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# Using Mindfulness to Decrease Anxiety Among Nursing Students

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**Among Nursing Students**

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Abstract

The purpose of this paper is to demonstrate the need for implementation of evidence-based anxiety-reducing interventions at a College of Nursing in the southeastern United States. Stress and anxiety have been shown to negatively impact an individual's health and academic performance. Research studies have demonstrated that individuals who have high levels of anxiety are more likely to experience illness and drop out of school. In order to improve population health, academic outcomes, and clinical practice, it is important that institutions of higher learning incorporate anxiety-reducing programs into their curriculums. Evidence suggests that use of Mindfulness Based Stress Reduction (MBSR) interventions is one of the most effective ways to reduce anxiety. These techniques not only show improved short-term goals, but also have a longer lasting effect than many other anxiety-reducing interventions.

The goal of this project was to identify students with increased anxiety and determine the effectiveness of providing them with multiple evidence-based anxiety reducing interventions.

Nursing students were recruited to participate in a 4-week project to determine if participating in mindfulness meditation would be helpful in managing their stress and anxiety. Results from the State Trait Anxiety Inventory Tool were compared to identify anxiety levels of the participants pre and post intervention. Academic performance of participants versus class averages was also evaluated to determine the influence of MBSR interventions.

Due to the low number of project participants, no statistical analysis could be performed. However, there was a clinically significant decrease in anxiety levels and a slight trend toward improved academic outcomes for the project participants.

Key words:  Stress, Anxiety, College Students, Nursing Students, Mindfulness Interventions, Coping, Mindfulness Based Stress Reduction, State Trait Anxiety Inventory

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**Introduction**

The goal of this project was to identify students with increased anxiety and determine the effectiveness of providing them with multiple evidence-based anxiety reducing interventions. Individuals are confronted daily with stress; their response to the stress results in the anxiety they experience. The American Psychiatric Association (2017) defined anxiety as an intense emotional response caused by the preconscious recognition that a repressed conflict is about to emerge into consciousness. Stress is defined as the pattern of specific and nonspecific responses an organism makes to stimulus events that disturb its equilibrium and tax or exceed its ability to cope (Mental Health Foundation, 2020).

Stress and anxiety levels have been rising in the United States (U.S.) over the last several decades. According to the American Psychological Association's 2019 Stress in America survey, the average person is under at least moderate stress (measured at 4.9 on a 10-point scale). According to the APA survey, money and work are reported as the major causes of stress in over 75% of Americans. Nearly half of all Americans report that stress has had a negative impact on both their personal and professional lives. It was noted that 77% of Americans reported experiencing physical symptoms of stress and 73% of Americans reported experiencing psychological symptoms of stress during the previous month. Generation Z respondents (between 18 and 22 years of age) reported even more stress and anxiety, scoring 5.8 on the same scale (APA survey 2019). Consistent with these numbers, college students' demand for counseling services has been steadily increasing, growing by 30 percent between 2009 and 2014.

According to Winerman (2017), 61% of college students reported seeking counseling services for anxiety and 45% for stress management.

A study of over 89,000 U.S. college students (American College Health Association, 2017) found one third of students reporting that stress affects their academic performance. Stress can affect a person's mental, physical, emotional, and spiritual well-being, which could result in a series of health issues. Stress and anxiety are prevalent and widespread in college students and often result in negative health and learning outcomes. Health issues related to stress include headaches, back pain, high blood pressure, depression, anxiety, fatigue, low energy, insomnia, irritability, and decreased immunity (Turner and McCarthy, 2017). It is a challenge for students to pay attention and be fully engaged in class when they have stress-related health issues. In addition, stress can cause an inability to concentrate or process incoming information and decrease memory, thereby affecting academic performance (Turner and McCarthy, 2017 & Vogel and Schwab, 2016).

In 2017, college-aged Americans reported higher levels of stress than older generations and often did not adequately address their stress through positive coping mechanisms.  Over 40% of college students felt dragged out, tired, or sleepy during class 3-5 days per week (APA, 2019). The Higher Education Research Institute (2015) discovered an alarming downward trend in students' perceptions of their own mental and emotional health, and significantly greater use of mental health services.

Undergraduate nursing students are especially prone to feel stress as they engage in new knowledge acquisition and clinical performance expectations. Research has shown that undergraduate nursing students experience high levels of stress which can impact their academic performance and future career success. Nursing education has consistently been associated with

high anxiety levels among students. Heavy course loads, rigorous examinations, and caring for

chronically and terminally ill patients result in greater anxiety among nursing students than

among students from any of the other healthcare disciplines (Admi, et al 2018; Labrague et al.,

2017; Magnavita & Chiorri, 2018; Rathnayake & Ekanayaka, 2016; Senturk & Dogan, 2018;

Turner & McCarthy, 2017). Anxiety can negatively affect the quality of students' lives, their

education and clinical practice (Sanad, 2019) and may cause students to withdraw from their

nursing program (Rafati et al., 2017).

Mindfulness has been defined in many ways and in diverse contexts. The definition that

is most credible and influential in current popular culture, particularly in relation to scientific

evidence regarding its physical and mental health benefits, is from Jon Kabat-Zinn. According to

Kabat-Zinn (2013) mindfulness is paying attention in a particular way purposely, in the present

moment, and non-judgmentally. Kabat-Zinn is credited with introducing mindfulness for chronic

pain patients at the University of Massachusetts Medical Center in 1979. He subsequently

developed a Mindfulness Based Stress Reduction (MBSR) intervention program. This program

consists of eight, two- and one-half hour weekly classes, a day-long silent retreat, and daily

meditation for 45-60 minutes. Since the inception of the MBSR intervention, there have been

multiple program reproductions. Evidence supports the use of MBSR and related programs to

improve symptoms and quality of life in a variety of chronic illnesses (Gotink et al., 2015), and

to reduce stress and anxiety in health care workers (Lamothe, et al., 2016), as well as health

profession students (McConville, et al., 2017; O'Driscoll et al., 2017).  Mindfulness trains the

individual to meet difficult and unpleasant situations with acceptance and to be more aware of

the flow of thoughts and feelings that are initially experienced. By doing this the individual can

create openings for other responses to manage stress and identify different coping strategies

(Bernstein, 2019). The use of MBSR interventions to decrease anxiety encourages a better way

to concentrate, which in turn facilitates a reduction in suffering and an increase in inner peace.

This inner peace has been shown to increase concentration and decrease the immediate response

to stimuli, which in turn creates a relaxed demeanor and facilitates an open acceptance of

experiences, thoughts, and learning (Grecucci et al. 2015). It is likely these evidence-based

health and stress reduction benefits have contributed to making mindfulness so popular.

Mindfulness meditation can teach individuals how to recognize anxiety-inducing

thoughts, process them, and then let them go. Essentially, it is learning to identify and respond to

feelings rather than instantly reacting to them.  Mindfulness teaches individuals to learn to be

fully present and fully engaged in their lives, rather than becoming overwhelmed about an

unknown future or about events in the past that cannot be changed.

## Background Problem and Solution

### Project Question

Will identifying anxiety in nursing students and then providing them with anxiety-

reducing interventions decrease the students' anxiety levels and increase pass rates in the nursing

course that has the highest failure rate?

### Setting

The college chosen for the project was established by a national health organization

nearly three decades ago and focuses solely on nursing education. The college has two tracts of

the Associate Degree in Nursing (ADN) program, consisting of a 2-year degree and a licensed

practical nurse (LPN) to registered nurse (RN) bridge. Both tracts include multiple courses

involving medical surgical concepts. The Advanced Medical Surgical Concepts course is the

next to last nursing course for both tracts. This course has been identified as one of the most

difficult courses in the ADN curriculum based upon the consistently high percentage of course

failures. Advanced Medical Surgical Concepts focuses on advanced nursing and critical care. The course failure rate was 20% in calendar year 2020; this percentage has varied between 18% and 20% every calendar year since 2017. Students in this course consistently report high levels of anxiety due to the advanced concepts and clinical experiences. It is also important to note that 73% of these students (N=70) had also failed at least one previous science or nursing course. The college's current dismissal policy states that students are subject to dismissal if they fail two or more science or nursing courses or a combination of both.

There is a concerted effort at the college to help mitigate academic challenges faced by the students.  In 2017, because of a quality enhancement plan (QEP), the college launched a Pathway to Success (PS) program. This program focuses on five areas: new student orientation; key learning strategies; faculty advisors and peer mentors; resources when and where students need them; and personalized support. However, there is not a method to systematically identify students with increased stress and anxiety concerns that could potentially contribute to their academic failure.

## Theoretical Framework

The use of a middle range change theory can be a key resource to effectively create change in an organization (Shirley, 2013).  The theoretical framework used to guide this project is the Transactional Model of Stress and Coping by Lazarus and Folkman. The Transactional Model of Stress and Coping is a framework for evaluating the processes of coping with stressful events. The Transactional Model of Stress and Coping is particularly useful for guiding health education.

Lazarus and Folkman (1984) described stress as a two-step process. Stress is produced by the environment. The individual must process the stress; stress is always a perceived feeling as

identified by the individual. A situation which one person identifies as stressful may not affect a different individual in the same manner. Stress does not affect all individuals equally, but stress can lead to illness and negative experiences. Figure 1 displays how individuals are confronted with stressors; the stress response depends upon the individual's interpretation of the stressor and that individual's ability to cope with the stressor. Appraisal is the individual's interpretation of the stressor and how to cope with the stressor. Different individuals can be faced with the same stressor, but they have a different appraisal (or the way they react) and thus have a different stress response. Primary appraisal is the initial judging of the situation; if the situation is judged non-threatening, then the individual moves on to secondary appraisal and reappraisal (Lazarus & Folkman, 1984). Coping is the process of constantly changing cognitive and behavioral efforts to manage specific internal and/or external stressors that are appraised as taxing or exceeding the resources of the person. Coping is divided into two categories, problem-focused and emotion-focused. Problem-focused coping is the ability to solve the problem or take an action to change the status quo. Problem-focused coping targets the causes of stress in practical ways which overcomes the problem or situation that is causing stress, consequently directly reducing the stress. Emotion-focused coping is a type of stress management that attempts to reduce negative emotional responses associated with stress. Negative emotions such as embarrassment, fear, anxiety, depression, excitement, and frustration are reduced or removed by the individuals using various methods of coping. Emotion-focused coping is helpful when the situation or circumstances are out of their control such as grieving the loss of a loved one. Examples of negative emotion-focused coping strategies include binge eating, alcohol and drug use and can have very negative consequences for the individual. Positive emotion-focused coping strategies include meditation, journaling, positive thinking and working with a therapist (Raypole, 2020).

Figure 1: *Transactional Model of Stress and Coping*
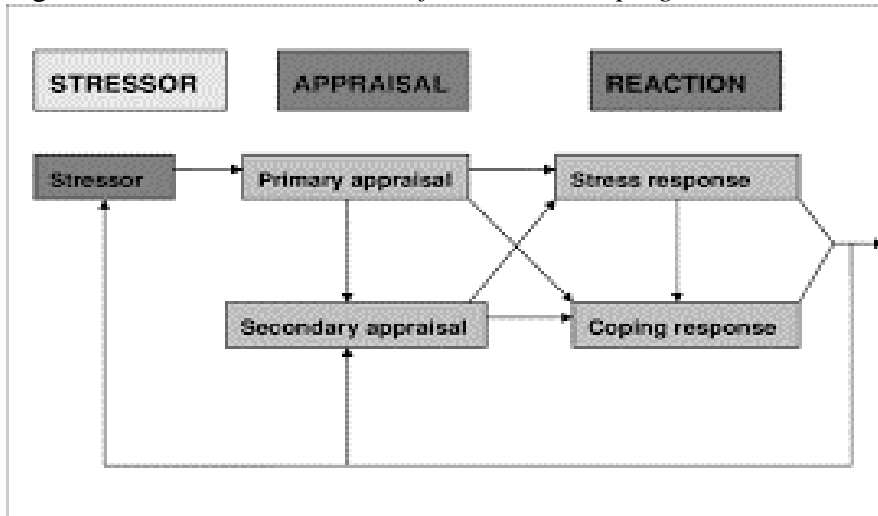


(Shirley, 2013)

The Transactional Model of Stress and Coping has been instrumental in the development and implementation of this project. Since all individuals experience stressors, the purpose of the project is to identify the presence of stress and provide the students healthy ways to cope with them. Problem-focused coping is a major targeted response for the student. Problem focused strategies aim to remove or reduce the cause of the stressor, including problem solving, managing time more effectively, and obtaining instrumental social support (Long, Xu & Liu, 2020). Emotion-focused coping involves changing the person's relationship with the situation in a way that reduces the stress that it causes. This can involve denial, avoidance or cognitively re-framing the meaning of the event. Examples of emotion-focused coping include distractions, eating, drinking alcohol, using drugs, meditation, working with a therapist and journaling. In essence this does not change the problem itself; however, it does change the effects it has on the individual. Emotion-focused coping does not provide a long-term solution and may have negative side effects because it delays the need for the individual to deal with the problem (Lararus & Folkman, 1984).

In general, problem-focused coping is more effective when dealing with stress because it addresses the stressor, deals with the root cause of the problem, and provides a long-term solution. Emotion-based coping does work for stressors that are outside the individual's control such as a death.  The Transactional Model of Stress and Coping will help provide the framework for identifying the stressors; emotion-focused interventions can be decreased and/or problem-focused interventions enhanced (Lazarus & Folkman, 1984).

Many different anxiety-reducing interventions have been examined. The foundation of mindfulness is purposefully paying attention. Kabat-Zinn (2003) stated that mindfulness was not only paying attention on purpose, but also paying attention to the present moment and paying attention non-judgmentally. Mindfulness Based Stress (MBS) training in attention is thought to increase both emotional and cognitive flexibility, allowing practitioners to develop a non-judgmental awareness. Non-judgmental awareness then leads to non-reactivity. This process allows actioners the ability to react to stressful situations with awareness and emotional stability. They are also able to control their responses in stressful situations (Bamber & Schneider, 2015). At the center of mindfulness is the belief that one's suffering occurs from a lack of conscious observation of thoughts, feelings, and behaviors. Francis (2015) explains that suffering is anything that makes us uncomfortable, no matter how small.

## Project Rationale

The goal of nursing education is to prepare students to become safe, competent, entry level nurses. A major responsibility of nursing programs is to develop and implement services that augment the nursing curriculum, providing all admitted students with the opportunity to graduate. Both stress and anxiety can have detrimental consequences on short- and long-term health outcomes as well as academic performance. The need for nursing programs to identify students with high levels of stress and anxiety and implement anxiety-reducing programs was

identified by Wedgeworth (2016).  Mindfulness-based stress reduction interventions have been

shown to decrease anxiety and improve coping skills in multiple populations. Ratanasiripong et

al. (2015); Lemay et al. (2019); and Bamber & Morpeth (2018) reported the implementation of

mindfulness meditation into their curriculums as a method to help decrease both stress and

anxiety in their students. According to Govindaraju et al. (2021) not only did mindfulness

decrease stress and anxiety it was also reported that there was a positive significant low

correlation between the practice of mindfulness and academic performance. Nursing programs

frequently rely on multiple choice timed examinations to assess students' ability to master course

and program outcomes. These examinations force the student to demonstrate mastery of content

within a limited and defined time. According to Osgood et al. (2017) mindfulness is an important

predictor of how students regulate their use of time when taking exams, potentially improving

exam scores.

## Project Implementation

### Approval

Successful implementation of this plan involved an interdisciplinary approach and the creation of

a planning and implementation committee. Members of the DNP committee include Dr. Brittney

Welch (college faculty member), Dr. Linda Rice (educational phycologist), Dr. Jennifer Parr

(Mindfulness trained expert), and Tara Dailey (Executive Dean of the College), all members of

the studied college. The committee chair is Dr. Kathy Hager (Bellarmine University); Dr.

Heather Owens (Bellarmine University) also serves on the committee as an expert in data

analysis. During the approval process, Institutional Review Board (IRB) permission was

obtained on 10/07/2021 by the college's IRB and the researcher's educational institution

committees' approval on 10/21/2021. Approval was granted to conduct the pre-assessment

survey, provide education on mindfulness techniques and then to conduct the post-assessment survey. Throughout the planning process, college stakeholders were involved and consulted. The budget for the project is in Appendix A.

## Quality Improvement

In order to resolve identified problems, it is necessary to develop a systematic plan of action. The Plan, Do, Study, Act (PDSA) concept is an iterative, four-stage approach for continually improving processes, products, or services, and for resolving problems. It involves systematically testing possible solutions, assessing the results and implementing the ones that are shown to work. The PDSA concept was used to guide this project.

Plan Phase

There is a concerted effort at the College to help mitigate academic challenges faced by the students; consequently, the college has implemented multiple programs to effect student success.  All admitted registered nursing students must take the Pathway to Success course during their first quarter of enrollment. This course lays the foundation for learning strategies that are instrumental in student success. Students are also provided additional academic and social support services through the Academic Success Liaisons and the Community Resource Specialist. These services are vital to help students with academic and social issues that disrupt learning and academic success. One problematic area that has not been adequately addressed is the increased stress and anxiety levels that students frequently experience. Implementation of mindfulness-based interventions throughout the program would theoretically help students learn to identify and manage their stress and anxiety. Will identifying anxiety in nursing students, and then providing them with anxiety-reducing interventions, decrease the students' anxiety levels and improve their course success?

Students enrolled in the identified targeted medical-surgical course were asked to complete the State Trait Anxiety Inventory (STAI) survey. The STAI is a psychological inventory based on a 4-point Likert scale and consists of 40 questions on a self-reported basis which measures both state and trait anxiety. First, the State Anxiety Scale (S-Anxiety) evaluates the current state of anxiety, asking how the respondents feel at that particular time, using items that measure subjective feelings of apprehension, tension, nervousness, worry and activation/arousal of the autonomic nervous system. The Trait Anxiety Scale (T-Anxiety) evaluates relatively stable aspects of anxiety proneness, including general states of calmness, confidence and security (Julian, 2012). The State Trait Anxiety Inventory identifies students with mild and moderate anxiety. Higher scores are positively correlated with higher levels of anxiety. The State Trait Anxiety Inventory Scale was developed in the 1980s and has been widely used in both the clinical settings and in research. Reliability and validity tests have been conducted on the STAI and have provided sufficient evidence that the STAI is an appropriate instrument to measure anxiety in research and clinical settings (Vitasari et al., 2011 & Gustafson et al.,2020). Both research groups reported results that showed the reliability and validity of the STAI as suitable and acceptable for use in identifying anxiety. Vitasari et al. (2011) reported a Chronbach alpha at 0.797 and Guftafson et al. (2020) reported a Chronbach alpha at 0.93.

The participating students were provided a mindfulness-based stress reduction (MBSR) course. The course was self-paced and four weeks in length. Individuals began practicing mindfulness the very first day of the course and were encouraged to participate in daily mindfulness practice. Individuals were instructed to begin practicing mindful breathing for five minutes once a day and increase daily practice time, gradually increasing to 30 minutes of practice per day (Iyer, Iyer, & Kumar, 2021). According to Yang et al. (2018) individuals

reported a decreased anxiety level when utilizing mindfulness interventions for at least 10

minutes per day for 30 days. After completion of the MBSR classes, students were given a post

STAI. Pre and Post STAI scores were compared; additionally, exam and final course grades were

analyzed and compared to the previous year's class grades.

      The introductory course module included information regarding interpretation of a high

anxiety score. Individuals who met these criteria were encouraged to contact their primary care

provider, mental health provider or the school counselor. The course listed contact information

for the local crisis center and the suicide prevention hotline.

Do Phase

      The project was implemented the winter 2021 quarter. During the first week of the

quarter, students were recruited to participate in the voluntary mindfulness intervention project.

The recruitment process involved sending all currently enrolled students (in the chosen course) a

descriptive email which explained the potential benefits of mindfulness, the project rationale and

procedures, and the approximate time commitment per week. Students were instructed to

respond to the email if they were interested in participating in the project or if they had

additional questions. The response target date was 72 hours after the email was distributed.

Students who acknowledged that they agreed to participate were sent a consent form. After the

consent form was returned, they received an email that contained the link to complete the pre-

STAI survey tool. Participants received four weekly emails that contained the totally self-

directed course content for the week. Each weekly email included a video overview for the week,

class materials and guided mindfulness sessions. Participants were provided a list of free

meditation apps that they could utilize. During week four, the participants were administered a

post-STAI assessment and were also asked the following closed ended questions that were used

for evaluation and statistical purposes:

- Pre and post STAI assessment – interval data

- Age – ordinal data

- Gender – nominal data

- Current anxiety diagnosis – nominal data

- Did you complete all four mindfulness modules? – ratio data

- Hours per week of Mindfulness Meditation practice – ordinal data

- Number of previously failed science/nursing courses – ordinal data

- Exam percentage on first course exam - interval data

- Final course percentage

Study Phase

The following section was not used for this quality improvement project due to the

limited number of subjects; however, the section below was left for future replication studies.

Pre and post STAI surveys and closed-ended survey results would be collected by the project's

administrative assistant. Survey results would be tabulated into an EXCEL spreadsheet and

coded appropriately. Each STAI item would be given a weighted score of 1 to 4. The total scores

would be obtained by adding the weighted scores for the twenty items that make up each scale.

Scores for both the S-Anxiety and the T-Anxiety scales can vary from a minimum of 20 to a

maximum of 80. The dependent variable of the project was reported anxiety level and the

independent variable was the Mindfulness Meditation class. Various statistical analyses could be

performed using SPSS software.

The following measures would be to be analyzed:

- Does Mindfulness Meditation correlate either positively or negatively with State or Trait anxiety? Paired t-test and chi square

- Is there a relationship between anxiety and previous science course and/or nursing course failures? Paired t-test and chi square

- Does participation in a Mindfulness Mediation program significantly improve current course grades? Pearson's correlation coefficient

The first analysis would be performed to determine whether the sample was normally distributed. Normal distribution is the probability function that describes how the values of a variable are distributed. It is a symmetrical distribution where most of the observations cluster around the central peak and the probabilities for values further away from the mean taper off equally in both directions.

The paired sample t-test is sometimes referred to as a dependent sample t-test, which is a statistical procedure used to determine whether the mean difference between two sets of observations is zero. With this statistical test the subject is measured twice, resulting in two sets of observations. The reported S-Anxiety and T-Anxiety scores were measured prior to and post Mindfulness intervention. The paired sample t-test has four main assumptions:

- The dependent variable must be a continuous variable

- The observations are independent from one another

- The dependent variable should be normally distributed

- The dependent variable should not contain any outliers

The statistical significance was to be determined by looking at the $p$-value. The $p$-value gives the probability of observing the test results under the null hypothesis.

Null Hypothesis – Employing Mindfulness Meditation has no effect on anxiety levels or academic performance in college students.

Alternative Hypothesis – College students who use Mindfulness Meditation can reduce anxiety levels and improve academic performance.

The lower the $p$-value the lower the probability of obtaining a result like the one that was observed if the null hypothesis is true.

Pearson correlation coefficient is a measure of the strength of a linear association between two variables and is denoted by $r$. The Pearson correlation coefficient, $r$, can range between +1 to -1. A value of 0 indicates that there is no association between the two variables. A value >0 indicates a positive association and a value <0 indicates a negative association. Pearson correlation coefficient requires that both variables be continuous. This test was to be conducted by analyzing the number of Mindfulness classes an individual attended compared with the final course grades of NUR 170, NUR 242 and NUR 265, the Advanced Medical Surgical Courses for the two studied programs, LPN-RN and ADN respectively. NUR 170 and NUR 242 are the first medical nursing courses that the students take in the LPN-RN and ADN program respectively.

Timeline

The timeline from the start to the completion of the project was 3 years. According to the timeline, the pre-STAI assessment was administered during the week 5 of the Winter 2021 quarter (09/30/2021– 12/17/2021). Mindfulness interventions began on Monday 11/08/2021 and concluded Wednesday 12/13/2021. Post-STAI assessments were administered on 12/13/2021. The DNP defense was completed March 21, 2022.

Evaluation

The evaluation of the project would have involved comparing the results of the pre and post STAI assessment data and correlating this information with the self-survey results. This data helps us determine whether the participants perceived a reduction in their overall level of anxiety. Course grades and self-survey results were to be evaluated to determine whether this intervention may have had an impact on their academic performance. Assistance with statistical analyses was obtained from the Institutional Effectiveness Department at the College.

Implementation

The college of nursing selected for this project has campuses located in several cities throughout the country. It was decided that the site chosen for the quality improvement project should be different from the site where the primary project director was located. Per the requirements of the IRB, this stipulation was placed on the project to prevent any potential biases.  The college's IRB accepted the designated college campus, and participant recruitment began shortly after approval status was obtained. Potential participants (83) were sent a recruitment email and PowerPoint presentation that discussed potential benefits of mindfulness on decreasing anxiety and improving academic outcomes. Thirteen individuals expressed interest in participating in the project and submitted consent forms. These individuals were given access to the mindfulness course that was located in the college's Learning Management System (LMS).

Results

Unfortunately, the number of interested participants was not high enough to run statistical analyses and therefore the results are presented as a combined total. Thirteen students completed the pre-STAI inventory, and 12 students completed the post-STAI inventory. According to Kayikioglu et al. (2017) the range of possible STAI scores vary from a minimum score of 20 to a

maximum score of 80 on both the STAI-T and STAI-S subscales. The scores are commonly

classified as no or low anxiety (20-37), moderate anxiety (38-44) and high anxiety (45-80). The

combined pre-state and pre-trait results showed that the group score was at the low end of the

high anxiety level (45-80) and the post scores were in the low anxiety range (20-37). The post

anxiety scores are lower than the pre anxiety scores in both the state and trait subgroups as

shown in Table 1.

**Table 1**

*Pre and Post State and Trait Anxiety Scores*

| Pre-State Anxiety | Pre-Trait Anxiety | Post-State Anxiety | Post-Trait Anxiety |
|---|---|---|---|
| 46.6 | 46.4 | 30.7 | 32 |

Nine females and ten males participated in the project with their average age being 33.5

years of age. It was reported that the average time spent on mindfulness meditation was 58

minutes per week. Three individuals reported that that they did not complete the mindfulness

course nor participate in a daily mindfulness practice. Participants completed exam 1 before the

project started and their exam 1 score average was lower than the class average. Exam 4 and the

final average of the course averages were higher for the participant group than the overall class

averages. The failure rate for the participant group was 25% versus a 27% failure rate for the

remainder of the class. See table 2 for comparison of academic performance of the project group

versus the overall class results.

**Table 2**

*Academic Performance of Participants versus Class Averages*

| Exam 1 Class Average | Exam 4 Class Average | Final Course Class Average | Failure Percentage of Total Class |
|---|---|---|---|
| 72% | 76% | 77% | 27% |

Exam 4

| Exam 1 Project Participant Average | Project Participant Average | Final Course Average of Participants | Failure Percentage of Participants |
|---|---|---|---|
| 71.3% | 78% | 76.5% | 25% |

Limitations/Future Studies

  There are two major limitations to this project that could be addressed in future studies. First, the small sample size was a major limitation. Due to the limited number of participants, only raw data was able to be presented and no statistical analyses could be performed. Even though the raw data appears to show that mindfulness interventions decreased both State and Trait anxiety and improved academic outcomes, without statistical analysis, it cannot be verified. Future studies should be conducted with a larger sample size to determine if mindfulness interventions truly have an impact on anxiety level and improved academic outcomes, and if that impact is actually statistically significant. To encourage participation in future projects, it was suggested by one of the project team members that solicitation of students in earlier nursing courses and or mental health courses may increase project participation.  Data collection from multiple campuses could be one technique used to increase sample size in future research. Another worthwhile project might involve working with faculty stress and anxiety, using the same types of mindfulness interventions; this program might obtain buy-in from the faculty and influence improved student participation.

  The second limitation is that no control group was used in the project. While the control group does not receive treatment, it does play a critical role in statistical analysis and result validity. The control group serves as a benchmark, which allows researchers to compare the experimental group to the control group to determine the impact produced by the independent variable. To properly evaluate the impact of MBSR interventions, future research should be

conducted with a statistically significant sample size and a control group should be used to strengthen the researchers' ability to draw conclusions from the project.

Conclusion

       Stress and anxiety are common factors that can negatively affect the academic performance of college students. Evidence-based research supports the belief that institutions of higher learning should provide interventions to help their students learn to manage their anxiety. Mindfulness Based Stress Reduction (MBSR) interventions have been shown to be one of the most successful strategies in managing stress. Currently, the studied college does not routinely provide services to help identify students with anxiety, nor interventions to help them manage their anxiety. The implementation of a screening process and MBSR interventions has the potential to benefit these students and enhance their ability to be successful in their academic pursuits. Their knowledge regarding the tools to manage stress and anxiety could result in decreased first and second year turnover rates, which could result in improved completion rates. Ultimately the goal is to teach nursing students stress management techniques prior to graduation which could enhance their ability to graduate and to become successful professionals as they transition into the workforce.

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Appendix A

Mindfulness Budget

| Type of Cost | | | | |
|---|---|---|---|---|
| Personnel | | | | |
|    Lisa Peak | 15 hours per week | 10 weeks | $43.00/hr | $6,450.00 |
|    Sanja Preston | 10 hours per week | 10 weeks | $20.00/hr | $2,000.00 |
| Training | | | | |
|    Lisa Peak | | | | $550.00 |
|    Sanja Preston | | | | $550.00 |
| State-Trait Anxiety Inventory | | | | |
|    Administration | | | | $50.00 |
| Manual | | | | |
|    Individual cost | $15.00 X 26 participants | | | $390.00 |
| | | | Total Cost: | $9,990.00 |