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Test Anxiety and Undergraduate Nursing Students:

The Concept, Impact, and Interventions

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Abstract

Test anxiety in undergraduate nursing students negatively impacts test scores and overall academic success. This project utilizes current literature to identify the concept of test anxiety, the impact of test anxiety on undergraduate nursing students, and interventions to help reduce test anxiety. Literature findings will then be included in an educational PowerPoint presentation given to an undergraduate nursing course at Wright State University.

Keywords: test anxiety, undergraduate nursing students, academic performance

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Test Anxiety and Undergraduate Nursing Students: The Concept, Impact, and Interventions

I. Introduction

An undergraduate nursing student is preparing for an exam next week. The student diligently studies in preparation, but despite studying, the student becomes more worried and anxious about the test as it approaches. Come exam time, the student's heart races, palms sweat, mind fogs, and all of knowledge the student has studied vanishes when answering the test questions. Exams are graded, and the student receives a low score, not because the student did not know the information, but because the pressure of taking the test prevented the student from recalling studied material. Understanding the effects of testing anxiety on academic performance and achievement is important for helping maximize learning in students. This paper will review the effects of test anxiety in undergraduate nursing students with respect to the significance to nursing education and clinical practice, developing a clinical question, and performing a literature search.

Background

Anxiety is an experience all people can relate to. In fact, anxiety is considered a normal, healthy, and helpful response to life events that produces stress (Potter & Moller, 2016, p. 241). People may feel anxiety regarding a presentation at work, meeting with their boss, taking a test, going to an unfamiliar place, and a variety of other situations. Regardless of the situation, experiencing some anxiety helps provide motivation to, for instance, create a well-developed presentation or study for an upcoming exam. While anxiety is considered "normal," it is only healthy in moderation. Various levels of anxiety can produce different outcomes. Levels of anxiety include mild, moderate, severe and panic (Potter & Moller, 2016, p. 244). Most people

experience mild anxiety, which increases motivation and improves learning; however, those with moderate to panic type anxieties may have decreased attention spans, difficulty concentrating, poor learning outcomes, and misperceptions of information (Potter & Moller, 2016, p. 244-245, 264). As portrayed by the narrative above, anxiety can have detrimental effects, for example, on academic performance. Anxiety can also be classified by its duration: state and trait. State anxiety, also known as acute anxiety, involves temporary feeling of nervousness and worry about a particular situation whereas trait anxiety is a long-term characteristic that is part of a person's personality (Potter & Moller, 2016, p. 244).

Narrowing on a specific source, test anxiety is a subcategory of anxiety defined as “a set of phenomenological, physiological and behavioral responses that accompany concern about possible negative consequences of failure on an exam or similar evaluative situation” (Khalaila, 2015, p. 433). The anxiety typically stems from the concern about failing an exam. Test anxiety is situational and dispositional, meaning it is a type of state anxiety, though it can be influenced if a person experiences trait anxiety as well (Gibson, 2014, p. 272). In other words, if a person is nervous about an exam, the anxiety is situational or a type of state anxiety, but if the person has other personality characteristics that make them worry more frequently, the person may be more likely to develop test anxiety. It has been estimated that 25-40% of the United States population suffers from test anxiety (Gibson, 2014, p. 267).

Also, while all college students are susceptible to test anxiety, researchers have determined nursing students to experience higher levels of test anxiety as compared to students in other majors (Driscoll, Ramsey, Wheeler, 2009, p. 2). It has been speculated that nursing students may have an increased risk of experiencing test anxiety due to pressure of adjusting and balancing work and family responsibilities with the demands of nursing school (Dagwood,

Ghadder, Mitsu, Almutary, & Alenzi, 2016, p. 58). Many studies have shown that increased levels of test anxiety interrupt the student's attention, producing negative effects on academic performance. Because of nursing student's increased susceptibility to experiencing anxiety, it is important to understand what levels of anxiety produce inhibitory effects on academic success as well as identify ways both students and educators can help reduce the negative effects of anxiety.

Problem

Undergraduate nursing students are at risk for developing test anxiety. It is important to understand the varying levels of anxiety and their impact on academic performance. Also, it is crucial to identify interventions to help decrease the level of test anxiety as a method to help improve academic performance, resulting in greater overall success.

The following clinical question was developed: In undergraduate nursing students, how does severe testing anxiety compare to mild testing anxiety influence exam scores? The population being examined in this paper is undergraduate nursing students. The items being compared are severe test anxiety and mild test anxiety. Defining severe anxiety versus mild anxiety is difficult due to the arbitrary nature of each concept; however, researchers used various questionnaires to quantify anxiety levels: Motivated Strategies for learning Questionnaire (MSLQ), Test Anxiety Inventory (TAI), Cognitive Test Anxiety (CTA), and Revised Test Anxiety (RTA). For the purposes of this project, severe anxiety will be defined as any type of anxiety that inhibits daily functioning, while mild anxiety will be defined as a motivational quality. Understanding the different types of anxiety will help differentiate the various effects anxiety can have on test taking ability and exam scores.

Purpose

The purpose of this project is to review and critically appraise literature about test anxiety in undergraduate nursing students to both understand the relationship between test anxiety and academic performance as well as identify ways to help decrease test anxiety.

Objectives

This project will inform an educational presentation about the effects of test anxiety as well as interventions for undergraduate nursing students and nurse educators. This overall goal of this project is twofold. One goal is to recognize up-to-date research regarding the influence severe test anxiety in compared to mild test anxiety has on exam scores in undergraduate nursing students. The other goal is to identify interventions recognized by current research that facilitate decreasing test anxiety to a therapeutic level among undergraduate nursing students.

Significance

Significance to Nursing Education

Understanding test anxiety and its impact on academic performance is significant to both nurse educators and nursing students. If test anxiety does have negative effects on exam scores, this impacts the students and educators. For one, if increased levels of test anxiety negatively impact test scores, students may also experience negative effects on overall academic performance. In nursing school, exam scores typically make up a large portion of the student's overall grade. Furthermore, many nursing schools set more rigorous grading scales such as a seven-point scale (93-100=A, 85-92=B, 77-84=C, 70-76=D, <69=F) as opposed to the standard ten-point scale (ie: 90-100= A, 80-89=B, 70-79=C, 60-69=D, and <59=F), making it that much harder to achieve high test scores. Therefore, each test grade is crucial to the student's academic success, which makes identifying test anxiety significant also. The narrative below illustrates this effect.

For example, a nursing student may have three exams worth 60% (20% each) of the total grade, a final worth 30% of the total grade, and extra assignments worth the final 10% of the grade. Then, say the grading scale is on a seven-point scale. If a student receives a 75/100 (letter grade C) on the first exam, the student is receiving a total of 15% out of the 20% that could be earned for the entire course. After the next two exams, the student gets a 74% and a 78%, and the student gets a 90% on the additional assignments. The student is now at 54.4/100 points for the entire grade, minus the final. This means that even if the student were to achieve a 100% on the final, the student would get an 84.4 or a C in the class. This demonstrates the impact each grade can have in a standard nursing course.

Also, the students who study adequately for exams but fail to achieve “good” test scores may experience lower self-esteem, which can send the student into a downward spiral. Interestingly, if one were to compare two students with the same level of anxiety but varying levels of self-esteem, the student with higher self-esteem would typically perform better on an exam than the student with lower self-esteem (Burrows, Dunn, & Lloyd, 2013, p. 205). Oftentimes with lower self-esteem, students will lose incentive to learn and take on challenges because they do not perceive themselves to be competent (Burrows, Dunn, & Lloyd, 2013, p. 205). This lack of motivation and desire to continue learning can decrease the student’s attention span and further prevent the student’s academic success. Therefore, it is important to be able to identify inhibitory test anxiety early on or before it impacts a student’s grade as well as self-esteem.

The negative effects on test scores because of test anxiety can also impact nurse educators. For one, poor test results can negatively reflect on professors even if the professor presents the information sufficiently. It is important for professors and nurse educators to be able

to recognize why test scores are low. Identifying the cause can help determine whether low scores are a result of a lack of teaching or knowledge comprehension versus anxiety.

Distinguishing test anxiety from other sources is important because the results of low test scores are not a result of lack of effort or content knowledge, thus not reflecting what the student knows or the efforts put into learning the material. Early identification of test anxiety can help by allowing for early interventions, potentially decreasing the negative impacts it has on grades.

While this is true of typical course exams, it is also important to note the impact of test anxiety on standardized test scores such as the NCLEX or HESI. These types of tests are considered “high stakes” and can produce even more anxiety than what already exists for a regular exam. The increased levels of anxiety can prevent the student from performing well on these tests too with possibly more devastating effects. For instance, the HESI can be given in specific nursing subjects, as an entrance exam, and as an exit exam. Many nursing schools use the HESI as an exit exam and require the students to achieve a certain score before they can graduate. If the student does not achieve this score or pass the exam within a certain number of tries, they cannot graduate and will either have to remediate or drop out of the nursing program. This holds significance to individuals for financial, time, and psychological reasons along with organizational significance due to the potential for discrediting nursing schools.

Summary

In summary, test anxiety can have a larger impact than simply affecting one’s grade. Test anxiety holds significance to both the nursing student as well as the nurse educators through its effect on finances, time, self-esteem, and organizational accreditation. Exams in nursing school can cause great amounts of worry and stress, causing the student to experience anxiety that will serve to be motivational or inhibitory. Knowing what levels anxiety becomes inhibitory can be

beneficial to the students as well as the educators because it shows when intervention is necessary. It also helps prevent students from losing self-esteem and feeling defeat by demonstrating the causative agent for poorer test scores in comparison to what the student feels he or she has learned. Determining the prevalence and true impacts of test anxiety on exam scores and academic performance is important because of the significance test anxiety has for the nursing student and educator.

II. Literature Review

This chapter demonstrates a review of literature regarding test anxiety in undergraduate nursing students. Appendix A summarizes the levels of evidence. Peer reviewed articles were collected from searches on Wright State University library's databases. This section uses existing literature to establish a foundation for an undergraduate honors project. The literature was critically appraised and used to identify two themes: the impact of varying levels of anxiety on exam scores and interventions to decrease test anxiety.

Test Anxiety and Exam Scores

The literature from this section is used to understand test anxiety and its impact on undergraduate nursing students test scores. A variety of different articles of different levels present information demonstrating this concept.

One study aimed to understand the relationship between cognitive test anxiety (CTA) scores among nursing students and their relationship to test grades. Using a cross sectional survey design, the researchers studied a population of 183 undergraduate nursing students from a small private woman's undergraduate liberal arts college in the northeastern section of the United States. The students were asked to fill out a cognitive test anxiety scale ($\alpha=.91$) used to quantify cognitive test anxiety (Duty, Christian, Loftus, & Zappi, 2016, p. 71). The scores were classified

into low (score <46), average (score between 46-62), and high (score >63) and analyzed to determine their relationship to five test grades (Duty, Christian, Loftus, & Zappi, 2016, p. 72). A positive correlation between student reported self-anxiety and CTA scores ($p<.001$) (Duty, Christian, Loftus, & Zappi, 2016, p. 72). Results found that higher CTA scores correlated with lower academic performance on test 1 ($p=.02$), test 2 ($p=.02$), and the final ($p=.03$) (Duty, Christian, Loftus, & Zappi, 2016, p. 712). Limitations include a limited generalizability because the sample was predominantly women from a single institution, but the validity of the conclusions remain.

A descriptive, quantitative, correlational study written by Khalaila (2015) describes the relationship between test anxiety and academic achievement in relation to various motivation levels. The study measured test anxiety using the test anxiety inventory ($\alpha=.91$), which results are determined by the higher the score, the higher the level of test anxiety (Khalaila, 2015, p. 434). A sample of 170 undergraduate nursing students from Zefat Academic College in Israel filled out each scale, and researchers determined the results. Statistics demonstrated that test anxiety is negatively correlated with academic achievement (-0.37 , $p<.001$) (Khalaila, 2015, p. 435). Therefore, the evidence supported that as test anxiety increases, academic performance decreases. Researchers determined that results may not be generalizable across all people; nevertheless, this study demonstrated the negative effects increased test anxiety can have on academic performance.

The relationship between test anxiety and academic achievement among undergraduate nursing students was considered in a descriptive, cross section, correlational designed nonexperimental study. Female nursing students from the College of nursing at King Saud Bin Abdul Aziz University for Health Sciences in Saudi Arabia were asked to fill out the test anxiety

inventory (TAI, $\alpha=.871$), which scores range from 20-80 with higher scores indicating higher levels of anxiety (Dagwood, Ghadeer, Mitsu, Almutary, & Alenzi, 2016, p. 59). Out of 277 students, 6.5% had no anxiety (score 20-35), 28.2% experienced mild anxiety (score 36-50), 50.9% experienced moderate anxiety (score 51-65), and 14.4% experienced severe anxiety (score 66-80) (Dagwood, Ghadeer, Mitsu, Almutary, & Alenzi, 2016, p. 61). The researchers then asked for access to the students' GPAs and academic level for comparison. Results of this study indicated that there was no statistical significance between the test anxiety scores and GPA ($r=-0.090$, $p=0.157$), but the researchers indicated this contradicts other research findings that show higher test anxiety correlating with lower academic achievement (Dagwood, Ghadeer, Mitsu, Almutary, & Alenzi, 2016, p. 62). The results also found that there were statistically significant findings between test anxiety scores and student's academic levels ($r=-0.128$, $p=.03$), meaning that the higher the academic level and experience, the lower the test anxiety (Dagwood, Ghadeer, Mitsu, Almutary, & Alenzi, 2016, p. 62). In other words, undergraduate nursing students in the beginning of their program may experience higher levels of anxiety than those nearing the end of their program. Researchers postulated that these results may be due to the small sample size as well as the small percentage of participants who experienced severe anxiety.

Another cross sectional, correlational study was performed at a small university in the rural Midwest of the United States. The study inspected the relationship between test anxiety, self-efficacy, and college exam grades. Researchers randomly chose 110 students from various majors and had the students fill out the motivated strategies for learning questionnaire (MSLQ). After, the researchers then compared the self-efficacy and test anxiety scores to test grades. Results demonstrate a negative correlation between students' pre-anxiety scores and exam scores ($r=-.16$, $p<0.05$), meaning the more anxiety a student had, the poorer the performance on the test

(Barrows, Dunn, & Lloyd, 2013, p. 207). The study also found that the student's self-efficacy impacts a student's test score ($r=.28$, $p=0.002$), meaning that the higher the student's self-efficacy, the better his/her performance on the test (Barrows, Dunn, & Lloyd, 2013, p. 207). This study did not account for the difficulty of tests across the different disciplines nor did it test the validity of the MSLQ, but results still showed that studying is not the only factor that influences academic performance.

Interventions to reduce test anxiety

Literature presented in this section will demonstrate methods for reducing or preventing test anxiety in efforts to improve test scores in undergraduate nursing students. The literature covers a broad spectrum of levels and present different findings supporting ways to decrease test anxiety.

The effectiveness of cognitive behavioral therapy, cognitive behavioral therapy plus imagery rescripting, and self-help groups on reducing test anxiety were compared in a randomized control trial performed at the center of student counseling at Mainz university and the department of psychology at Frankfurt university in Germany. A population of 138 students were divided into three groups: relaxation technique group, imagery rescripting group, and self-help group. Researchers used the test anxiety inventory (TAI) that has scores ranging from 20-80 throughout the study to determine test anxiety reduction ($\alpha=.8$). Higher scores indicated higher levels of anxiety, and a total score of greater than or equal to 60 was determined to have clinical symptoms that may require interventions (Reiss, Warnecke, Toglou, Krampen, Krausgrill & Rohrmann, 2017, p. 486). Based on the TAI scores, the impact of relaxation techniques, imagery rescripting, and self-help groups were statistically significant in reducing test anxiety scores. Findings presented that baseline TAI scores preintervention= 63.49 ± 7.53 , baseline TAI scores

postintervention= 57.88+/- 12.06 and TAI scores with a six-month follow up= 52.32+/- 12.52, resulted in $p<.001$ (Reiss, Warnecke, Toglou, Krampen, Krausgrill & Rohrmann, 2017, p. 487). Despite a small sample size and large attrition rate, test anxiety was proven to be more reduced when using relaxation techniques, imagery rescripting, and self-help groups.

A randomized control trial developed by Kayurmaci, Kucukoglu, and Tan was performed to determine the impact of aromatherapy in decreasing test anxiety levels in 91 second year nursing students at Ataturk university in Turkey from 2013-2014 (2014, p. 53). The nursing students were split into two groups: experimental group receiving lavender and a control group receiving no aromatherapy. The state trait anxiety inventory (TAI) was used to measure anxiety in the student; higher scores indicated higher states of anxiety (Kaymurmaci, Kucukoglu, & Tan, 2014, p. 53). Results indicated statistically significant results between anxiety scores between the control and experimental groups (TAI experimental group= 39.45 +/- 3.88, TAI control group= 41.45+/-4.70, $p=.031$), meaning that those who received no intervention in comparison to lavender scented rooms experienced higher levels of anxiety (Kaymurmaci, Kucukoglu, & Tan, 2014, p. 54). However, no statistical significance was found when comparing the test scores of the experimental and control groups ($p=0.865$) (Kaymurmaci, Kucukoglu, & Tan, 2014, p. 54). Limitations were not mentioned in this study, nor was the validity for the TAI mentioned. The results, however, demonstrate that lavender may be useful in reducing test anxiety though did not result in improved test scores.

Students taking a psychology class ($n=36$) at Yeungnam University in South Korea were studied in a randomized control trial to determine the efficiency of daily mindful breathing practice on test anxiety. Researchers split the students into either a mindfulness based intervention group ($n=12$), cognitive reappraisal practice group ($n=12$), or a non-training control

group (n=12). Researchers used the revised test anxiety (RTA) to measure anxiety ($\alpha=.73$ pretest and $\alpha=.91$ posttest) (Cho, Ryu, Noh, & Lee, 2016, p. 3). The levels of test anxiety were tested before and after the intervention to determine the impact of daily mindful breathing and cognitive reappraisal on test anxiety. The mindfulness breathing (pre-RTA=49.75 \pm 5.71, post-RTA=38.58 \pm 10.04) and cognitive reappraisal practices (pre-RTA= 50.58 \pm 6.26, post-RTA= 41.17 \pm 8.94) groups yielded statistically significant ($p<.001$) evidence in reducing test anxiety compared to the control (pre-RTA=47.92 \pm 7.74, post-RTA= 43.33 \pm 8.49) (Cho, Ryu, Noh, & Lee, 2016, p. 5). Despite the small sample size, evidence from this research indicates mindfulness breathing and cognitive reappraisal practices can help decrease test anxiety.

A systematic review, containing twelve quantitative and qualitative studies, explored factors associated with test anxiety among undergraduate nursing students. Review of the research found that sources of test anxiety include inadequate test preparation, distress regarding the test despite knowledge of material, and poor self-concept related to test taking skills (Shapiro, 2014, p. 193). Shapiro indicates that undergraduate nursing students who experience test anxiety worry about tests because they view the exam as a threat, which produced negative feelings resulting in poor test taking abilities (Shapiro, 2014, p. 193). The results of her literature demonstrate the effectiveness of interventions such as hypnotherapy, aromatherapy, relaxation techniques, music therapy, and test taking strategy education on nursing students with test anxiety. Significant findings are as follows: hypnotherapy ($p=.0053$); aromatherapy (lavender $p=.003$, rosemary $p=.1$); relaxation training via diaphragmatic breathing, progressive muscle relaxation, and biofeedback assisted relaxation training (improved test scores and GPA); music therapy ($p<.001$), and test taking strategy education (Shapiro, 2014, p. 200). Each of the above interventions were demonstrated to have a positive effect on test anxiety helping nursing students

to improve academic performance. While there were small sample sizes for of the studies, it has been proven that test anxiety can negatively impact academic performance, but there are ways to help reduce test anxiety.

Another randomized control trial aimed to examine the effect of test enhanced learning (TEL) on long term retention and its impact on test anxiety. Undergraduate nursing students in a general psychology course were split into an experimental group (n=104) and a control group (n=90). The experimental group participated in TEL, and the control group used a re-study method. Test anxiety was measured using the motivated strategies for learning questionnaire (MSLQ) ($\alpha=.79$). Results for testing interaction effects were measuring using a moderated regression analysis. After analysis of the results, it was determined that the TEL group experienced better final cumulative test scores than the restudy group ($p<0.05$) (Messineo, Gentile, & Allegra, 2015, p. 4). A second regression analysis determined the impact of test anxiety on exam performance, which showed statistical significance ($p<.001$) (Messineo, Gentile, & Allegra, 2015, p. 5). Another regression analysis was performed to determine the effects of TEL and the impact it has on test anxiety. The results demonstrated that those with higher levels of anxiety received more benefits from TEL learning than re-studying material ($p<.05$) (Messineo, Gentile, & Allegra, 2015, p. 5). Limitations of the study include a high attrition rate and a lack of re-measurement of test anxiety close to the final cumulative test; however, the study still demonstrates TEL as a potential method to improve test scores for those with test anxiety.

Summary

A literature review was performed to determine the effects test anxiety can have on exam scores in undergraduate nursing students and to identify methods to help decrease test anxiety in

undergraduate nursing students. The findings of the search for literature were distributed into two categories: test anxiety and exam scores and interventions to reduce test anxiety. The findings demonstrate that it can be concluded that higher levels of anxiety during test taking has a negative correlation on test scores. This is compared to lower levels of anxiety which benefit students and help improve test scores. Research has proved that there is statistical significance between high levels of anxiety and low test scores. The literature also demonstrates a variety of ways to reduce test anxiety in efforts to improve test scores. These methods include cognitive behavioral therapy; imagery rescripting; self-help groups; aromatherapy using lavender and rosemary; mindfulness based interventions and breathing; cognitive reappraisal tactics, hypnotherapy; relaxation training including diaphragmatic breathing, progressive muscle relaxation, and biofeedback; test taking strategy education, music therapy, and test enhanced learning. Knowing the effects of test anxiety on exam performance and identifying methods to reduce test anxiety is important for nursing students and nurse educators due to many factors.

III. Description of the Project

The purpose of this project was to analyze and critically appraise literature about the effects of test anxiety on academic performance in undergraduate nursing students and to identify ways nursing students and nurse educators can help decrease test anxiety to improve academic performance. The setting, population, project implementation, evaluation and dissemination, ethical and legal considerations, time frame, and budget are all discussed in this section.

Setting

The concept and impact of test anxiety along with interventions identified to reduce anxiety in this project were presented to undergraduate nursing students at the College of Nursing and Health at Wright State University in Dayton, Ohio. There were 66 undergraduate

nursing students in the NUR 3420 Critical Reasoning in Nursing Care of Individuals and Groups in Mental Health course who attended and evaluated the presentation. The presentation lasted thirty minutes and was given on Friday, October 27, 2017 during time allotted for course lecture. Permission to present the findings was obtained by the course coordinator.

Population

The population this project addressed was undergraduate nursing students and faculty members in the College of Nursing and Health at Wright State University. The project demonstrated the need to decrease levels of test anxiety in efforts to improve test scores and overall academic success to both nurse educators and nursing students in the College of Nursing and Health at Wright State University.

Project Implementation

Implementation of this project included presenting the concept, impact, and interventions of test anxiety, providing a questionnaire determining each students' individual levels of test anxiety, and evaluation of the presentation. The presentation initially began with demonstrating the goals and outcomes of the presentation to the students and faculty. It continued by explaining the concepts of anxiety and test anxiety along with its significance. Furthermore, a test anxiety questionnaire (Appendix D) was provided as a tool for students to use to assess their own personal levels of test anxiety. After filling out the questionnaire, the students were asked to reflect on whether they felt that test anxiety impacts their test scores, academic success as well as if the student feels that their test grade is reflective of his/her knowledge. The results of the test anxiety questionnaire were not collected from the students as it was a tool for them to determine their personal test anxiety levels. Following reflection of test anxiety scores, evidence about test anxiety, its impacts, and interventions to reduce it were presented to students. A

summary of the presentation was provided, and students were asked if they had any questions and concurrently asked to evaluate the presentation. Evaluations were then collected from the students.

Evaluation and Dissemination

The project was first presented to two Wright State University College of Nursing and Health faculty members and then approved for use in a class. The presentation was then disseminated to those in an undergraduate nursing course at Wright State University. A de-identified test anxiety questionnaire was given to each undergraduate nursing student to determine each student's individual level of test anxiety. A copy of the questionnaire is provided in Appendix D. Undergraduate nursing students who attended the presentation were also given an evaluation questionnaire that was collected to indicate usefulness, applicability, and clarity of information presented. The evaluation form is provided in Appendix C. The results of the test anxiety questionnaire were not collected. The honors project final submission will include the presentation used with lecture notes (Appendix B) along with student and faculty feedback and the test anxiety questionnaire (Appendix D). For further reference, copies of the PowerPoint presentation and presentation notes were provided for the course coordinator and undergraduate nursing students in the course. Results from the evaluation have been recorded and are further discussed throughout this paper.

Ethical and Legal Considerations

This project includes a review of literature. All sources were appropriately cited in the paper as well as the presentation. No copyrighted materials were used within this project nor were live patients used; therefore, international review board (IRB) approval was not necessary. Additionally, the final PowerPoint presentation uses references from the literature review.

Timeline

This project was started January 2017 with the formation of the clinical question and collection of background information about test anxiety related to exam scores and academic success in undergraduate nursing students. Then, literature was gathered to begin critical appraisal and develop a collection of evidence. The literature review was complete on March 3, 2017, and during the second week of March 2017, potential locations to present the findings were discussed. The project proposal was submitted April 17, 2017. On September 6, 2017, the specific location for the educational presentation was decided. A preliminary PowerPoint presentation was developed and created in August 2017 and submitted for approval September 8, 2017 by the faculty advisor and coordinating professor (course coordinator). The presentation was approved by the faculty advisor and coordinating professor on October 9, 2017. The final PowerPoint presentation was presented to students on Friday, October 27, 2017 during the first thirty minutes of lecture. Following the presentation, evaluations by the students and faculty were collected.

Budget

This project and presentation required a budget for printouts of the presentation evaluation, printouts of the test anxiety questionnaire, and printouts of the final presentation. All printouts were printed in black and white, which cost forty cents per page. No other items were needed for the presentation.

Summary

Test anxiety was researched to understand the concept, its impact, and interventions to reduce it to help promote academic success in undergraduate nursing students. A PowerPoint presentation was developed and presented to undergraduate nursing students at the college of

nursing and health at Wright State University. The clarity, usefulness, and applicability were evaluated by the undergraduate nursing students and faculty attending the NUR 3420 course. Copies of the educational presentation and test anxiety questionnaire were provided to the undergraduate nursing students and faculty in attendance of the presentation to be used as a reference. Further portions of this paper analyze the presentation execution and formulate project conclusions.

IV. Project Evaluation

Presentation Execution

A PowerPoint presentation was given during an undergraduate nursing course at Wright State University. The PowerPoint was made of 15 slides—one title slide, one test anxiety questionnaire slide, one question slide, one reference slide, one evaluation slide, and 10 content slides. Time allotted to give the presentation was 30 minutes. The educational presentation was given to undergraduate nursing students in the NUR 3420 course at the College of Nursing and Health at Wright State University. Attending the presentation were 66 undergraduate nursing students, one nursing faculty member, and the project faculty advisor. An evaluation form and test anxiety questionnaire was distributed to the class at the beginning of the presentation. The evaluation form (Appendix C) includes three questions rating the presentation on a scale of one to five while also providing space for additional comments.

Results

The evaluation form (Appendix C) results were analyzed by each question. There were 66 students who submitted evaluations of the presentation. Evaluators were asked to rate each statement on a scale of 1 to 5: 1 = “strongly disagree”; 2 = “disagree”; 3 “neutral”; 4 = “agree”; 5 = “strongly agree.” The answer distribution for the first statement “The information in this

presentation was clear and understandable.” is as follows: 86.4% (57/66) rated 5, 9.1% (6/66) rated 4, 3% (2/66) rated 3, 1.5% (1/66) rated 2, and 0% (0/66) rated 1. Analysis of the first statement include the mean equaling 4.8, median equaling 5, and mode equaling 5. The second statement “The presented information is applicable to me.” resulted findings are 62.1% (41/66) rated 5, 21.2% (14/66) rated 4, 10.6% (7/66) rated 3, 3% (2/66) rated 2, and 3% (2/66) rated 1. Analysis results for the second statement are mean 4.3, median 5, and mode 5. Students that indicated a rating of three or less stated that the information presented was not applicable to them because they experience low levels of test anxiety. Some students did provide, however, that this information helped them to empathize with peers who do experience test anxiety. The final statement “The presentation provided useful information” results were 75.8% (50/66) rated 5, 19.7% (13/66) rated 4, 3% (2/66) rated 3, 1.5% (1/66) rated 2, and 0% (0/66) rated 1. Analysis of the third statement found the mean to be 4.70, the median to be 5, and the mode to be 5.

There were 33 responses in the additional comments section. The comments were as follows: “Well done! Very relatable and helpful information. I will try the positive esteem/confidence building and breathing before an exam. Thank you for the pointers!”, “Very good presentation.”, “She dressed professionally.”, “You did wonderful Enjoy being a nurse :)”, “This was very informative. I do agree that nursing students have higher anxiety. Nice presentation!”, “Great topic, relevant to us as students, especially those of us who suffer from severe test anxiety!”, “I really enjoyed this presentation! Good luck in your career!”, “She presented the material very well!”, “Sarah did a good job of presenting the material.”, “very good”, “It would be interesting to look at how the 75% test average impacts nursing students' test anxiety. Great presentation! I am looking at topics to do for my own Honors project.”, “Great job! Very informative!”, “I felt that the presentation was well done and easy to understand.

Personally, I do not relate with the test anxiety issue but it was good for me to see what some of my fellow classmates may go through.”, “great job!”, “great presentation :)”, “She was very professional and informational. I liked that it was something I could relate to!”, “awesome presentation!! I think that test anxiety is looked at almost as something that's "easy" to get rid of, or that's not real. It's very real for me and impacts me on every test I take.”, “Good presentation skills- did not read off slides/did not seem nervous or word jumble. Add more information to slides to make more understandable/relatable Great presentation! Good information- relevant information.”, “Very good presenter! Great presentation!”, “great job!”, “This is very relatable topic and she did an excellent job presenting the information. Very helpful information for future tests.”, “The questionnaire was relevant to me!”, “Plenty of information. Helps identify test anxiety easier.”, “very informative”, “It was very good presentation. She was clear and showed understanding of the material. It didn't apply to me personally because my anxiety in and before test is very low.”, “The student did a great job and delivered her information in a very clear and concise way. I think she had a lot of good insight on how to handle test anxiety.”, “good presentation!”, “Very well spoken, good communication skills”, “Very good presentation and helpful interventions to decrease test anxiety. I enjoyed the questionnaire.”, “Very confident and relatable. Good eye contact and volume.”, “Presenter was well organized and presentation flowed well.”, and “:).”

Summary

The educational presentation was given to undergraduate nursing students in the NUR 3420 course in the College of Nursing and Health at Wright State University. The concept, impact, and interventions for test anxiety were presented to the students while also providing them a test anxiety questionnaire to determine individual levels of test anxiety. The test anxiety

questionnaire was not collected. Those in attendance of the presentation evaluated the presentation. After analyzing the completed evaluations, the audience found the presentation to be useful, provide clear information, and be applicable to themselves. Comments provided by the attenders also reinforced that the presentation had clarity, usefulness, and applicability. Now that students have been provided information about test anxiety, interventions to reduce test anxiety can be taken to help improve academic success. Additionally, understanding the concept of test anxiety will help students and faculty empathize with those who experience test anxiety in efforts to help those affected. By intervening on test anxiety, students and faculty can improve test scores and overall academic success, which intern can save time, money, and improve self-efficacy.

V. Discussion, Limitations, and Conclusions

Test anxiety can impact undergraduate nursing students and faculty members by producing negative exam scores, impairing learning ability, causing overall poor academic performance, impacting time, effecting finances, altering accreditation status, and hurting self-esteem. These negative effects help emphasize the importance to help recognize test anxiety and perform interventions to reduce test anxiety. Providing this information to undergraduate students at the College of Nursing and Health at Wright State University helped students and faculty to understand test anxiety as a concept, why it is important, and what interventions can be performed to help reduce it. The evaluators of the presentation found the information to be useful, clear, applicable, and understandable in a way that the findings could be used to help change test anxiety and improve academic outcomes.

Project limitations include the educational presentation being provided to only one class; therefore, disseminating findings to other undergraduate nursing classes would provide further

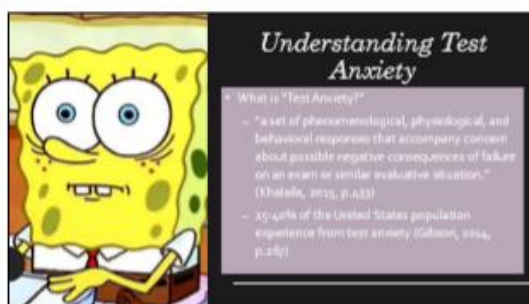
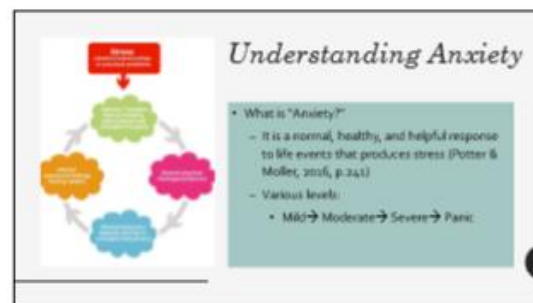
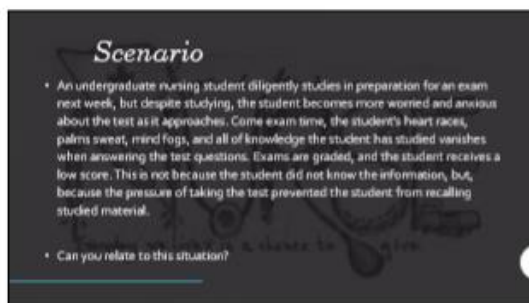
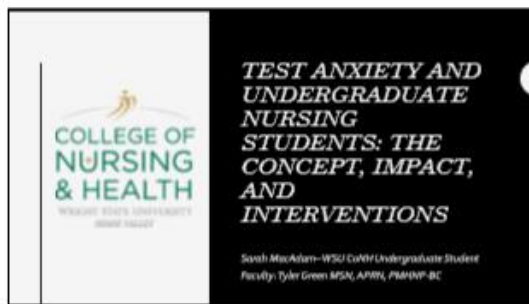
understanding about how test anxiety impacts students and educate faculty on how to decrease it. Other limitations included time, which impacted the ability to discuss test anxiety interventions more in depth. Had more time been provided, each intervention could have been assessed individually for effectiveness and realistic implementation. Further research could be performed by assessing undergraduate nursing student test anxiety and academic outcomes before and after the presentation. Additionally, other undergraduate majors' test anxieties and academic outcomes could have been compared to undergraduate nursing majors' test anxieties and academic outcomes to identify differences.

Test anxiety has been proven to have a negative impact on exams scores and overall academic success. This honors project served to research current literature about test anxiety, its impact on undergraduate nursing students, and interventions to help reduce test anxiety. The findings were incorporated into a presentation that was given to undergraduate nursing students, who found the material useful, clear, and applicable. It is important for both students and faculty members to understand test anxiety so interventions can be implemented to promote positive learning outcomes.


Appendix A

	Level I – Systematic Review/ Meta-synthesis	Level II – Randomized Control Trials	Level III – Controlled Trial without Randomization	Level IV – Case Control or Cohort Study	Level V – Systematic Review of Qualitative Studies	Level VI – Single Descriptive or Qualitative Study	Level VII – Expert Opinion	None
(Barrows, Dunn, & Lloyd, 2013)						X		
(Cho, Ryu, Noh, & Lee, 2016)		X						
(Dagwood, Ghadeer, Mitsu, Almutart, & Alenezi, 2016)						X		
(Duty, Christian, Loftus, & Zappi, 2016)						X		
(Kavurmaci, Kucukoglu, & Tan, 2015)		X						
(Khalaila, 2014)						X		
(Messineo, Gentile, & Allegra, 2015)		X						
(Reiss, Warnecke, Tolgou, Krampen, Krausgrill, & Rohromann, 2016)		X						
(Shapiro, 2014)						X		

Appendix B



Significance to Nursing Education




- Students
 - Exam scores
 - Self-Esteem
 - Finances
 - Time
- College of Nursing and Health Faculty & Staff (ie: professors, clinical instructors, etc.)
 - Poor student outcomes
 - Accreditation
 - Time
 - Identifying test anxiety
- Standardized Testing
 - HESI & NCLEX

PLEASE TAKE THIS TIME TO FILL OUT THE TEST ANXIETY QUESTIONNAIRE TO DETERMINE WHAT LEVEL OF TEST ANXIETY YOU EXPERIENCE.

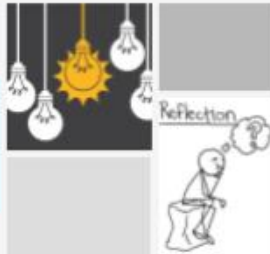
<http://www.ccsu.edu/psych/teachingresources/STUDENTTESTANXIETY/TESTANXIETYQUESTIONNAIRE.PDF>

Met & Dohi, 2008. Test anxiety questionnaire. Retrieved from <http://www.ccsu.edu/psych/teachingresources/STUDENTTESTANXIETY/TESTANXIETYQUESTIONNAIRE.PDF>



Reflection

- Do you feel like anxiety impacts your test scores and academic success?
- Do you feel that your test grades are reflective of your knowledge?



WHAT DOES RESEARCH SAY?

Test Anxiety and Exam Scores

- Undergraduate nursing students in the beginning of their program experience higher levels of anxiety than those near the end. (Espeland, Gholson, Mitsu, Almutary, & Kemp, 2003, p. 68)
- Higher cognitive test anxiety scores correlated with lower academic performance on tests (Duffy, Christian, Loftus, & Zappi, 2006, p. 713).
- A student with more self-efficacy is likely to do better on an exam than one with low self-efficacy. (Barrows, Dunn, & Lloyd, 2003, p. 1095)

Interventions to Reduce Test Anxiety

- Research has found the following interventions to be useful in combating test anxiety:
 - Cognitive behavioral therapy
 - Imagery rescripting
 - Self-help groups
 - Aromatherapy using lavender & rosemary
 - Mindfulness based interventions & breathing
 - Cognitive reappraisal tactics
 - Hypnotherapy
 - Relaxation training including diaphragmatic breathing
 - Progressive muscle relaxation
 - Biofeedback
 - Test taking strategy education
 - Music therapy
 - Test enhanced learning

Summary

- Test anxiety is a common experience that negatively impacts test scores and overall academic performance.
- Nursing students experience test anxiety more than those in other majors.
- Test anxiety holds significant for students and professional faculty.
- There are many interventions that can be implemented to help decrease test anxiety in efforts to improve test scores and overall academic success.



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Lecture notes:

Slide 2:

- Today, we will be talking about test anxiety as a concept, its impact, and interventions to prevent/reduce it. Some objectives for this presentation include defining test anxiety, explaining the impact of test anxiety, and recognizing interventions to reduce/eliminate test anxiety.

Slide 3:

- This is an exemplar of what it might be like to experience test anxiety. Have you ever felt something relatable to this?

Slide 4:

- It is important to note that there is a difference between anxiety and fear. Anxiety is stress related to an unknown source while fear typically has a clear source. For instance, one may have a fear of tests, but test anxiety is the stress related to not knowing how well one will do on the test or what will be on the test.
- Anxiety is also experienced in various levels. Most people experience anxiety at the mild level, which serves as a motivating factor. But, at the moderate level, learning begins to be inhibited. This can cause decreased academic success and clouded judgement. At the severe level, anxiety is debilitating and impairs functioning in society, and panic level is an emergency and requires immediate intervention.

Slide 5:

- Test anxiety is a subset of anxiety that can be inhibitory to academic success. It can produce physiological (ie: increased heart rate, sweating, palpitations, increased respirations) and behavioral responses (ie: panic and inability to think straight).

- While it is estimated that 25-40% of Americans experience test anxiety, it is expected that this number is probably higher due to underreporting.

Slide 6:

- Nursing students are expected to experience higher levels of test anxiety because of increased workload within and outside of the classroom.

Slide 8:

- If you all would, now, please take the time to fill out the test anxiety questionnaire to determine what level of test anxiety you experience. This tool was developed by Nist and Diehl, not myself, and can be used as a resource to see what level of test anxiety you are said to experience and whether or not it impacts your education. These are for you to keep.

Slide 10:

- To summarize my research, which included a literature review of 13 articles. I have concluded that higher test anxiety scores correlate with lower academic performance on tests, undergraduate nursing students in the beginning of their program experience higher levels of anxiety, and students with more self-efficacy are likely to do better on a test than those with a low self-efficacy even if these students experience the same level of anxiety.
- There are two thoughts to why beginner students experience more test anxiety than those that higher levels in their programs: students with more anxiety may be weeded out of the program at this point or students have adapted to the workload and learned how to cope with demands of nursing school.

Slide 11

- Cognitive behavioral therapy (CBT): type of talk therapy (psychotherapy) where one meets with a counselor/therapist in a structured setting that allows you to become aware of negative thinking in efforts to respond to these thoughts in an effective way
- Imagery rescripting: involves changing unpleasant memories
- Cognitive reappraisal: emotional regulation strategy that involves changing the trajectory of an emotional response by reinterpreting the meaning of the emotional stimulus and challenging to be a better self
- Biofeedback: becoming aware of physiological responses and learning out to manipulate them – diaphragmatic breathing, progressive muscle relaxation

Appendix C

“Test Anxiety and Undergraduate Nursing Students: The Concept, Impacts, and Interventions”

Evaluation

Circle: Student Professor Other _____

Instructions: Please rate each statement on a scale of 1 to 5: 1 = “strongly disagree”; 2 = “disagree”; 3 “neutral”; 4 = “agree”; 5 = “strongly agree”

1. The information in this presentation was clear and understandable

1 2 3 4 5

2. The presented information is applicable to me.

1 2 3 4 5

3. The presentation provided useful information.

1 2 3 4 5

Additional Comments:

Appendix D

Test Anxiety Questionnaire

Nist and Diehl (1990) developed a short questionnaire for determining if a student experiences a mild or severe case of test anxiety. To complete this evaluation, read through each statement and reflect upon past testing experiences. You may wish to consider all testing experiences or focus on a particular subject (history, science, math, etc.) one at a time. Indicate how often each statement describes you by choosing a number from one to five as outlined below.

Never	Rarely	Sometimes	Often	Always
1	2	3	4	5

1. _____ I have visible signs of nervousness such as sweaty palms, shaky hands, etc. right before a test.
2. _____ I have “butterflies” in my stomach.
3. _____ I feel nauseated before a test.
4. _____ I read through the test and feel that I do not know any of the answers.
5. _____ I panic before and during a test.
6. _____ My mind goes blank during a test.
7. _____ I remember the information that I blanked on once I get out of the testing situation.
8. _____ I have trouble sleeping the night before a test.
9. _____ I make mistakes on easy questions or put answers in the wrong places.
10. _____ I have trouble choosing answers.

_____ = Total Scores will range from 10 – 50.

10-19 Points indicate that you do not suffer from test anxiety. In fact, if your score was extremely low (close to 10), a little more anxiety may be healthy to keep you focused and to get your blood flowing during exams.

20-35 Points shows that although you exhibit some of the characteristics of test anxiety, the level of stress and tension is probably healthy.

Over 35 Points suggest that you are experiencing an unhealthy level of test anxiety. You should evaluate the reason(s) for the distress and identify strategies for compensating. Often, students become anxious about test taking when they are not as prepared as they could be. Are you using strategies you have learned in Master Student? Also, you may want to consider seeing assistance at the Counseling and Prevention Center here on campus, 832-1945, Willard Hall room 100.

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