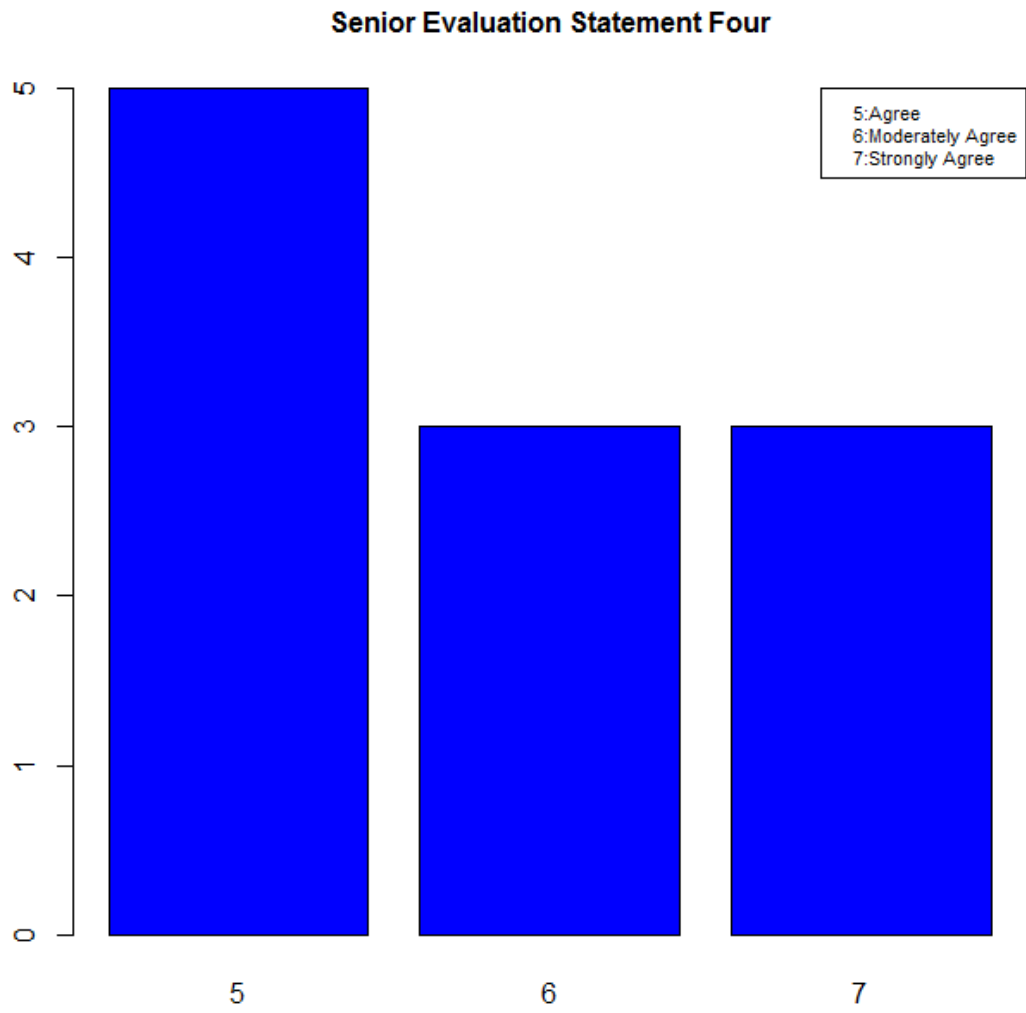
Graph 10:Project Evaluation Statement Three

Figure 16. Project Evaluation Statement Three

Table 19

*Statement Four- Has your ability to recognize when you are stressed in clinical practice improved?*

Outcome	Frequency
Strongly Agree	3
Moderately Agree	3
Agree	5
Neutral	0
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



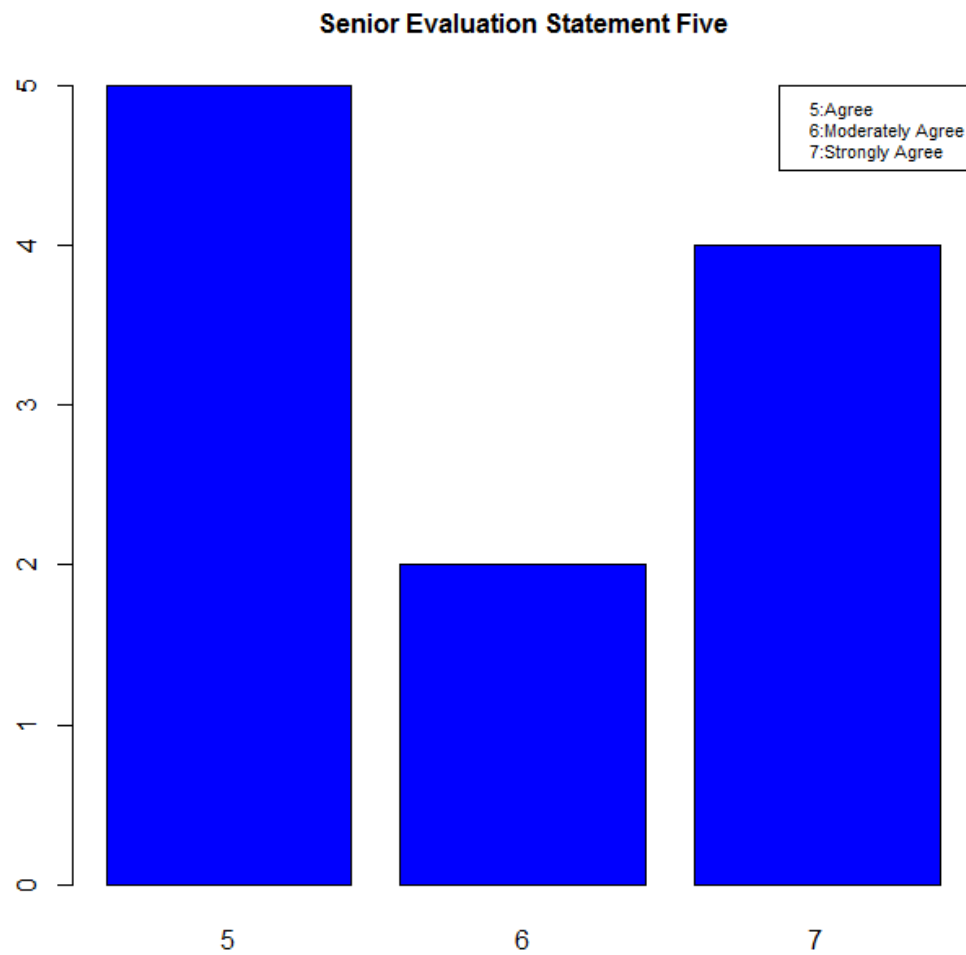
Graph 11:Project Evaluation Statement Four

Figure 17. Project Evaluation Statement Four

Table 20

*Statement Five- Overall did the project provide you with helpful information about reducing stress in your clinical practice and your future practice?*

Outcome	Frequency
Strongly Agree	4
Moderately Agree	2
Agree	5
Neutral	0
Disagree	0
Moderately Disagree	0
Strongly Disagree	0



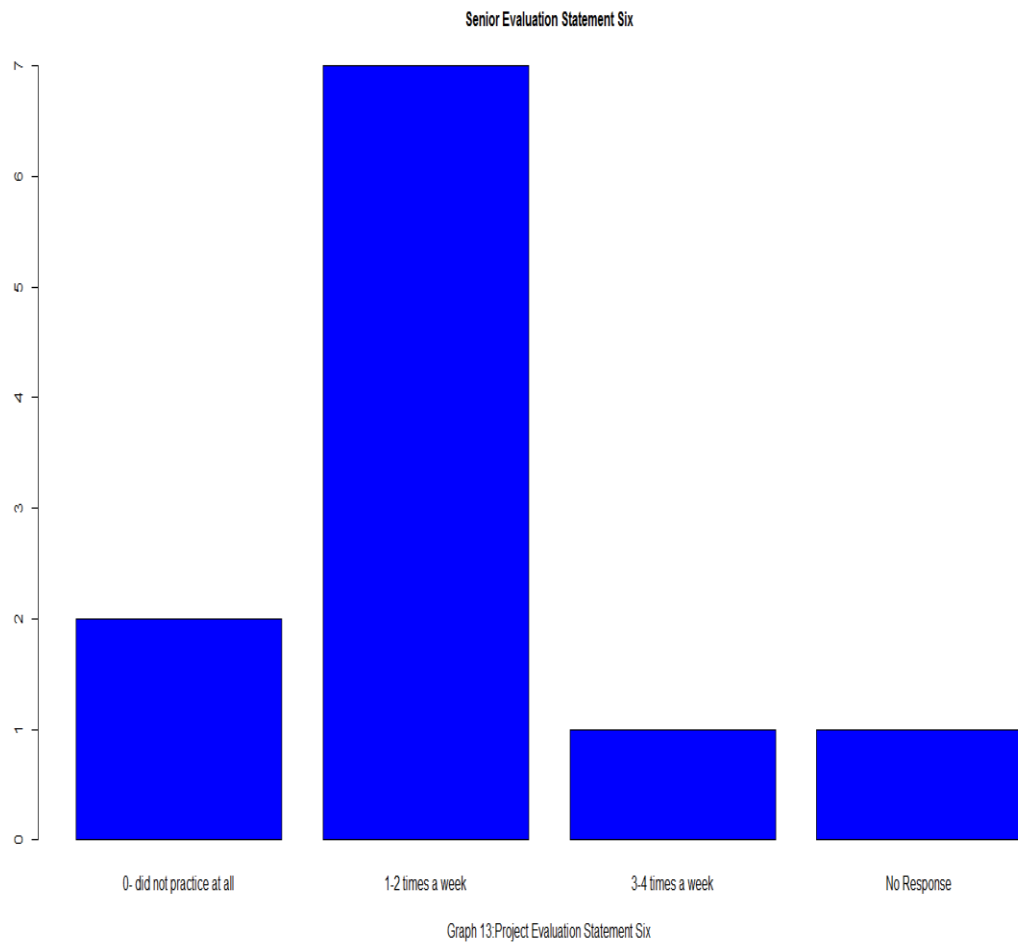
Graph 12:Project Evaluation Statement Five

*Figure 18.* Project Evaluation Statement Five

Table 21

*Statement Six- How often did you practice meditation strategies during a week?*

Outcome	Frequency
Did not practice at all	2
1-2 times a week	7
3-4 times a week	1
More than five times a week	0
No Response	1



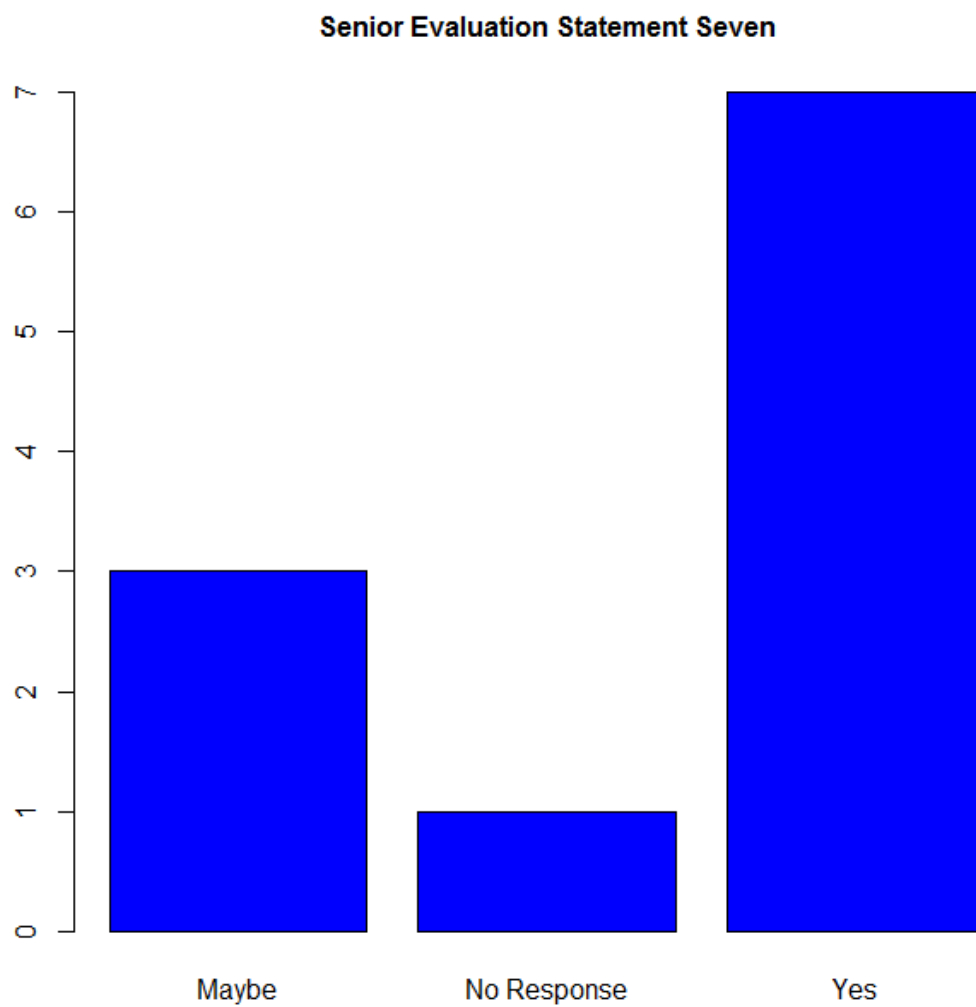
*Figure 19. Project Evaluation Statement Six*



Table 22

*Statement Seven- Will you continue to use mindfulness meditation strategies in the future?*

Outcome	Frequency
Yes	7
Maybe	3
No	0
No Response	1



Graph 14:Project Evaluation Statement Seven

Figure 20. Project Evaluation Statement Seven

## **Process Improvement Data**

### **Strengths**

The qualitative strengths of the project reported by approximately 89% of the freshmen students demonstrated that students thought the project provided helpful information about reducing stress. They also thought the practice of mindfulness meditation strategies would reduce stress in their clinical practice and future practice. Approximately 27% of freshmen students reported they will continue to practice mindfulness meditation strategies to reduce stress; whereas, 60% of freshmen students may practice mindfulness meditation strategies to reduce stress.

The qualitative strengths of the project reported by approximately 45% of senior students agree and 55% of senior students moderately agree to strongly agree that the project provided helpful information about stress reduction and that practicing mindfulness meditation strategies reduced stress in current clinical and future practice. Approximately 64% of senior students reported they will continue to practice mindfulness meditation strategies to reduce stress; whereas, 27% of senior students may practice mindfulness meditation strategies to reduce stress. Approximately 50% of freshmen students practiced mindfulness meditation strategies one to two times a week. The majority of senior students, approximately 64%, practiced mindfulness meditation strategies one to two times a week.

### **Limitations**

The project did have several limitations. The project setting school was unable to schedule the DNP project leader's discussion about the project on a faculty meeting's agenda. To manage the scheduling conflict a PowerPoint presentation developed by the

DNP leader was emailed to the faculty describing the project. The advantage to using a PowerPoint presentation was all faculty had the same information and were able to view the presentation at a time convenient for their schedule. However, it would have been more advantageous if the DNP project leader could have met with the faculty face-to-face in a meeting. Yet, the Department chair did state that the senior and freshmen faculty were enthusiastic about the project.

The statistics for the freshmen were not significant for the project. According to the timing for the start of the project, the research validates that stress management information should begin early in the curriculum. The project began when the students were in the fourth week of the first semester. At this point, the freshmen had already been in clinical and were more than likely feeling overly stressed and were hesitant to add anything to their already busy schedule. It is recommended for this project to be started the first week of the semester to provide strategies for stress reduction.

### **Sustainability**

The plan for sustainability would be easily managed into any nursing school curriculum. The project provides easy access through any electronic learning platform. Faculty could input the developed modules by the DNP leader and easily evaluate student outcomes through the two surveys, MAAS and the PSS which are on the public domain for educational purposes. The cost of the project was minimal. There would be no travel expenses for faculty or student. The timing in the curriculum to implement the project should be as early as possible in the fall semesters for students to achieve full benefits. Students would benefit from the online learning platform because access to the modules are available 24-hours a day, seven days a week.

## Conclusion

Today, nursing education's responsibility is to push the bounds of the traditional educational curriculum. Nursing education has been the dominant force preparing nursing professionals since Florence Nightingale. Who and what creates the nurse and nursing practice? Is it the healthcare system that is in a political upheaval? Is it the federal agencies identifying gaps in evidence-based practice and the reality of what nurses are doing for their patients at the bedside? Where should the transformations of nursing practice take place? These questions need to be answered and nursing education must take the lead to prepare novice nurses.

The newest cohort of nursing graduates entering hospitals and long-term care facilities are comfortable with innovative technology and informatics. They expect to deliver excellent patient care because of the advances in medical research. Stress and burnout will always be a part of nursing. However, there are validated solutions to mitigate the disastrous results of too much stress in clinical practice. Nursing education must take the challenge to prepare students for those predictable events when stress becomes overwhelming. There are evidence-based solutions that work. Optimistically, changes to reduce stress globally is possible now that there are nursing leaders who are active in every arena of healthcare, in hospital boardrooms, as CEO's in hospitals, in education, research and working as policymakers in federal and state legislatures (Amen, 2010). Nursing education is a prime area to begin the transformation to prepare students to recognize, prevent, and manage stress to carry them throughout their nursing careers.

Nurse educators should seek ethical guidance from the ANA Code of Ethics (2015) and apply it to their teaching and advisement of nursing students. The ANA Code

of Ethics is the foundational truth of the nursing profession. The ANA encourages nurses to protect themselves by practicing self-care for optimal health and well-being. When nurse educators and nurses care for their own lives, this practice enables educators and nurses to act with honor towards their students and their patients. Nurse educators must practice with competence and be united in trust in all relationships and continue to grow personally and professionally. Heeding the ANA's Code of Ethics, the faculty take responsibility to recognize and help students develop resiliency strategies. Nursing practice experts and nurse educator experts agree nursing is a stressful occupation. It is inevitable that nursing students and others will look to DNP nurses for leadership to transform the educational process.

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## Appendix A

Mindfulness Attention Awareness Survey  
Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

1. I could be experiencing some emotion and not be conscious of  
it until sometime later. \_\_\_\_\_
2. I break or spill things because of carelessness, not paying attention, or  
thinking of something else. \_\_\_\_\_
3. I find it difficult to stay focused on what's happening in the present. \_\_\_\_\_
4. I tend to walk quickly to get where I'm going without paying attention to  
what I experience along the way. \_\_\_\_\_
5. I tend not to notice feelings of physical tension or discomfort until  
they really grab my attention. \_\_\_\_\_
6. I forget a person's name almost as soon as I've been told it for  
the first time. \_\_\_\_\_
7. It seems I am "running on automatic," without much awareness  
of what I'm doing. \_\_\_\_\_

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

8. I rush through activities without being really attentive to them. \_\_\_\_\_
9. I get so focused on the goal I want to achieve that I lose touch with  
what I'm doing right now to get there. \_\_\_\_\_
10. I do jobs or tasks automatically, without being aware of what I'm doing. \_\_\_\_\_
11. I find myself listening to someone with one ear, doing  
something else at the same time. \_\_\_\_\_
12. I drive places on 'automatic pilot' and then wonder why I went there. \_\_\_\_\_
13. I find myself preoccupied with the future or the past. \_\_\_\_\_
14. I find myself doing things without paying attention. \_\_\_\_\_
15. I snack without being aware that I'm eating. \_\_\_\_\_

Mindful Attention Awareness Scale (MAAS), trait version. Virginia Commonwealth University

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Dear Colleague,

The trait Mindful Attention Awareness Scale (MAAS) is in the public domain and special permission is not required to use it for research or clinical purposes. The trait MAAS has been validated for use with college student and community adults (Brown & Ryan, 2003), and for individuals with cancer (Carlson & Brown, 2005). A detailed description of the trait MAAS, along with normative score information, is found below, as is the scale and its scoring. A validated state version of the MAAS is also available in Brown and Ryan (2003) or upon request.

Feel free to e-mail me with any questions about the use or interpretation of the MAAS. I would appreciate hearing about any clinical or research results you obtain using the scale.

Yours,

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## Appendix B

## Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by placing a number *how often* you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often

1. In the last month, how often have you been upset because of something that happened unexpectedly? \_\_\_\_\_
2. In the last month, how often have you felt that you were unable to control the important things in your life? \_\_\_\_\_
3. In the last month, how often have you felt nervous and “stressed”? \_\_\_\_\_
4. In the last month, how often have you felt confident about your ability to handle your personal problems? \_\_\_\_\_
5. In the last month, how often have you felt that things were going your way? \_\_\_\_\_
6. In the last month, how often have you found that you could not cope with all the things that you had to do? \_\_\_\_\_
7. In the last month, how often have you been able to control irritations in your life? \_\_\_\_\_
8. In the last month, how often have you felt that you were on top of things? \_\_\_\_\_
9. In the last month, how often have you been angered because of things that were outside of your control? \_\_\_\_\_
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? \_\_\_\_\_

## **Dr. Cohen's Scales:**

We welcome copies (e-mail is OK) of any in press or published papers using any of Dr. Cohen's scales that you are willing to share with us, and thank you in advance for your generosity. They will not be redistributed or linked without your permission.

Permissions: Permission for use of scales is not necessary when use is for nonprofit academic research or nonprofit educational purposes. For other uses, please contact the lab at [commoncoldproject@andrew.cmu.edu](mailto:commoncoldproject@andrew.cmu.edu) for instructions.

Appendix C

Project Evaluation of the Mindfulness Meditation Strategies

Directions: The purpose of this survey is to evaluate the Mindfulness Meditation Strategies Project. Please indicate the range in which you agree or disagree with each question listed in the table below by placing a check mark in the appropriate column. Thank you for your time.

- Strongly Agree 7
- Moderately Agree 6
- Agree 5
- Neutral 4
- Disagree 3
- Moderately Disagree 2
- Strongly Disagree 1

	7	6	5	4	3	2	1
Did the project provide you with helpful information about mindfulness meditation strategies?							
Did the project provide you with helpful information about stress?							
Did the project mindfulness meditation strategies lessen your stress in your clinical practice?							
Has your ability to recognize when you are stressed in clinical practice improved?							
Overall did the project provide you with helpful information about reducing stress in your clinical practice and your future practice?							

Please indicate how often you practiced mindfulness meditation strategies during a week?

Circle your answer:

- 0- did not practice at all
- 1-2 times a week
- 3-4 times a week
- more than five times a week

Will you continue to use mindfulness meditation strategies in the future? Yes Maybe No

Please indicate in the box below any suggestions/comments you have about the Mindfulness Meditation Strategies Project.