Examining test taking anxiety in undergraduate and graduate college students

Tracey J. Dinac DNP-c, FNP-BC

Dominican University New York

Capstone

Dr. Barbara Polowczyk

July 2023

S

Table of Contents

Abstract

Anxiety is very common among contemporary college students (Yang & Yang, 2022). Research suggests that tests and examinations are considered to be one of the major sources of anxiety among students. Test anxiety, a form of anxiety expressed before, during, or after an exam, is one factor linked to students' academic achievement (DordiNejad et al., 2011). This capstone project aims to gain an understanding of test taking anxiety and its impact on undergraduate students. Toward this goal, the current capstone project seeks to assess students' level of test taking anxiety and provide students with test taking strategies. The Westside Test Anxiety Scale (WTAS) was administered to students to identify students with anxiety impairments who could benefit from a test anxiety intervention. Findings from the current capstone project reveal that student's levels of anxiety were moderately high.

Acknowledgments

First and foremost, I would like to thank God for giving me the strength and perseverance to continue this journey. My Haitian American household has shaped and encouraged me to be the very best version of myself, and I sincerely thank Madue, Daddy, Vickey, Jessica, Brittney, and Mother Karen for their endless love and support. I dedicate this degree to my foundation for faithfully motivating me throughout this process. I am grateful for the endless support, encouragement, understanding, and compassion I have experienced. Dr. Lynn Weissman, the Director of this DNP program, has supported me since I interviewed in June 2013 for the Family Nurse Practitioner program at Dominican University. Dr. Polowczky and Dr. McDermott have also been highly instrumental along this journey. I am truly blessed to be here today, and I humbly accept this degree. More importantly, I dedicate this doctoral project to my Heavenly Father, who whispered daily in my ear, "I am with you; just trust me".

Chapter 1: Introduction and statement of the problem

Statement of the problem

Anxiety and stress are highly prevalent among college students. Academics are an integral part of the life of all college students, and without a healthy attitude toward academic goals, students can be plagued with bouts of stress (Beiter, 2015). Academic pressures of meeting grade requirements, test taking, varied volume of material to be learned and time management has been shown to be a significant source of stress for students (Beiter, 2015). Literature on anxiety and stress define test anxiety as a physical, emotional and mental reaction to threat of failure on test or evaluation (Ahmad, Hussain, & Khan, 2018). Test anxiety, however, is differentiated from other forms of anxiety due to its focus on evaluative situations. Research in the domain of test anxiety has repeatedly linked the experience of cognitive test anxiety to performance outcomes in academic settings, with consistent findings illustrating a negative impact on student performance for high stakes tests (Thomas, Cassady, & Heller, 2017). Research in this area reveals that for students who struggle with test anxiety, their mental health, including lowered self-esteem, confidence, and motivation, can be significantly impacted.

Background of the problem

Test anxiety is a common phenomenon among students and it is considered a problem in the educational system. Test anxiety, as a type of trait anxiety, is a most common achievement feeling in related to specific situation (Kolagari et al., 2018). According to existing literature on academic performance and anxiety, test anxiety is an emotional and cognitive component that can interfere with the performance of students (Ariani & Susilo, 2018). By definition, test anxiety is a pervasive form of academic anxiety that generally has a negative impact on patterns of beliefs and behaviors common to testing situations (Thomas, Cassady, & Heller, 2017).

Overwhelming feelings of anxious or stress prior to and during exams, may be linked to test anxiety. Literature suggests that are a number of different factors that can cause test anxiety including anxiety disorders, a history of poor test taking, worry, or a fear of failure.

Previous research studies link test anxiety to poor academic performance, a decreased attainment of degrees, and limited career options (Liu & Xu, 2017). Test anxiety, exam stress, or test stress are often synonymous with the fear or worry of negative evaluation that results in a negative behavioral, physiological, or emotional responses (Von der Embse et al., 2018). Test anxiety can often lead to persistent poor academic performance. Within educational settings, different factors influence test anxiety among college students such as student perception regarding the knowledge they have, as well as an instructor's teaching and evaluation methods (Bonefont, Carbino, & Zakerzadeh, 2022). Students who experience test anxiety may often experience negative thoughts and worry about their performance. Research studies that have examined test anxiety indicate that test anxiety can manifest in different ways for different people. The manifestation of test anxiety, as described above, can appear as a combination of physical symptoms and emotional reactions that can interfere with students' ability to perform well on exams.

Test anxiety may often lead to negative cognitive evaluation, lack of concentration, poor academic performance, and undesirable physical responses (Kolagari et al., 2018). Students affected by test anxiety typically report feelings of despair, hopelessness and failure, but also panic-like physiological reactions such as accelerated heart rate, sweating, and nausea (Maier et al., 2021). Additionally, another well-investigated linkage is test anxiety and self-efficacy. Self-efficacy and academic performance (which is often linked to test anxiety) impact each other. As

a result of this connection, this capstone project uses Bandura's social cognitive theory as the theoretical framework, which will later be described.

Significance of the problem

Many students across academic disciplines experience varying levels of test anxiety stemming from a number of different factors. Literature regarding test anxiety states that the severity of test anxiety can vary considerably from one student to another, and it can manifest differently across students. Test anxiety plays a critical role in the lives of college students' well-being and self-efficacy, and can impact various areas of their lives both physically and emotionally. Test anxiety may manifest itself in physiologic and behavioral responses and it can negatively impact students, in some instances be characterized and treated as social anxiety disorder. These negative impacts can prove detrimental to students' achievement, self-esteem, mental health, and success.

Target Population

The target population for this capstone were undergraduate and graduate students above 18 years old, irrespective of sex, ethnicity, college status, and sexual orientation. Students eligible to participate in this capstone were students who were enrolled at a suburban private institution in the Hudson Valley region. Demographic data was collected on survey respondents, however responses to the survey cannot be linked to individual respondents. The overarching purpose of this capstone is to assess the overall rate of test-taking anxiety scores among the student population and to provide them with targeted techniques to help them prepare for an exam and potentially decrease their test anxiety. The target population identified for this capstone are the students that are enrolled at the university. The stakeholder groups identified for

this project are the students who participate in the survey and the DNP student completing this

capstone project.

Evidence of Scope of Problem Effects on Individuals or Health Care Systems

Literature highlights the root causes and impact of test anxiety on students. Similar to

other anxiety reactions, test anxiety affects the body and the mind. Test anxiety is often

described as a combination of physical symptoms and emotional reactions that interfere with an

individual's ability to perform well on tests. Literature highlights both short term and long-term

impacts of test anxiety. Students affected by test anxiety may report panic-like physiological

reactions such as accelerated heart rate, sweating, and nausea (Maier et al., 2021), and according

to a 2010 study, it is estimated that test anxiety can affect anywhere between 10 to 40 percent of

all students.

As test anxiety is primarily a concern over negative evaluation, it is most closely

associated with the Diagnostic and Statistical Manual-IVclassification of 'social phobia'

(McDonald, 2021). One connection that research on test anxiety discusses is test anxiety and

social anxiety disorder. While there appears to be a gap in research on test anxiety and social

anxiety disorder, this gap calls for a healthcare centered approach to assessing test anxiety.

Social anxiety disorder (formerly known as social phobia) is a mental health condition where you

experience intense and ongoing fear of being judged negatively and/or watched by others

(Cleveland Clinic, n.d.). Social anxiety disorder is known to impair social functioning and to

have negative consequences on educational attainment, occupational performance, relationships

and quality of life (Chapdelaine et al., 2018). As such, it is important to understand the

relationship between social anxiety disorder and test anxiety as it is necessary to expand our

understanding of the factors involved with receiving treatment.

Problem Statement

The phenomenon that is being explored for this capstone project is test anxiety. Within the educational setting regardless of academic major or discipline, test anxiety may negatively impact students' academic performances and their personal well-being. This capstone projects seeks to examine test taking anxiety amongst college students by assessing their level of test taking anxiety.

PICOT

In adults aged 18 and older enrolled in a 4-year university, how does the administration of an anxiety scale questionnaire and dissemination of coping strategies as compared to current practice without techniques and strategies affect test taking and anxiety during academic years?

Theoretical Framework

Bandura's Social Cognitive Theory was chosen as the theoretical framework for this capstone project as it is applicable to the root causes and implications related to test anxiety. Self-efficacy, self-regulation, self-concept and self-control are beliefs that students are capable to optimize their learning performance by their own psychological efforts (Bandura, Freeman, & Lightsey, 1999). Psychologist Albert Bandura defined self-efficacy as individual's belief in their ability to control their functioning and events that effect their lives. Bandura's social cognitive theory emphasizes the learning that occurs within a social context (Schunk & DiBenedetto, 2021). According to this theory, human functioning depends on three interacting set of factors: personal, social/environmental, and behavioral (Schunk & DiBenedetto, 2021). The social cognitive theory is the framework that will be the used for this capstone as it emphasizes critical components of test anxiety. In thinking about the essential components of this theory, this

capstone will focus primarily on self-efficacy. As defined in literature, self-efficacy is about an individual's belief in himself or herself as far as their capacity to execute behaviors necessary to produce a specific result. Both theory and research support the idea that self-efficacy is an important motivational construct that can affect choices, effort, and academic achievement. As described in literature findings, there is a relationship between self-efficacy and test anxiety, and therefore Bandura's theoretical framework serves as a relevant construct that speaks to the link between test anxiety and student motivation, all of which are the key components of this capstone.

Definition of terms

Below is a list of terminology that will be highlighted in describing elements of this capstone.

- Test anxiety: A pervasive form of academic anxiety that generally has a negative impact on patterns of beliefs and behaviors common to testing situations.

- Self-efficacy: The belief that an individual has control over and is able to execute a behavior.

- Test-taking Strategies: Cognitive abilities to deal with any testing situation in appropriate manner and to know what to do during tests.

- Social Cognitive Theory: Describes the influence of individual experiences, the actions of others, and environmental factors on individual health behaviors.

Chapter 2: Critical Appraisal of the Evidence

Introduction

The overall purpose of this DNP capstone project is to gain an understanding of test taking anxiety and its impact on undergraduate students and provide students with strategies that will help with coping to lead to better academic performances. Current literature on anxiety within educational settings suggests that test anxiety is a multidimensional phenomenon. Research studies conducted in the area of test anxiety has emerged from educational and psychological domains. Students' perception regarding the knowledge they have and their inability to enhance their learning has been evaluated within the group of factors affecting student performance and their level of stress (Carveth, Gesse, & Moss, 1996). This is manifested through students' complaints of lacking sufficient time to prepare for the exams or learn the course materials, or not being satisfied with the achieved academic results in the previous evaluations (Abouserie, 1994, cited in Hyseni-Duraku, 2014). Test anxiety among college students is a common problem that significantly affects academic performance, and research suggests that students who experience test anxiety can employ numerous strategies and tips as coping techniques. This capstone aims to contribute to existing research on the assessment of test anxiety among students.

Search Strategy and Yield

A review of literature was performed by researching articles in PubMed, ProQuest, MEDLINE, CINAIL, and Google Scholar. Searches within the "test anxiety" domain yielded over 350 peer-reviewed scholarly articles from the past five to seven years. Key search words used to compile relevant articles and studies include: "text anxiety", "self-efficacy", "study strategies", "undergraduate students", "college settings", and "stress". The literature search was

completed using the following inclusion: (a) articles published between 2015 and 2023, (b)

written in English, (c) published in a peer reviewed journal, and (d) full text. Additionally,

exclusion criteria included: (a) articles greater than eleven years old, and (b) abstract only

articles. Peer reviewed articles and articles published in scholarly journals are generally

referenced in studies as a means of enhancing validity and attesting to the reliability of results.

Level of Evidence

The Oxford Center for Evidenced Based Medicine Levels of Evidence (2009) was used

as a resource to determine the validity of the study and evaluate the quality of the evidence. The

evidence is summarized in the table of evidence. Level 1a. is the systematic review with

homogeneity of randomized controlled trials (RTC). Level 1b. represents the individual RCT

with narrow confidence interval. Level 1c. represents all or none. Level 2a. is the systematic

review (SR) of cohort studies. Level 2 b. is the individual cohort study, Level 2b. is the

individual cohort study, Level 2c. represents outcomes research, ecological studies. Level 3a. is

the systematic review of case control studies, level 3b. is the individual case control studies.

Level 4. Represents case series, and Level 5 is the expert opinion without explicit critical

appraisal or based on physiology, bench research or first principles.

Evaluation and Synthesis of Literature

The concept of test anxiety is widely studied and has evolved over time based on

extensive empirical research findings. Current and past studies show that students perceptions

and beliefs about their academic achievement may be a determining factor in test anxiety,

amongst many other factors. Numerous studies have focused on the relationship between test

anxiety and academic burnout, the relationship between test anxiety and self-efficacy, and factors

impacting various forms of anxiety within the educational setting. Research suggests that anxiety or worries about an exam is a cognitive component that shows the negative thoughts that can interfere with the performance of students. Researchers Ariani & Susilo (2018) conducted a study aimed to 1) examine the relationship between goal orientation, self- efficacy, and procrastination, and 2) examine the relationship model between goal orientation and procrastination with self- efficacy and test anxiety as mediating variables. This study conducted by researchers Ariani & Susilo (2018) used a survey method using a questionnaire, and was administered to undergraduate students in a town in Indonesia. A total of 365 undergraduate students completed questionnaires that assessed the motivation type of the students' learning, the level of test anxiety, the level to which they procrastinate on doing tasks, and their self-efficacy regarding tasks and tests. Overall findings revealed that procrastination was negatively related to learning-goal orientation and self-efficacy and was positively associated with test anxiety (Ariani & Susilo, 2018).

Given the negative effects of test anxiety on learning and test performance, understanding and treating test anxiety is essential so that students are able to fulfil their academic potential (Hunter et al., 2022). Another research study by researchers Hunter et al., (2022) sought to examine the association of intolerance of uncertainty and metacognitive beliefs of test anxiety among college students. More specifically, they tested for the first time the role of both intolerance of uncertainty and metacognitive beliefs in test anxiety (Hunter et al., 2022). In order to examine these beliefs, a cross-sectional design was used, with college students ($n = 675$) completing questionnaires assessing their test anxiety, intolerance of uncertainty, and metacognitive beliefs. Study findings showed that both intolerance of uncertainty and metacognitive beliefs are linked to test anxiety, but results suggest metacognitive beliefs have

more explanatory utility, providing greater support for an S-REF model. This study provided the

first tentative evidence that both intolerance of uncertainty and metacognitive beliefs are linked

to test anxiety (Hunter et al., 2022).

To examine the influence of test anxiety on a variety of educational outcomes, Von der

Embse et al (2018) conducted a meta-analysis on text anxiety. A total of 238 studies from 1988

to present were synthesized via a meta-analytic framework to explicate predictors, correlates, and

relationships with the test anxiety construct (Von der Embse et al, 2018). Findings from the

meta-analysis indicated that test anxiety was significantly and negatively related to a wide range

of educational performance outcomes, including standardized tests, university entrance exams,

and grade point average (Von der Embse et al, 2018). Another study investigated the relationship

between academic procrastination and test anxiety among the dental students of Qazvin

University of Medical Sciences (Bolbolian et al, 2021). The results of this descriptive-analytical

study showed that there is a significant relationship between procrastination and test anxiety and

its components. The outcome according to the findings of the study, found that individuals with

academic procrastination have more test anxiety and fear of humiliation, irrational and negative

thoughts, and more stress (Bolbolian et al, 2021).

Similar to this capstone project, literature on test anxiety and the assessment of test

anxiety among students often describes the impact of the Westside Test Anxiety Scale (WTAS)

as an appropriate assessment tool to administer to gather insight on students' level of test

anxiety. The Westside Test Anxiety Scale (WTAS) is a widely-used screening instrument for

assessing test anxiety impairments in educational settings. Researcher Talwar (2019) sought to

assess the reliability and factor structure of the WTAS among undergraduate university students.

The study provided important evidence regarding the construct validity and multi-group factorial

invariance of the WTAS in an educational setting in Malaysia (Talwar, 2019). Data and findings

from the study supported the estimation that the WTAS is suitable for use as a screening tool for

test anxiety among students in Malaysia (Talwar, 2019). Given the extensive literature review on

test anxiety and self-efficacy and validated instruments administered to assess anxiety, this

capstone aimed to administer the WTAS as a tool to assess anxiety amongst students at

Dominican University. Other research studies highlight the administration of the WTAS along

with other validated tools; this capstone project aims to further add to existing literature on this

tool and its implications.

Existing literature on test anxiety not only focuses on anxiety in students in their early

undergraduate years, but also on students enrolled in medical programs. A quasi-experimental

study by Kolagari et al., (2018) aimed to determine the effect of computer-based tests on nursing

students' test anxiety. Unlike most studies where the WTAS is administered to assess anxiety, to

assess students' anxiety Kolagari et al., (2018) administered the Spielberger's State-Trait

Inventory (STAI) and prior to exams, all students completed the Sarason's Test Anxiety Scale

(TAS). The STAI assessment includes 40 items and is scored on a 4-point Likert scale (from

"Almost never" to "Almost always" or from "Not at all" to "Very much"). The state anxiety

scale comprises 20 items that evaluate one's emotions at the time of responding to questions. The

STAI drastically varies from the WTAS scale. The overall basis of this study, varied from other

studies as this study focused exclusively on computer-based testing. The method utilized in this

study varies from the study design utilized for this capstone project.

Multiple interventions have been developed for alleviating test anxiety. Researchers

Doherty & Wenderoth (2017) implemented an expressive writing (EW) intervention to students

in an introductory biology course at an R1 university. The EW has been described to be effective in decreasing the impact of test anxiety in a cognitive laboratory. For the EW intervention, students write about their thoughts and feelings regarding the exam immediately after the exam. Doherty & Wenderoth (2017) investigated the feasibility of using a combined intervention of crumpling and throwing away EW prompts. Unlike this capstone project, the Doherty & Wenderoth (2017) study focused exclusively on students enrolled in the same class and it utilized writing prompts as its intervention model. All studies reviewed for this capstone project, highlight the negative impacts of test anxiety, however very few studies presented address the linkage between social anxiety disorder and test anxiety.

National Guidelines

Test anxiety leads to requests for accommodations under the Americans with Disabilities Act (ADA), but many testing entities have expressed skepticism about whether test anxiety qualifies as a disability. Test anxiety disorders are protected under the Americans with Disabilities Act (ADA) of 1990 and may make an individual eligible for accommodations to help compensate for symptoms of anxiety. There are no national, regional and or local guidelines that exist for test taking anxiety. Research identifies three legal issues raised by the inclusion of test anxiety under ADA stressors, including whether test anxiety is a mental impairment, whether test-taking is a major life activity, and whether test anxiety substantially limits test-taking.

Chapter 3: Methodology and Implementation

Study Design

Test anxiety is described as the uneasiness, apprehension, or nervousness felt by students during examinations or tests. This capstone was implemented to gain an understanding of test taking anxiety and its impact on students, and to subsequently provide students with strategies that will help with coping to lead to better academic performances. The study design for this capstone is a quantitative research approach that utilized a survey research design for the collection of data. Students who volunteered to participant in this capstone project will be administered the Westside Test Anxiety Scale. The scale is a brief screening instrument meant to identify students with anxiety impairments. Research on this tool indicates that this survey instrument is brief and easily administered, is seen to be a reliable and valid measure, and generally is recommended because it is considered to be an appropriate screen for test-anxiety impairments. This capstone utilized a convenience sampling method, implemented to gather a varied pool of respondents. This sampling method was chosen due to accessibility and availability to the student.

Clear objectives and measurable outcome

As described in the objectives section, this capstone aims to assess overall test anxiety among students and to assess the differences in test anxiety in terms of gender among students. To evaluate anxiety, the Westside Test Anxiety Scale (originally developed by Richard Driscoll) will be administered to undergraduate and graduate students. The Westside Test Anxiety Scale is a brief, ten item instrument designed to identify students with anxiety impairments who could benefit from an anxiety- reduction intervention. Given the nature of this instrument and goal of this project, this scale is utilized specifically for this project to identify reliable and valid

interventions for successful academic performance amongst students. Each instrument item has 5

alternatives varying from the response "extremely or always true" to "not at all or never true".

Each response carries a score of '5', '4', '3', '2', and '1'respectively. To score, the scale sum of

the 10 questions is divided by 10. Higher overall scores will reflect more test anxiety.

Objectives/Measurable Outcomes

The objectives of this capstone project are to assess overall test anxiety among students and

assess gender differences (if any) in overall test anxiety among students. The data will be

analyzed by use of a Statistical Package for Social Sciences (SPSS). Descriptive analyses will be

conducted in order to analyze the data. Analysis of measures of frequency and measures of

variation will be conducted to analyze the survey data.

Project Plan

The purpose of this capstone is to gain an understanding of students' test taking anxiety

and its impact on undergraduate students and to provide students with strategies that will help

with coping to lead to better academic performances. Permission to conduct this capstone was

obtained from the Dominican University institutional review board for the protection of human

subjects (IRB). Permission to utilize The Westside Test Anxiety Scale Towards was requested

and granted. The goals of this capstone, the project plan is to administer a brief anxiety scale

survey to students and disseminate a written document of test taking strategies and tips after

students completed the survey. The Westside Test Anxiety Scale was available and administered

to students to complete.

Prior to completing the questionnaire, students were briefed about the purpose of the

capstone and assured that their responses would be confidential. All students were informed that

they were not obligated to participate in the capstone, and if they wished to participate, their

responses would not impact any of their coursework or academic standing. To gather a

representative population of survey respondents, students were invited to participate in the

capstone by completing the self-administered questionnaire. The researcher administered surveys

in an area on campus that was regularly populated with students. Upon completion of the

questionnaire, students were given a list of test-taking tips and strategies for them to review and

implement individually. Statistical Package for the Social Sciences (SPSS) was used to analyze

the data in this capstone.

Sample / Sampling

The target population for this capstone is college students enrolled at a small private

university located in New York. All students enrolled at the University were eligible to

participate in the capstone. The total student census at the University at the time of the capstone

was provided by the college's detailed public website. The total enrollment was 1,868 students,

with 79% being full-time and 21% having part-time status, 74 % pursuing an undergraduate

degree, 26 % pursuing a graduate degree, 69 % female, and 31% male students (Dominican

University, 2023). All students participating in this capstone indicated a willingness to participate

in the capstone. This capstone utilized a convenience sampling method. This sampling method

involves getting participants wherever you can find them and typically wherever is convenient.

In convenience sampling, no inclusion criteria were identified prior to the selection of

subjects. Each student in the capstone project provided verbal consent.

Organization / Setting

The activities for this project were conducted at a small private university in Orangeburg,

New York. It is chartered by the Board of Regents of the University of the State of New York and

accredited by the Middle States Commission on Higher Education. The 64-acre suburban campus

in Orangeburg is 17 miles from New York City in Rockland County. Dominican University has committed to building its programs upon a strong foundation in the liberal arts and sciences; the University maintains a student-centered climate and serves a diverse community of students in undergraduate and graduate programs. The University empowers this community of learners to excel, lead and serve with integrity and to engage responsibly in the pursuit of a more just, ethical, and sustainable world (Dominican University, 2023).

Data Collection / Data privacy

The DNP student administered the Westside Test Anxiety Scale (WTAS) survey to students on campus during the 2022 spring semester. Surveys were completed and obtained on a voluntary basis, and completed surveys were placed in a closed folder for privacy. The student administered the survey consecutively over a four-week span at the college during peak hours of student activity and visibility. All data was manually tallied off-campus after all 300 participants submitted their surveys. Students did not have to provide key identifying information. The data collected was accessible only by the researcher.

Key Personnel

The identified key personnel who will facilitate this capstone project includes the DNP student and participating students. The DNP student will administer the surveys and will store all appropriate documents related to this project.

IRB

An IRB application was submitted to Dominican College. This project received approval from the Dominican College institutional review board for the protection of human subjects (IRB). Approval for exemption was obtained from the committee. The IRB approval can be

found in the appendix. Permission was granted to conduct the capstone and to analyze student's responses to the survey. No identifying information was available in the capstone.

Evaluation/ Analysis of Data

The Westside Test Anxiety Scale survey was used, with permission from Richard Driscoll. This is a 10-item survey where students complete a brief instrument designed to identify students with anxiety impairments who could benefit from an anxiety-reduction intervention. The scale items cover self-assessed anxiety impairment and cognitions that can impair performance (Driscoll, 2007). The scale is constructed to measure anxiety impairments, with most items asking directly about performance impairment or about worrying, which interferes with concentration. Symptoms of physiological stress are found to be relatively weak indicators of performance impairments, and are not included in the scale. The Westside Scale is found to be a valid measure of anxiety impairment. Demographic questions were embedded in the survey administration process to gather general demographic information. Students were asked to self-report their age, gender, and classification.

Risk/ Benefit analysis potential barriers

Based on the goal of this project and proposed implementation activities, this capstone is minimal risk. There were no site-specific barriers to the capstone. The benefits of the capstone are to increase students' use of test taking strategies in an effort to assist them with preparing for exams and evaluations, with the hope of reducing test taking anxiety.

Ethical Implications

There will be no identifying information given or shared with anyone outside of the student researcher who is the sole individual administering and collecting surveys. No act of coercion or persuasion will be demonstrated in asking participants to complete the survey as part of the

capstone. Informed verbal consent will be provided by participants. The principle of

nonmaleficence holds that there is an obligation not to inflict harm on others, and there is no

anticipated harm that will be inflicted on students who agree to participate in the capstone.

Timeframe

The data collection for this capstone was conducted during a 4-week timeframe during the

Spring 2022 semester at Dominican University.

Budget

There were no costs to the organization associated with this capstone. The responsibilities tasked

on the DNP student conducting the survey were administrative tasks, including printing the

questionnaires and handouts at the college campus.

Chapter 4: Outcomes and Evaluation

Introduction

The current chapter highlights the outcomes and evaluation of this capstone project. This capstone aimed to gain an understanding of test anxiety by assessing for test anxiety amongst students, and it provided students with strategies that will help with coping to lead to better academic performances (the strategies that were disseminated can be found in the appendix). Given the impact that test anxiety and stress play on academic performance and self-efficacy, this capstone was particularly important to aide in understanding students' physical and emotional needs.

All procedures and measures were approved by the University's Institutional Review Board. Students were informed that their participation in the capstone was completely voluntary and would not affect their current studies or anything related to their academics. Students were administered the Westside Test Anxiety Scale. The scale items cover self-assessed anxiety impairment and cognitions which can impair performance (Driscoll, 2007). Students were recruited on-site at Dominican University in an area where the researcher anticipated a large volume of students to frequent regularly, which aided in the convenience sampling method used for this capstone. Participation in the survey was voluntary, and students had the option to stop taking the survey at any time. Following students' completion of the survey, the researcher provided each student with a list of test-taking strategies that could be implemented prior to taking exams.

Outcomes/Results

The capstone involves primary data collected over a 4-week survey administration period. Using a convenience sampling method, a total of 300 Dominican University students participated in

this capstone. Data were analyzed in SPSS. Findings related to students' demographic

characteristics are detailed below in Table 1.

Table 1

Students' Demographics

Variable	N	Percentage
Gender		
Female	171	57%
Male	129	43%
Status		
Full-Time	266	89%
Part-Time	34	11%
School Year		
Freshman	74	25%
Sophomore	71	24%
Junior	57	19%
Senior	63	21%
Graduate	35	12%
Age Group		
17-23	257	86%
24-30	28	9%
31-39	13	4%
40+	2	1%

As shown in Table 1., slightly more than half (57%) of survey respondents self-identified as

female, and forty three percent self-identified as male. The majority of respondents (89%)

enrolled at Dominican were full-time, and only 11% percent were part-time students. The

majority of students (86%) ages ranged from 17-23 years old, 9% were 24-30 years old, 4% were

31-39 years old, and a very small percentage (1%) were 40+ years old. There was slight variation

across students' school year. The findings related to mean total test anxiety scale scores and

standard deviation values are shown in Table 2.

Table 2

Overall mean total test anxiety scale scores and standard deviation values

Test Anxiety Scale	N	Minimum	Maximum	Mean	Std. Deviation
	300	1.00	5.00	3.30	0.75

To analyze anxiety scores, the researcher added students' scores for all 10 questions and divided the total by 10. Based on the mean score provided above, students' levels of test anxiety were moderately high, indicating that students could benefit from anxiety reduction training. Total anxiety scores by gender were analyzed to see if there were any differences in anxiety levels by gender. The findings related to mean total test anxiety scale scores and standard deviation values by gender are shown in Table 3.

Table 3

Mean total test anxiety scale scores and standard deviation values by gender

Test Anxiety Scale	Gender	N	Minimum	Maximum	Mean	Std. Deviation
	Female	171	1.70	5.00	3.34	0.73
	Male	120	1.00	5.00	3.22	0.76

Based on the mean scores provided above, both male and female students' levels of test anxiety were moderately high, though slightly higher for female students than male students.

Another component of this capstone was the distribution of test taking strategies and tips. After students completed the survey, they were provided with a list of test preparation & test taking strategies that could be implemented before, during, and after an exam. For review of the test tips and strategies, see Appendix C.

Actual or Potential Impact

The use of test taking strategies to target test taking anxiety has the potential to improve the quality of life (i.e., mental health) and performance on exams and under evaluative circumstances. As evidenced in this capstone project, various types of strategies may be key in addressing anxiety and social phobias.

PRODUCT

This capstone project did not produce any physical products.

Chapter 5: Summary (Conclusions, Recommendations for Future Action)

Summary

In this capstone, the DNP student sought to examine students' test taking anxiety scores, and provide students with test taking strategies for future implementation. The analysis of 300 interviews revealed student's anxiety levels on a scale from 1-5. The scale is constructed to measure anxiety impairments, with most items asking about performance impairment or worrying, which interferes with concentration (Doorway to College, 2023). Overall findings from the capstone data reveal that student's levels of anxiety were moderately high. Findings also show that students' levels of test anxiety by gender were also moderately high, however slightly higher for females than males.

Limitations and Strengths

This capstone had several limitations. As described, the Westside Test Anxiety Scale is a brief, ten item instrument designed to identify students with anxiety impairments who could benefit from an anxiety reduction intervention. Survey data relied on students' self-reports of their feelings to the questions from extremely or always true to not at all or never true. The survey instrument was brief and was not course specific. For example, one of the scale questions was "After an exam, I worry about whether I did well enough". Responding to this type of question may yield various results, if the type of course was provided. A respondent could have potentially responded differently to this question depending on the subject matter that they were responding to. This sale was brief and broad, and does not account for test anxiety that could be subject specific, and not a representation of a students' overall feeling of test taking. However, while this survey was brief, it allowed for a decent sample size. Oftentimes, when asking individuals at random to complete a survey, it is difficult to expect them to offer a good chunk of

time without providing an incentive for their participation. With this survey, since the scale only

consisted of 10 items, students potentially were more likely to complete the survey because it did

not take up too much of their time.

Another limitation of this capstone is that the generalizability of this capstone might be

limited by the use of self-reported questionnaire. Future research might need to consider multiple

data collection methods or a mixed methods approach to complement the quantitative data as a

way to gain more insight into students' test anxiety.

Recommendations, Implications and Conclusions

In this capstone, very limited demographic data was gathered. The only demographic

information that was provided by students were age and gender. For future studies, it would be

useful to examine test taking anxiety related to race as this is important if viewing from a cultural

competency lens. Examining what test-taking anxiety "looks like" for students from different

racial backgrounds will help create an understanding of how and why anxiety varies for students

who hold different identities. Findings from this capstone have implications for developing

programs or interventions to enhance performance in students who experience anxiety and worry

in testing situations.

Literature Review and Conclusion

As evidenced in the literature presented in this capstone project, test anxiety undeniably

plays an important role in students' performance (DordiNejad et al., 2011). Anxiety or worries

about exam is a cognitive component that shows the negative thoughts that can interfere with the

performance of students (Ariani & Susilo, 2018). The results of this capstone revealed that the

levels of anxiety amongst this population of students was moderately high, indicating that

students would benefit from anxiety reduction training and the implementation of test taking

strategies. These findings are consistent with findings from other evidence-based studies. Similar to this capstone, research by Nawaz et al., (2021) investigated impact of test anxiety and mindfulness on academic performance among university students. Findings from that study showed that there is a significant relationship between test anxiety, mindfulness and academic performance among students, and there are differences in test anxiety, mindfulness and academic performance in terms of gender (Nawaz et al., 2021). The study found that males have more test anxiety than females and females are high at mindfulness as compare to male, and less differences are found in academic performance among male and female students (Nawaz et al., 2021). While this study was more in depth than this capstone, unlike the current findings, Nawaz et al., (2021) found that males have more test anxiety than females.

Another study by Researchers Hamzah et al., (2018) analyzed past literature on test anxiety to identify mind- body interventions for students' facing test anxiety among first year university students. Seventy articles were found following a database search; these articles dated back to 1961 to 2017. The review of literature in this study found that test anxiety is common among students the academicians and educationalists in the universities should have awareness about negative and positive aspects of this test anxiety that can impact students' performance (Hamzah et al., 2018). Based on the findings of the research articles, it was suggested that that practicing mind-body interventional programs in the university to promote overall health and wellbeing among student population (Hamzah et al., 2018).

In summary, findings from this capstone reveal test taking levels for undergraduate and graduate students enrolled in university. These findings highlight the importance of anxiety reduction training and providing students with the appropriate strategies to put them on a path towards academic success and emotional well-being.

AACN Essentials of Doctoral Education for Advanced Practice Nursing

This capstone project meets the following AACN Essentials: I: Scientific Underpinnings for Practice, III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice, and Essential VIII: Advanced Nursing Practice. This capstone project contributes to the body of the literature on test anxiety assessments. As a DNP student systems leadership is critical to improve patient healthcare outcomes, and it is crucial to promote patient safety and excellence in practice. This project highlights the linkages between that can manifest in different ways and impacts individuals physical, emotional and social well-being. It is critical to have an understanding of the ways in which anxiety stemming from evaluative situations can impact the totality of a patient. This understanding and insight will lead to improved quality of care for patient populations. While test anxiety and its impact are explored throughout literature, this capstone project further contributes to the importance of the application of strategies and methods to combat anxiety along with the overall evaluation of anxiety.

Role of DNP in Capstone

As described in the AACN Essentials of Doctoral Education for Advanced Practice Nursing, nursing practice is characterized by the discovery of new phenomena and the application of new discoveries in increasingly complex practice situations. The role of the DNP in this capstone project is the emphasis on the implementation of a project that is based on evidence-based literature findings. The DNP identified test anxiety, a form of social phobia, as the focal point for this project. The DNP reviewed existing literature and identified the ways in which test anxiety manifests across individuals. With a centered approach on quality care, the DNP administered a validated anxiety instrument to students and provided students with test taking strategies.

References

Adesola, S. A., & Li, Y. (2018). The relationship between self-regulation, self-efficacy, test

    anxiety and motivation. International Journal of Information and Education

    Technology, 8(10), 759-763.

Ahmad, N., Hussain, S., & Khan, F. N. (2018). Test anxiety: Gender and academic achievements

    of university students. *Journal of postgraduate medical institute*, *32*(3).

Ariani, D. W., & Susilo, Y. S. (2018). Why do it later? Goal orientation, self-efficacy, test

    anxiety, on procrastination. Journal of Educational, Cultural and Psychological Studies

    (ECPS Journal), (17), 45-73.

Bandura, A., Freeman, W. H., & Lightsey, R. (1999). Self-efficacy: The exercise of control.

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S.

    (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of

    college students. *Journal of affective disorders*, *173*, 90-96.

Bolbolian, M., Asgari, S., Sefidi, F., & Zadeh, A. S. (2021). The relationship between test

    anxiety and academic procrastination among the dental students. *Journal of Education

    and Health Promotion*, *10*.

Bonefont, V., Carbino, B., & Zakerzadeh, R. (2022). Addressing test anxiety using game-based

    assessment. *Biomedical Engineering Education*, *2*(2), 319-330.

Carveth, J. A., Gesse, T., & Moss, N. (1996). Survival strategies for nurse-midwifery

    students. *Journal of Nurse-Midwifery*, *41*(1), 50-54.

Cleveland Clinic. Social Anxiety Disorder (Social Phobia).

    https://my.clevelandclinic.org/health/diseases/22709-social-

anxiety#:~:text=Social%20anxiety%20disorder%20(formerly%20known,and%2For%20

watched%20by%20others.

Dawood Nawaz, D. U. K., Aqdas, R., Shahzadi, M., & Iqbal, S. (2021). Impact of test anxiety

and mindfulness on academic performance among university students. Psychology and

Education, 58(2), 10662-10673.

Dodeen, H. (2015). Teaching test-taking strategies: importance and techniques. Psychology

Research, 5 (2), 108– 113.

Doorway to College Foundation. (n.d.). *Westside Test Anxiety Scale.*

https://www.doorwaytocollege.com/westside-test-anxiety-

scale#:~:text=The%20scale%20is%20constructed%20to,not%20included%20in%20the%

20scale

.DordiNejad, F. G., Hakimi, H., Ashouri, M., Dehghani, M., Zeinali, Z., Daghighi, M. S., &

Bahrami, N. (2011). On the relationship between test anxiety and academic

performance. *Procedia-Social and Behavioral Sciences*, *15*, 3774-3778.

Driscoll, R. (2007). Westside Test Anxiety Scale validation. *Online submission*.

Duraku, Z. H. (2014). Class Size, teaching quality and students' level of satisfaction with their

academic performance. *International Journal of Teaching and Education*, *2*(2), 39.

Hamzah, F., Mat, K. C., Bhagat, V., & Mahyiddin, N. S. (2018). Test anxiety and its impact on

first year university students and the over view of mind and body intervention to enhance

coping skills in facing exams. *Research Journal of Pharmacy and Technology*, *11*(6),

2220-2228.

Huntley, C., Young, B., Tudur Smith, C., Jha, V., & Fisher, P. (2022). Testing times: the

    association of intolerance of uncertainty and metacognitive beliefs to test anxiety in

    college students. *BMC psychology*, *10*, 1-7.

Kolagari, S., Modanloo, M., Rahmati, R., Sabzi, Z., & Ataee, A. J. (2018). The effect of

    computer-based tests on nursing students' test anxiety: A quasi-experimental study. *Acta*

    Informatica Medica, *26*(2), 115.

Kordzanganeh, Z., Bakhtiarpour, S., Hafezi, F., & Dashtbozorgi, Z. (2021). The relationship

    between time management and academic burnout with the mediating role of test anxiety

    and self-efficacy beliefs among university students. *Journal of Medical Education*, *20*(1).

Maier, A., Schaitz, C., Kröner, J., Berger, A., Keller, F., Beschoner, P., ... & Sosic-Vasic, Z.

    (2021). The association between test anxiety, self-efficacy, and mental images among

    university students: Results from an online survey. *Frontiers in psychiatry*, *12*, 618108.

McDonald, A. S. (2001). The prevalence and effects of test anxiety in school

    children. *Educational psychology*, *21*(1), 89-101.

Schunk, D. H., & DiBenedetto, M. K. (2021). Self-efficacy and human motivation. In *Advances*

    in motivation science (Vol. 8, pp. 153-179). Elsevier.

Schunk, D. H., & Usher, E. L. (2012). Social cognitive theory and motivation. The Oxford

    handbook of human motivation, 2, 11-26.

Talwar, P. (2019). Reliability and factor structure of the Westside test anxiety scale among

    university students. *Online Journal of Health and Allied Sciences*, *18*(3).

Thomas, C. L., Cassady, J. C., & Heller, M. L. (2017). The influence of emotional intelligence,

    cognitive test anxiety, and coping strategies on undergraduate academic

    performance. *Learning and Individual Differences*, *55*, 40-48.

Von der Embse, N., Jester, D., Roy, D., & Post, J. (2018). Test anxiety effects, predictors, and

      correlates: A 30-year meta-analytic review. Journal of affective disorders, 227, 483-493.

Yang, Y., & Yang, P. (2022). Effect of College Students' Academic Stress on Anxiety Under the

      Background of the Normalization of COVID-19 Pandemic: The Mediating and

      Moderating Effects of Psychological Capital. *Frontiers in psychology*, *13*, 880179.

      https://doi.org/10.3389/fpsyg.2022.880179

Appendix

Appendix A: IRB Approval letter

DOMINICAN College

March 1, 2022

Tracey Dinac
Dominican College
470 Western Highway
Orangeburg, NY 10962

Dear Researcher,

The Institutional Review Board (IRB) has reviewed and approved your Exempt application entitled "Interventions to Address Test Taking Anxiety in Undergraduate and Graduate College Students." IRB # 2022-0301-01.

Please note that the IRB must be informed in writing of:

1. Any modifications to the research project (this may require further IRB review);
2. Implementation of your project if it extends beyond a time period of one year.

Please bear in mind that you must retain your research records for a minimum of three years. If you have any questions, please do not hesitate to contact me. I wish you success in your research endeavors.

Sincerely,

Kelly M. Johnson

Kelly M. Johnson, PhD
Chair, Institutional Review Board

Appendix B: Westside Test Anxiety Scale

<div align="center">

Westside Test Anxiety Scale

</div>

Rate how true each of the following is of you, from <u>extremely or always </u>true, to <u>not at all or never </u>true. Use the following 5-point scale. Circle your answer:

5	4	3	2	1
extremely always true	highly usually true	moderately sometimes true	slightly seldom true	not at all never true

__ 1) The closer I am to a major exam, the harder it is for me to concentrate on the material.

             5   4   3   2   1

__ 2) When I study, I worry that I will not remember the material on the exam.

             5   4   3   2   1

__ 3) During important exams, I think that I am doing awful or that I may fail.

             5   4   3   2   1

__ 4) I lose focus on important exams, and I cannot remember material that I knew before the

    exam.

             5   4   3   2   1

__ 5) I finally remember the answer to exam questions after the exam is already over.

             5   4   3   2   1

__ 6) I worry so much before a major exam that I am too worn out to do my best on the exam.

             5   4   3   2   1

__ 7) I feel out of sorts or not really myself when I take important exams.

             5   4   3   2   1

__ 8) I find that my mind sometimes wanders when I am taking important exams.

             5   4   3   2   1

__ 9) After an exam, I worry about whether I did well enough.

                     5   4   3   2   1

__ 10) I struggle with writing assignments, or avoid them as long as I can. I feel that whatever I

    do will not be good enough.

                     5   4   3   2   1

_____ Sum of the 10 questions < _____ > Divide the sum by 10. This is your Test Anxiety score.

Name _____ phone _____ email _____

© 2004 by Richard Driscoll, Ph.D. You have permission to copy this scale.

Please include author and web address: testanxietycontrol.com/

What does your score mean?

< _____ > Test Anxiety score (from Front).

What does your test anxiety score mean?:
1.0—1.9 Comfortably low test anxiety

2.0—2.5 Normal or average test anxiety

2.5—2.9 High normal test anxiety

3.0—3.4 Moderately high (some items rated 4=high)

3.5—3.9 High test anxiety (half or more of the items rated 4=high)

4.0—5.0 Extremely high anxiety (items rated 4=high and 5=extreme)

Recommendations.
We have found that students who score at least 3.0 or more on our scale (at least moderately high anxiety) tend to benefit from anxiety reduction training, reporting lower anxiety and improved test scores and class grades.
    We recommend a test-anxiety control training. See: TestAnxietyControl.com

Rationale.
The Westside scale picks up performance impairment and intrusive worry:

Impairment (memory loss and poor cognitive processing) — Items #1, 4, 5, 6, 8, 10
Worry (catastrophizing) — Items #2, 3, 7, 9
Physiological symptoms — no items.

The scale is constructed to measure anxiety impairments, with most items asking directly about performance impairment or about worrying, which interferes with concentration. Symptoms of physiological stress are found to be relatively weak indicators of performance impairments, and are not included in the scale.
The Westside Scale is found to be a valid measure of anxiety impairment.

See validation research at: TestAnxietyControl.com/research/

See American Test Anxieties Association: www.amtaa.org for further information on test anxieties.

Appendix C: Test taking tips and strategies