Spring 5-2016

Test Anxiety and Academic Procrastination Among Pre-licensure Nursing Students

Nicole R. Custer

TEST ANXIETY AND ACADEMIC PROCRASTINATION AMONG PRE-LICENSURE NURSING STUDENTS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Philosophy

Nicole R. Custer

Indiana University of Pennsylvania

May 2016

Indiana University of Pennsylvania
School of Graduate Studies and Research
Department of Nursing and Allied Health Professions

We hereby approve the dissertation of

Nicole R. Custer

Candidate for the degree of Doctor of Philosophy

_____ _____
Kristy Chunta, Ph.D.
Associate Professor of Nursing and Allied Health Professions, Chair

_____ _____
Michele Gerwick, Ph.D.
Professor of Nursing and Allied Health Professions

_____ _____
Riah Hoffman, Ph.D.
Assistant Professor of Nursing and Allied Health Professions

ACCEPTED

_____ _____
Randy L. Martin, Ph.D.
Dean
School of Graduate Studies and Research

Title: Test Anxiety and Academic Procrastination Among Pre-licensure Nursing Students

Author: Nicole R. Custer

Dissertation Chair: Dr. Kristy Chunta

Dissertation Committee Members: Dr. Michelle Gerwick
Dr. Riah Hoffman

Test anxiety in nursing education remains a growing concern among nurse educators. Test anxiety acts as a factor that may cause nursing students to cope poorly with strenuous academic demands, resulting in lower academic performance levels, high attrition rates, and possibly failures on the NCLEX-RN®. Test-anxious nursing students may engage in avoidance behaviors, such as academic procrastination, as a coping mechanism. Understanding the nature of the relationship between test anxiety and academic procrastination among nursing students may assist nurse educators in identifying and augmenting test-anxious students' time management, academic study habits, and academic preparatory skills.

The purpose of this study was to describe the relationship among test anxiety and academic procrastination among pre-licensure nursing students, determine the frequency of test anxiety and academic procrastination among undergraduate nursing program types, and identify factors that may predict academic procrastination. This research study utilized a quantitative descriptive correlational design. The Test Anxiety Inventory (TAI) and the Procrastination Assessment Scale for Students (PASS) were administered to a convenience sample of 202 pre-licensure nursing students from diploma, associate, and baccalaureate nursing programs in southwestern Pennsylvania. Descriptive statistics, Pearson's product-moment correlation, analysis of variance, and multiple regression were performed to examine the research variables of test anxiety, academic procrastination, and nursing education program type.

The study results identified a statistically significant moderate correlation between test anxiety and academic procrastination among pre-licensure students, and that associate degree nursing students experienced significantly higher levels of test anxiety than those enrolled in diploma and baccalaureate nursing programs. Additionally, this study's results indicated that the majority of pre-licensure nursing students report procrastinating most on keeping up with weekly reading assignments, followed by writing term papers, and studying; however, nursing students with higher self-reported GPAs tended to procrastinate less on academic tasks.

This study's findings provide insight on the relationship of test anxiety and academic procrastination among pre-licensure nursing students across nursing education program types. The implications of this study may be used to aid nurse educators in the development and implementation of strategies to identify and decrease test anxiety and academic procrastination among pre-licensure nursing students.

ACKNOWLEDGEMENTS

There are several people without whom this dissertation would not have been written and to whom I am greatly thankful.

To my chair, Dr. Kristy Chunta, thank you for your thoughtful and prompt feedback and reviews of my work. Thank you for being a role model for me since I was an associate degree nursing student quite a few years ago. Words cannot express my gratitude to you for guiding me through this doctoral program and the dissertation process. To my committee members Dr. Riah Hoffman and Dr. Michele Gerwick, I know your time is precious and I appreciate your attention to detail and insightful feedback on my work. Your expertise was crucial to my success.

To my cohort friends Amy, Brenda, and Taylor, and my good friend Joan, getting through this doctoral program is largely due to you - your advice and support was what inspired me to press on. This dissertation is the culmination of four years of coursework that I could never have completed without each of you who were going through the process right along with me. From exchanging ideas to chatting about course loads and teaching strategies, without you this would have been a very lonely process.

To my husband Greg, your support, patience, and confidence in me is what kept me moving forward. There aren't enough words to express how much your belief in my success means to me. To my son Collin, thank you for understanding all the times you had to hear, "not right now I have to work." I can't wait to spend more time with you and your future baby sister who will make her appearance very soon. To my parents Lou and Diane, you never doubted me, thank you for that. I would never have been completed this doctoral program without the support of all of my loving family members. This dissertation is dedicated to each of you.

TABLE OF CONTENTS

Chapter Page

Chapter Page

Chapter Page

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

Anxiety is an emotion characterized by feelings of tension, worried thoughts, and physical changes such as increased blood pressure and heart rate, trembling, and profuse sweating (Afolayan, Donald, Onasoga, Babefemi, & Juan, 2013; Borkovec, Alcaine, & Behar, 2004; Carraway 1987; Waltman 1997). Anxiety is often associated with preparing for future danger with cautious or avoidant behaviors, and is considered a normal response to stress (Afolayan et al., 2013). An optimal level of anxiety is necessary to best complete a task such as an examination, perform an act or compete in an event (Borkovec et al., 2004). Conversely, when the amount of anxiety exceeds the optimal level, the result is often a decline in performance resulting in failure to complete the required obligation. Individuals with anxiety disorders frequently have recurring intrusive thoughts and may avoid certain situations out of worry. On many occasions the level of fear or anxiety is reduced by pervasive avoidance behaviors, such as procrastination (Afolayan, et al., 2013; Borkovec et al., 2004; Solomon & Rothblum, 1984).

Test anxiety is a form of performance anxiety that affects a student's ability to prepare for and take an examination (Poorman, Mastorovich, Molcan, & Liberto, 2011; Waltman, 1997). While stress and test anxiety are increased among the general college population as well as within the nursing student population (Brewer, 2002), research demonstrates that nursing students experience higher levels of test anxiety than students in other fields (Beck, Hackett, Srivastava, McKim, & Rockwell, 1997; Brewer, 2002; Driscoll, Evans, Ramsey, & Wheeler, 2009; Edelman & Ficorelli, 2005). Furthermore, a large number of nursing students report increased levels of stress during their nursing education programs (Beck, et al., 1997; Sharif & Armitage, 2004).

A possible explanation for nursing students' increased stress may be that they are under considerable pressure to meet multiple classroom and clinical requirements, many of which impact patient care. For example, students who perform poorly on a written medication administration exam may be nervous to administer medications on the clinical unit, thus increasing the risk of a medication error. Nursing students also report fear of failing exams, courses, and clinical experiences as a source of increased stress (Kieffer & Reese, 2009; Waltman, 1997). Written examinations, standardized examinations, and psychomotor skill testing constitute a large evaluative component of nursing education programs. Therefore, a potentially stressful time for nursing students occurs during written examinations (Edelman & Ficorelli, 2005). Nursing students tend to perceive that one poor examination grade may cause them to fail a course or even jeopardize their nursing career (Carraway, 1987; Driscoll, et al., 2009; McDonald, 2014; Poorman & Webb, 2000). Consequently, research demonstrates that individuals routinely engage in cognitive avoidance when a situation is perceived as anxiety-provoking or stressful (Borkovec et al., 2004). Thus, nursing students with test anxiety may procrastinate in preparing for examinations, which may ultimately result in poor performance in nursing courses or possibly on the NCLEX-RN® examination.

This chapter will discuss testing in nursing education and describe the background of test anxiety and academic procrastination, as well as the problem and purpose of this research. An overview of the conceptual framework that guides this study will be discussed. Additionally, the research questions, delimitations of the study, and definitions of key terms are presented. This chapter concludes with assumptions and significance of this study.

Background

This section will review the background information on testing in nursing education. An overview of the research variables of test anxiety and academic procrastination within the current study will also be presented.

Testing in Nursing Education

Testing in nursing education proves different than that of other disciplines (Carraway, 1987; Waltman, 1997), and is often reported as stressful by a majority of nursing students. Nursing examinations aim to assess the students' ability to make clinical decisions that impact patients (Poorman, et al., 2011). Nursing students must know information, but more importantly must possess that ability to apply that information in clinical practice. At the present time in nursing education, a nursing examination may consist of some root memory tasks, but the majority of the questions require higher level thinking such as comprehension, application, and analysis of previously learned material (McDonald, 2014). For example, exams in nursing education often test multiple concepts with a strong emphasis on application, analytical skills, and critical thinking in the clinical setting. As such, recall of memorized facts is not sufficient for the student nurse to pass a nursing test (Carraway, 1987; McDonald, 2014).

Due to the vast amount of material taught in pre-licensure nursing education programs nursing students often report aggravation in trying to determine what will be on the test and how to best prepare for it (Diekelmann, 1997). Nursing students often report spending more time trying to figure out what will be on the test than engaging in effective study behaviors (Diekelmann, 1997; Poorman et al., 2011). Additionally, nursing students tend to place a great value on their test scores, as it may be indicative to them of their ability to perform safe and competent nursing care. Often, nursing students perceive that even one poor test score will result

in negative consequences, such as course or program failure. Students may even go as far as considering the score on an exam their identity (Poorman & Webb, 2000).

Test Anxiety

Test anxiety is an increasing phenomenon which peaks in higher education (Chappell et al., 2005; Driscoll et al., 2009; Sharif & Armitage, 2004). When students are overly anxious during a test they cannot perform to their maximum ability (Morris, Davis, & Hutchings, 1981; McDonald, 2014). As mentioned previously, a high level of anxiety may disrupt examination performance and decrease academic performance. Test anxiety can manifest not only during examinations, but during the preparatory period as well (Markman, Balik, Braunstain-Bercovitz, & Ehenfeld, 2010) and has been demonstrated to disturb recall of prior learning (Hembree, 1988). Test anxiety has also been related to students' lack of study skills and preparation and has been conceptualized as a condition-specific trait which manifests during evaluative situations (Zeidner, 1998).

Since the 1970s there has been widespread acceptance that test anxiety consists of two separate components, worry and emotionality. Worry is the cognitive component of test anxiety that leads to debilitating thoughts that interfere with task-focused thinking (Bonaccio, Reeve, & Winford, 2012; Sarason, 1984). Emotionality refers to the physical manifestations of test anxiety such as muscle tension, heart palpitations, sweating, and feeling faint (Poorman et al., 2011). With regard to test anxiety, worry comprises individuals' cognitive reactions to evaluative situations in the times prior to, during, and after evaluative tasks. Individuals dealing with high levels of worry have thoughts that center on comparing one's performance to that of others, ruminating the consequences of failure, low levels of self-confidence, excessive worry over evaluation, and feeling unprepared for tests (Deffenbacher, 1978; Hembree, 1988; Morris et al.,

1981). Research has demonstrated that worry is the anxiety component most consistently and most strongly inversely related to academic performance (Morris et al., 1981).

Academic Procrastination

Simply stated, academic procrastination is willfully delaying the beginning or completion of an academic task (Rabin, Fogel, & Nutter-Upham, 2011; Solomon & Rothblum, 1984). Research indicates that an overwhelming majority of college students procrastinate on a regular basis (Rabin, Fogel, & Nutter-Upham, 2011; Solomon & Rothblum 1984). Academic procrastination acts as an impediment to students' success as it has been shown to decrease the quality of learning while increasing anxiety. Research findings suggest that academic procrastination is related to lower levels of self-efficacy and associated with higher levels of anxiety (Hen & Goroshit, 2012). Test anxiety is often present during the preparatory period (Markman et al., 2010) prior to an examination, and may cause feelings of frustration, fear, and apprehension (Edelman & Ficorelli, 2005). Due to these unpleasant feelings, nursing students may employ avoidance behaviors in an effort to decrease anxiety in preparing for examinations (Poorman et al., 2011). This study focused solely on academic procrastination and not address procrastination in other areas of daily life.

Statement of the Problem

Test anxiety in nursing education remains a growing concern (Afolayan et al., 2013; Driscoll et al., 2009; Goff, 2011; Markman et al., 2011; Sharif & Armitage, 2004; Wedgeworth, 2013). Test anxiety acts as a factor that may cause nursing students to cope poorly with strenuous academic demands, resulting in lower academic performance levels, high attrition rates, and possibly failures on the NCLEX-RN® (Poorman & Martin, 1991; Waltman, 1997). While much research has been performed on treating nursing students' test anxiety with

specified treatments or interventions such as aromatherapy, biofeedback, finger-tapping, guided reflection, hypnotherapy, and pet therapy (Johnson, 2013; Prato & Yucha, 2013; Young, 2012), there has been no research on the relationship between test anxiety and academic procrastination.

Test-anxious nursing students may use avoidance behaviors, such as academic procrastination, as a coping mechanism (Poorman et al., 2011). Therefore, nurse educators may inquire if test-anxious nursing students report academically procrastinating or conversely, if nursing students who academically procrastinate report increased test anxiety. Presently, no research examining the relationship of test anxiety and academic procrastination among pre-licensure nursing students exists. Understanding the nature of the relationship between test anxiety and academic procrastination among nursing students will assist nurse educators in identifying and augmenting test-anxious students' time management, academic study habits, and academic preparatory skills.

Purpose

The purpose of this study was to describe the relationship among test anxiety and academic procrastination among pre-licensure nursing students as well as to determine the frequency of test anxiety and academic procrastination among undergraduate nursing program types. A cross-sectional, descriptive correlational quantitative design was be used for this research. According to Polit and Beck (2012), this research design is appropriate for describing relationships among variables.

Research Questions

This study aimed to answer the following research questions.

1. What is the relationship between test anxiety and academic procrastination among pre-licensure nursing students?

2. What is the relationship between test anxiety and nursing education program type (diploma, associate, or baccalaureate)?
3. What is the relationship between academic procrastination and nursing education program type (diploma, associate, or baccalaureate)?
4. What factors influence pre-licensure nursing students' academic procrastination?
5. What academic tasks do pre-licensure nursing students most frequently procrastinate upon?

Conceptual Framework

As test anxiety is comprised of two components, worry and emotionality, the cognitive avoidance theory of worry (Borkovec et al., 2004) was selected as the conceptual framework for this research. This theory suggests that cognitive avoidance is a coping mechanism to perceived actions that may cause anxiety or fear. The cognitive avoidance theory of worry posits that worry is predominantly thought activity that focuses on attempts to avoid the experience of future catastrophe regarding a particular situation, and that it functions as a cognitive avoidance maneuver in response to perceived threats (Borkovec et al., 2004; Newman, & Llera, 2011; Stapinski, Abbott, & Rapee, 2010). Thus, worry can be seen as an ineffective cognitive attempt to problem solve and thus remove a perceived threat, while simultaneously avoiding unpleasant somatic and emotional experiences that would naturally occur during the process of fear confrontation (Borkovec et al., 2004). A complete literature review of the cognitive avoidance theory of worry is presented in chapter two.

Definitions of Terms

This section identifies definitions of key terms that are pertinent to the study. The following are definitions of key terms used throughout this study:

- Test anxiety: "The set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation" (Zeidner, 1998, p. 17). The operational definition of test anxiety in this study was the participant's score on the Spielberger Test Anxiety Inventory (TAI).
- Academic procrastination: Intentional delay in beginning or completing academic activities to the point of experiencing subjective discomfort (Rabin, Fogel, & Nutter-Upham, 2010; Solomon & Rothblum, 1984). Academic procrastination was operationalized in this study as the participant's score on the Procrastination Assessment Scale for Students (PASS).
- Pre-licensure nursing students: Refers to students enrolled in a nursing education program that are required to take the National Council of State Boards of Nursing Registered Nurse (NCLEX-RN®) examination. Pre-licensure nursing students may be enrolled in either diploma, associate degree, or baccalaureate degree nursing education programs.
- Diploma nursing program: A two to three year, basic educational program designed to prepare students for entry into nursing practice, after which successful completion students are awarded a diploma in nursing and become eligible to take the NCLEX-RN®.
- Associate degree nursing (ADN) program: A basic educational program, ranging from 60-70 semester credits, after which successful completion students are awarded an associate of science (AS) or an associate of science in nursing (ASN) and become eligible to take the NCLEX-RN®.

- Baccalaureate degree nursing program: A basic educational program, requiring a minimum of 120 semester credits, after which successful completion students are awarded a bachelor of science (BS) or bachelor of science in nursing (BSN) and are eligible to take the NCLEX-RN®.

Assumptions

Assumptions are self-evident truths about the sample, theoretical framework, or variables within the study (Calabrese, 2006). This study was guided by the assumptions that (1) test anxiety is an increasing phenomenon in pre-licensure nursing education programs; (2) pre-licensure nursing students experience a multitude of factors that may influence academic procrastination; (3) cognitive avoidance is an unconscious precursor to academic procrastination behaviors that nursing students employ when confronted with a potentially stressful evaluative experience such as a nursing examination; (4) the cognitive avoidance theory of worry will provide a framework in which to examine the variables; and (5) the test anxiety inventory (TAI) and procrastination assessment scale for students (PASS) are valid and reliable tools for the measurement of test anxiety and academic procrastination.

Delimitations

Delimitations are boundaries set by the researcher to define the scope of the research study (Calabrese, 2006). This study was delimited by the researcher in several ways. First, a convenience sample of pre-licensure nursing programs in western Pennsylvania limits the ability to generalize findings outside of this geographical region. An additional delimitation of the study includes the use of two separate self-reported survey tools. These tools rely on participants' to recall information and introduces the possibility of participants selecting socially acceptable responses.

Significance

No research exists that has examined test anxiety and academic procrastination among pre-licensure nursing students. While the research by Solomon and Rothblum (1984) indicates that the majority of college students procrastinate, primarily due to fear of failure and task aversiveness, further research is needed to examine such trends among pre-licensure nursing students and if these variables differ among program types. Multiple academic and clinical demands expected of students in pre-licensure nursing programs allow little room for procrastination. Additionally, research has identified that nursing students are more test-anxious than general college students, that test anxiety often peaks in higher education, and that test anxiety continues to be a major stressor for nursing students.

Nursing students identify academic stressors as reasons for increased stress including worry and anxiety about taking tests (Goff, 2011; Higginson, 2006), procrastination (Goff, 2011), and time management (Higginson, 2006). As the majority of students who withdraw from pre-licensure nursing education programs cite academic difficulty as the reason for withdrawal (ATI, 2012; Deary, Watson, & Hogston, 2003), students who experience test anxiety and academic procrastination may contribute to increased attrition in pre-licensure nursing education. With respect to pre-licensure nursing students, attrition refers to loss of individuals from nursing programs (Deary, et al., 2003). The consequences of pre-licensure nursing students who exhibit test anxiety and academic procrastination are widespread. Attrition is concerning for pre-licensure nursing programs in that costs are incurred with respect to time and resources for students, faculty, and institutions (Bennett, 2003; Schneider & Yin, 2011). For example, costs to students may increase as students withdraw from programs without achieving a degree. The nursing education program and academic institution may suffer financially due to unfilled

seats. According to the American Association of College of Nursing (AACN), changing patient demographics require more nurses to care for the aging population in the United States (AACN, 2014). Thus, nursing education programs need to assure that all qualified students persist to graduation, pass the NCLEX-RN, and enter the workforce. Consequently, nursing students with test anxiety and procrastination who persist until graduation may delay scheduling and taking the NCLEX-RN®, which may ultimately decrease the amount of nurses entering the workforce.

Although test anxiety and academic procrastination may not always impact student success in the nursing education program, nurse educators need to help students address these behaviors. Investigating the relationship of test anxiety and academic procrastination, as well as the factors that contribute to nursing students' procrastination, may assist nurse educators to provide assistance and support to students. This research may provide insight in the identification and implementation of strategies to decrease academic procrastination and may positively impact test anxiety in pre-licensure nursing students. Ultimately, this research may impact nursing students' examination preparation and success and in their nursing education programs as well as the NCLEX-RN®.

Chapter Summary

The purpose of this study was to determine the nature of the relationship between test anxiety and academic procrastination in pre-licensure nursing students, as well as assess these variables related to nursing education program type. Factors that influence academic procrastination will also be assessed. This chapter presented the background of test anxiety in nursing education and described the rationale for studying academic procrastination in relation to

test anxiety. Chapter two will review the literature on test anxiety and academic procrastination and the instruments that were used in the study.

CHAPTER TWO

LITERATURE REVIEW

This chapter delineates the search methods used to obtain the literature reviewed in this chapter. An overview of the conceptual framework that guides this study, the cognitive avoidance theory of worry, is presented. Next, the historical context of test anxiety is discussed. The effects of test anxiety on learning and academic performance in higher education are described. In addition, defining characteristics of test anxiety will be reviewed. The second portion of this chapter will provide a historical overview of academic procrastination, as well as discuss the causes and consequences of academic procrastination in higher education. The last portion of this chapter will review literature associated with the Test Anxiety Inventory (TAI) and Procrastination Assessment Scale for Students (PASS).

Search Methods

The information presented in this chapter is based on a search of nursing, psychology, and higher education literature, using the following databases: Academic Search Complete, CINAHL, Education Index Retrospective, Education Research Complete, Education Source, ERIC, Health Source: Nursing/Academic Edition, MEDLINE, ProQuest, PyscARTICLES, PsycINFO, and Psychology and Behavioral Sciences Collection. As the construct of test anxiety (TA) developed into a multi-dimensional construct in the late 1970's, the search criteria included empirical literature and doctoral dissertations published after 1975 containing any of the following keywords and phrases: *nursing education, test anxiety, college students AND procrastination, nursing students AND procrastination, academic procrastination, test anxiety AND nursing students, test anxiety AND medical students,* and *test anxiety AND pharmacy students.* Because this study aims to examine the relationship of test anxiety and academic

procrastination, articles that discuss the treatment of test anxiety are not included in the review of the literature. The initial search yielded 52 empirical research articles and published dissertations on test anxiety and academic procrastination in higher education, health-related disciplines, and nursing education. Additionally, the reference sections of the selected articles were manually reviewed to find additional sources, resulting in an additional 18 articles. After screening abstracts and eliminating duplicates and those that did not meet search criteria, a total of 31 articles were included in this review of the literature.

Cognitive Avoidance Theory of Worry

The cognitive avoidance theory of worry has been used to thoroughly investigate the concept of worry. The framework has been used to examine the experience and perception of worry among individuals with and without generalized anxiety disorder (GAD) as well as to determine how worry correlates with anxiety, depression, control, and autonomic activation. This section provides an overview of the cognitive avoidance theory of worry and its application to test anxiety and academic procrastination. Research conducted using this theory will also be presented.

Overview of the Cognitive Avoidance Theory of Worry

The cognitive avoidance theory of worry was initially developed by Borkovec and colleagues in the 1980s when they sought to define and experimentally investigate the concept of worry and has been continually expounded upon and refined. At the present, cognitive avoidance theory focuses attention to the definition of worry and then describes the impact of worry on individuals. According to the theory, worry is defined as a ruminative process in which an individual fixates on possible future catastrophes (Borkovec et al., 1983; Borkovec, Alciane, & Behar, 2004; Ruscio & Borkovec, 2004; Stapinksi, Abbott, & Rapee, 2010). Worry is

metacognitive and consists of negative and positive beliefs about thinking (Wells, 2006). For example, individuals may have positive metacognitive beliefs about engaging in worry (i.e. 'I must worry about making mistakes in order to maintain control') or negative beliefs about engaging in worry which commonly occur as a 'what if?' question (e.g. 'What if I fail?') (Wells, 2006). Worry is further explained as intrusive thoughts that focus on possible, but non-existent future bad things that may happen (Sibrava & Borkovec, 2006) and increases the amount of negative thinking even in non-anxious individuals. Most importantly, worry is described as verbal-linguistic thought, or talking to oneself; rather than imaginal activity (Borkovec et al., 2004).

Several assumptions are central to the cognitive avoidance theory. The cognitive avoidance theory of worry asserts the following 1) worry disrupts fear exposure resulting in maintained threat appraisals, 2) worry is a self-perpetuating process that produces more worry, 3) worry is a cognitive attempt to generate ways to prevent bad events from happening and/or to prepare oneself for their occurrence and 4) worry is manifested by negative thoughts that present as words (i.e. talking to oneself) rather than images (mentally visualizing threatening situations) (Borkovec et al., 1983; Borkovec, Alciane, & Behar, 2004; Ruscio & Borkovec, 2004; Newman & Llera, 2011).

Application of the Cognitive Avoidance Theory of Worry to the Current Study

As mentioned previously, the two major components of test anxiety are worry and emotionality. Worry encompasses the cognitive concerns about consequences of failure whereas emotionality describes the reactions of the autonomic nervous system that are evoked by evaluative stress. Previous research on the construct of test anxiety suggests that worry influences anxiety in evaluative situations significantly more so than emotionality

(Deffenbacher, 1978, Liebert & Morris, 1967). According to Borkovec and colleagues (1983), the affective components of worry are discomforting and the "focus of attention on inner events appears to be disruptive at times to the engagement of other environmental tasks. The test-anxiety literature provides the clearest documentation for the maladaptive attentional by-products of the behavior." (Borkovec et al., 1983, p. 10).

According to cognitive avoidance theory, worry is thought to maintain anxiety in the long-term by disrupting the potentially beneficial effects of naturally occurring exposure to feared stimuli (Stapinksi et al., 2010). This idea can be further illustrated using the concept of test anxiety. For example, a test-anxious individual may worry when engaging in exam preparation as well as during the exam, thus leading to anxiety. Instead of becoming less anxious with each subsequent exam, as would be expected of a non-test-anxious student, the test-anxious student's anxiety increases with each exam. Therefore, the functional effect of worry may be the maintenance of anxiety in test-anxious students.

Furthermore, worrying as a coping strategy can eventually create its own problems that lead to intrusive thoughts and impaired self-regulation (Stapinksi et al., 2010; Wells, 2006). Self-regulation is often impaired in individuals that procrastinate (Howell & Watson, 2007; Howell, Watson, Powell, & Buro, 2006). One assumption that guides this study is that nursing students with test anxiety may procrastinate in preparing for examinations. As research has demonstrated that worry is the anxiety component most consistently and most strongly inversely related to academic performance (Morris, Davis, & Hutchings, 1981) and that individuals with test anxiety may engage in avoidance behaviors (Poorman et al., 2011), the cognitive avoidance theory of worry was selected as the theoretical framework for this research study.

Cognitive Avoidance Theory of Worry in Higher Education

The cognitive avoidance theory of worry was developed and tested using samples of individuals with and without generalized anxiety disorder (GAD). Initial research by Borkovec and colleagues (1983) sought to describe characteristics of worriers and compare physiological effects of worriers and non-worriers. This study examined 305 undergraduate psychology students who completed the State-Trait Anxiety Inventory (STAI), Beck Depression Inventory, Absorption Scale, Estimates of Latency to Sleep Onset, and Fear Survey Schedule, as well as asked to identify their percentage of worry and tension on a "typical" day. The purpose of the study was to identify if worry (cognition) and tension (physiological symptoms) were significantly correlated with items on the aforementioned instruments. Results indicated significant correlations at the $p < .05$ level between worry and trait anxiety ($r = .67$), failing tests ($r = .34$), and being criticized ($r = .32$), whereas correlations for tension on the aforementioned items were not significant. This research is in agreement with the previous research (Deffenbacher, 1978) that worry relates to evaluative concerns more so than emotionality.

Borkovec and colleagues (1983) also developed and tested a 5 point Likert style questionnaire (1 = not at all; 5 = very much) in an attempt to further describe worry in relationship to mood, autonomic response, and controllability. The researchers accrued their sample ($N = 74$; 43 males and 32 females) by setting up a booth on a street that bordered a university and neighboring community. Among the 14 emotional states experienced when worrying, anxious feelings were the most highly rated for the total group ($M = 4.20$, *SD* not reported). The means for the remaining states were tense (3.74), apprehensive (3.65), frustrated (3.59), nervous (3.54), distracted (3.53), insecure (3.28), irritable (3.16), confused (3.09), moody (3.08), self-conscious (2.78), depressed (2.77), threatened (2.76), and angry (2.65) (Borkovec et

al., 1983). Academic issues were the most frequent area of worry (M = 3.64) followed by interpersonal (3.55), financial (3.37), personal (3.20), philosophical (2.86), theological (2.33) and physical harm (2.08) issues (Borkovec et al., 1983). The majority of worry was concerned with future events (47%) followed by present situations (30%) and past events (21%) for all participants. In regard to autonomic response, awareness of somatic activity (increased heart rate, sweating, upset stomach) during worry was not described by the total group. The highest mean ratings indicated 'some' awareness of muscle tension (M = 3.02) and upset stomach (M = 2.97), possibly indicating that worry and emotionality are unrelated as somatic symptoms such as heart rate, breathing rate, perspiration, and upset stomach were not significantly affected between the groups. Most notably, both males $t(41) = 3.34$, $p < 0.001$ and females, $t(27) = 3.99$, $p < 0.001$ reported significantly greater difficulty shutting off worrisome thoughts once they had started, indicating decreased controllability of thoughts in worriers (Borkovec et al., 1983).

In an experimental pre-test post-test study of 60 undergraduate students, Ruscio and Borkovec (2004) compared severity and quantity of worry between 30 GAD and 30 non-GAD students. Students completed the Penn State Worry Questionnaire (PSWQ) and the Generalized Anxiety Disorder Questionnaire (GADA), then performed cognitive tasks focused on attention and concentration. After completion of the cognitive tasks, participants again completed the PSWQ and GAD. Both groups reported similar levels of worry severity $t(29) = 1.15$, $p = 0.26$ as well as an equal proportion of time engaged in worry $t(29) = 0.58$, $p = .05$, suggesting that severity and quantity of worry does not differ significantly between GAD and non-GAD students. However, students with GAD reported significantly less control (M = 2.57) than students without GAD (M = 3.50) $p = .02$, suggesting that those with GAD are more likely to perceive worry as harmful, dangerous, and out of their control. These results support the

previous findings of Borkovec and colleagues (1983) in which the worriers had difficulty controlling or shutting off worrisome thoughts.

Borkovec and colleagues (1983) performed an experimental study designed to compare worriers and non-worriers on physiological activity and effects of a period of prescribed worry. Sixty college students (53 female, 7 male) were randomly assigned to 0-, 15-, or 30-minute worry conditions. Prior to the experiment students completed the Anxiety Differential (AD), Cognitive and Somatic Anxiety Questionnaire (CSAQ), Multiple Affect Adjective Checklist (MAACL) from which Anxiety, Hostility and Depression scores were derived. Heart-rate recording devices were then applied. Prior to and after the prescribed worry period, 5 minutes was spent on relaxed breathing with the eyes closed. The worry condition was a 30-min period defined as engaging in simply relaxing and allowing the mind to wander (0- Worry Condition), relaxing for the first half of the period followed by worrying for the last half (15- Worry Condition), or worrying for the entire period (30-Worry Condition), depending on condition assignment. In each worry condition, subjects were asked to pick a topic that was currently of concern to them and to worry about it in their typical fashion. Heart rate was recorded at 5 mm/second continuously throughout the experiment. Participants then completed post-testing by completing the pre-experimental self-report scales. Results indicated that worriers scored significantly higher (p <.001) than non-worriers on the AD, the Anxiety, Depression and Hostility subscales of the MAACL, and the Cognitive and Somatic subscales of the CSAQ. According to the researchers, several analyses of variance were conducted on the heart-rate samples and no significant effect involving worry status or treatment condition emerged.

Summary

The aforementioned studies defined worry as a cognitive process in which individuals primarily engaged in negative self-talk. The studies identify that the quantity and severity of worry is similar among individuals with and without GAD, however individuals with GAD have significantly more difficulty "shutting off" worrisome thoughts. The results from the above studies provide evidence that uncontrollable cognitive activity is a prominent feature of the worrier and that such activity leads to disruptions in attention-focusing ability. Additionally, heart rate variability was not significantly impacted upon exposure to worry condition or feared stimuli. Thus, it is postulated that worry maintains anxiety by decreasing the emotionality associated with repeated exposure to fearful stimuli.

Gaps in the Literature

The literature search yielded no studies using the cognitive avoidance theory of worry in nursing education research. However**,** the cognitive avoidance theory of worry has been minimally utilized in higher education with traditional students in psychology courses, primarily comparing students with and without GAD. While Borkovec (1983) identified that test anxiety research provides the most conclusive link to worry, further research is needed to determine the relationship between cognitive avoidance and test anxiety.

Test Anxiety

Test anxiety has been a topic of interest for educators and psychologists since the 1950s. This section reviews the historical background of test anxiety in higher education. The correlates and consequences of test anxiety found in the literature since 1975 will also be examined. Last, a discussion of test anxiety in nursing education is presented and gaps in the literature are identified.

Historical Context of Test Anxiety in Higher Education

In 1952 Sarason and Mandler began their work on test anxiety by developing a tool to measure test anxiety among Yale University students. Their initial instrument categorized students as either high or low test-anxious. On subsequent intelligence tests, the low test-anxious students outperformed their high test-anxious peers, leading Sarason and Mandler to suggest the difference in performance was attributed to two types of psychological drives evoked by the testing situation, task-related drives and anxiety drives. Task-related drives were said to stimulate behaviors to reduce the drive by completing the tasks. The researchers asserted that anxiety drives are learned behaviors that have two opposite results; 1) task-relevant efforts to finish the task and thereby reduce anxiety, or 2) task-irrelevant responses manifested by feelings of inadequacy, helplessness, increased autonomic reaction, and loss of self-esteem. Students with strong anxiety drives engage in task-irrelevant behaviors that ultimately impair academic performance.

Building upon Sarason and Mandler's propositions, Alpert and Haber (1960) labeled task relevant drive as *facilitating* and the task-irrelevant drive *debilitating*. They suggested that facilitating and debilitating anxieties may be independent of one another. Eventually, they developed a self-report instrument, the Anxiety Achievement Test that included both facilitating (AAT+) and debilitating (AAT-) subscales. Since that time, researchers have lost interest in facilitating test anxiety and have focused efforts on debilitating test anxiety, which acts as the current interpretation of test anxiety.

A novel development in the study of test anxiety came in 1967 when Liebert and Morris introduced the two-component conceptualization of anxiety into the test anxiety literature. They believed that test anxiety was not a unidirectional construct. According to this view, the

experience of anxiety is separable into at least two major components, worry and emotionality. Worry refers to the cognitive elements of the anxiety experience, such as negative expectations and cognitive concerns about oneself, the situation at hand, and potential consequences. Emotionality refers to one's perception of the physiological-affective elements of the anxiety experience, that is, indications of autonomic arousal and unpleasant feeling states such as nervousness and tension. Liebert and Morris asserted that worry and emotionality are conceptually independent in the sense that the two anxiety components are aroused and maintained by different situational conditions. Morris and Liebert (1969) used Sarason and Mandler's Test Anxiety Questionnaire items for worry and emotionality selected on the basis of face validity to illustrate that worry predicted performance under stress, whereas emotionality did not. Deffenbacher (1978) continued research and strengthened support for the separate constructs of worry and emotionality in test anxiety. The separation of test anxiety into the independent constructs of worry and emotionality continues to remain the accepted philosophy of test anxiety research in the present day.

In the 1970s, Spielberger (1972) further distinguished the concept of anxiety into either *state* or *trait* anxiety. State anxiety is described as an individual's emotional state, usually consisting of tension or nervous reaction; whereas trait anxiety refers to anxiety proneness in a variety of situations, including but not limited to test-taking. According to Spielberger, test anxiety is a form of trait anxiety. Spielberger developed the State-Trait Anxiety Inventory (STAI) as well as the Test Anxiety Inventory (TAI) which remain widely used in educational and psychological research today.

At the present, current test anxiety theory accepts the notion that test anxiety is comprised of worry and emotionality. Two separate models, the interference model and the deficits model,

of test anxiety have been constructed based upon research since the 1950s. The widely accepted interference model posits that test anxiety disturbs recall of prior learning and ultimately decreases academic performance whereas the deficits model suggests that poor test scores are a result of inadequate study habits and deficient test-taking skills. The deficits model contrasts the interference model in that test anxiety does not cause poor performance but that awareness of poor performance causes test anxiety (Tobias, 1985). Presently, no consensus has been empirically accepted as the theoretical model of test anxiety, however the interference model has gained support and currently acts as the framework for the majority of test anxiety research. Additionally, a recent paradigm shift has occurred in the study of test anxiety from attempting to identify test anxiety to developing and testing appropriate treatment protocols. However, one may question the treatment effectiveness until the construct has been thoroughly identified and accepted among the academic community.

Test Anxiety Correlates and Consequences in Higher Education

The emphasis of this literature review is to examine the construct of test anxiety in nursing education. However, one must first explore test anxiety in higher education. The literature review on test anxiety in higher education identified several studies that explored the various causes and correlates of test anxiety in higher education as well as its consequences.

Deffenbacher (1978) investigated sources of interference in highly test anxious subjects performing under evaluative stress. The Text Anxiety Scale (TAS) was administered to 185 students in a sophomore level psychology class. TAS scores > 20 and < 12 operationally defined high and low test anxiety groups. Then, n = 34 (14 males and 20 females) high-anxious and n = 34 (13 males and 21 females) low-anxious volunteers were randomly assigned to either a high- or low-stress condition of completing anagrams. High-stress instructions for completing the

anagrams focused on the intelligence-testing nature of the task, the low-difficulty level of the anagrams, the time-limited nature of the task, and the importance of solving as many anagrams as possible to compare well with others. Low-stress instructions emphasized the high difficulty of the anagrams and the likelihood of solving only a few anagrams and containing suggestions not to worry. Students completed the anagrams within a 20-minute time-frame and then completed a researcher-developed post-task questionnaire that assessed worry and emotionality.

Results revealed that the low-anxiety-low-stress group was less anxious than either high-anxiety group ($p < .01$) and that while the low-anxiety-high-stress and high-anxiety-low-stress groups did not differ, both were less anxious than the high-anxiety-high-stress group ($p < .05$). In regard to self-esteem, the high-anxiety-high-stress group felt more negatively about their abilities than all of the other groups ($p < .05$). Additionally, the high-anxiety-high-stress group found completing the anagrams significantly more unpleasant than all of the other groups ($p < .05$). Thus, on all measures high-anxiety-high-stress subjects reacted more negatively to and were more stressed by testing; they were more anxious, had lower perceptions of themselves and their abilities, and found the task more unpleasant. This study suggests that performance of highly test anxious students varies depending on the situation. When evaluative stress is low, the high-anxiety-high-stress group could perform at a comparable level as those in the low-anxiety-low stress group. Therefore, this study asserts that the nature of the evaluative situation itself may impact students' performance and self-concept.

A meta-analysis by Hembree (1988) sought to integrate the findings of test anxiety research regarding its nature, effects, and treatment. The analysis included 562 studies from 1950-1986 and spanned educational literature from primary to post-secondary education. A significance level of $p < .01$ was set due to the self-reported nature of test anxiety research.

Additionally, mean values at the 99% confidence interval were computed, and each mean was declared the correlation, or effect, that answered its question of research (Hembree, 1988).

The first aim of the meta-analysis was to identify possible correlates of test anxiety. Significant performance correlates (p <.01) to test anxiety included intelligence quotient (IQ) for grades 1 through postsecondary (r = .23), aptitude and achievement tests for all grade levels and subjects (math, reading, science) (r = .29), memory tasks (r = .28), and both high school and college GPA (r = -.12). Additionally, the following mean personality correlates to test anxiety were significant at the p <.01 level and included fear of negative evaluation (r = .54), negative feelings about tests (r = .33), study skills (r = -.27), self-esteem (r = -.42), locus of control (r = .22), and socioeconomic status (r = -.13).

The second aim of the meta-analysis was to identify causes of test anxiety. In the analysis, an effect was defined as any comparison of scores between experimental groups (Hembree, 1988). Several causes of test anxiety were noted to have substantial effects. First, students' ability level in terms of academic aptitude revealed a significant mean correlation of r = .52 (p <.01), suggesting that test anxiety increased in accordance with students' academic aptitude. Test anxiety was greater for average students than those with high academic aptitude, and greater for lower ability students than for average ability students. Additionally, Hembree (1988) revealed that females consistently reported higher levels of test anxiety than males with a mean correlation of r = .40 (p < .01), which is supported by current test anxiety research (Cassady & Johnson, 2002; Chapell et al., 2005; Macher et al., 2012). Regarding ethnicity, black students displayed higher levels of test anxiety than white students, but by high school blacks and whites displayed equal amounts of test anxiety. A significant correlation of r = .36 (p <.01) was observed in test anxiety between Hispanic and white students across grade levels. Hembree

(1988) also examined grade level in relation to test anxiety and found that test anxiety began in grade 2, increased in grades 3 and 4, and stabilized in grade 5. Beyond grade 5 test anxiety remained relatively constant until grade 12 and then slightly decreased in college. Importantly, Hembree asserts that lower college test anxiety scores may be a result of attrition rather than indicate true test anxiety. Furthermore, comparisons of test anxiety among students across all levels of education by grade status, either passing or "at-risk" showed a significant correlation of $r = .51$ ($p < .01$), suggesting that at-risk students experience higher levels of test anxiety. Conditions surrounding the testing situation also appeared too significantly ($p < 0.1$) influence test anxiety; highly evaluative testing environments ($r = -.27$), such as high stakes testing, and perceived difficulty of tests ($r = .35$) increased test anxiety. Conversely, test item arrangement (simple to complex questions) showed no significant effect on test anxiety levels across educational level.

Hembree (1988) also sought to identify variables affected by test anxiety and the extent of the effects. As this data was collected ex post facto, the comparisons represent illicit, rather than causal, effects. Mean correlations for IQ across all education levels ($r = -.48$), and post-secondary GPA ($r = -.46$), time to complete the test ($r = .30$), tests perceived as difficult ($r = -.45$), study hours per week ($r = .53$), success expectation ($r = -.53$), and trait anxiety ($r = .81$) all reported mean effects significant at the $p < .01$ level. Conversely, good study habits in post-secondary education did not produce a significant mean effect on test anxiety.

Correlations of test anxiety to other anxieties is another important discovery in Hembree's (1988) meta-analysis. Mean correlations of test anxiety were significantly ($p < .01$) related directly and strongly to general anxiety proneness in grades 1-12 ($r = .56$) and college (r

= .48). Importantly, the mean correlations for test anxiety were also significant (p <.01) to trait anxiety (r = .53), state anxiety (r = .45), worry (r = .57), and emotionality (r = .54).

Last, Hembree (1988) sought to determine the effects of test anxiety treatment. At the post-secondary level, cognitive (cognitive modification, attentional training, and anxiety management) and behavioral (relaxation training, systematic desensitization, covert positive reinforcement, and hypnosis) treatments for worry and emotionality produced significant mean effects. Conversely, cognitive and behavioral treatments for study skills and group counseling also was not shown to produce a significant mean effect on test anxiety in post-secondary students.

Kurosawa and Harackiewicz (1995) performed an experimental study with female students (N = 96) from an introductory psychology class at a women's college to determine the effects of self-awareness and evaluative stress on test anxiety. Prior to completing the experimental task, which consisted of paper-and-pencil word game in which the goal was to construct as many words as possible in 2 minutes from contiguous letters in a 4 x 4 letter matrix, participants completed a personality questionnaire, the TAI, and the Self-Consciousness Scale. Solutions on the word puzzle were scored so that the longer the word, the higher the point value. Four puzzles were used, and the average of their total scores acted as the dependent variable of performance. To evaluate self-awareness, groups of 24 students were assigned to one of four conditions: control, mirror, TV camera, and evaluation only. In all experimental conditions except for the evaluation only condition, participants were instructed to complete the puzzles as they normally would, emphasizing that they should try to maximize points as best of their ability, as if competing with friends. The instructions for completing the puzzles in the evaluation only

condition emphasized that the score a student gets on these tasks was related to his or her GPA, SAT, GRE, and other achievement test scores.

Results indicated that participants high in test anxiety performed more poorly across all experimental conditions, compared to the low-anxiety participants. The main effect of Test Anxiety was $F(1, 88) = 4.25$, $p < .05$. With the effects of these variables controlled, the interaction effect of Condition x Test Anxiety was also significant, $F(3, 88) = 3.06$, $p < .05$. Furthermore, the test anxiety was significantly correlated ($p < .05$) to the evaluation only condition ($r = .61$), the TV camera condition ($r = .44$), and the mirror condition ($r = .49$) suggesting that situations designed to create self-awareness and were highly evaluative caused test-anxious individuals to perform more poorly on a series of word puzzles. These findings support those of Deffenbacher (1978) and Hembree (1988) who suggested that the nature of the evaluative situation itself may impact students' performance and self-concept.

Cassady and Johnson (2002) attempted to examine the relationships among cognitive test anxiety, gender, procrastination, emotionality, and student performance. Students participating in this investigation were volunteers from an undergraduate educational psychology course at a large Midwestern university. In total, 168 students (114 females and 53 males) participated in the project. The students in this study were primarily traditional sophomore and junior education majors, with a mean age of 21 ($SD = 2.58$).

The variables for this study included test anxiety measured by the Reactions to Tests and researcher developed Cognitive Test Anxiety Scale (CTAS), study habits measured by the Test Procrastination Questionnaire (TPQ), undergraduate course examination performance, and self-reported performance on the Scholastic Aptitude Test (SAT). Two days before the participants took the second course exam of the semester, students completed the two test anxiety measures,

the TPQ, and a self-reported demographic sheet that requested their age, sex, and scores on the SAT. Participants also granted permission for the researchers to access their exam scores. To evaluate differences between students with high and low levels of cognitive test anxiety, the sample was split into three groups. Students representing the top third of scores on the CTAS formed the high cognitive test anxiety group, students scoring in the lowest third on the CTAS were classified as the low test anxiety group, and students in the middle third were placed into the average level of test anxiety group.

Results using a multivariate analysis of variance (ANOVA) on the effect of level of cognitive test anxiety on performance on the SAT was significant, $F(4, 212) = 3.97$, $p < .005$. A repeated-measures ANOVA that evaluated group differences in performance on the three course exams revealed significant differences among the three levels of cognitive test anxiety, $F(2, 150) = 15.24$, $p < .001$. Additionally, performances on the final examination also differed as a function of the level of cognitive test anxiety, $F(2, 150) = 9.08$, $p < .001$. Post hoc analyses revealed that the high test anxiety group performed significantly worse than the average ($p < .003$) and low ($p < .001$) test anxiety groups which corroborates the findings of Hembree (1988) who reported significant GPA differences among low-, moderate-, and high-test-anxious students. Examination of gender differences using ANOVAs revealed that females ($M = 70.33$; $SD = 13.17$) reported higher levels of cognitive test anxiety than males ($M = 60.28$; SD=5 13.27), $F(1, 165) = 20.98$, $p < .001$ which also supports the findings of Hembree's (1988) meta-analysis.

A study by Chapell and colleagues (2005) sought to investigate the relationship of test anxiety in large samples of undergraduate and graduate students. A convenience sample of 5,414 undergraduate and graduate students attending large public universities in New Jersey, n = 4,344 (3,141 undergraduates; 1,203 master's students); Pennsylvania, n = 1,007 (846

undergraduates; 161 doctoral students); and Illinois, $n = 200$ (150 undergraduates; 50 master's students) volunteered to participate. The sample included all levels of undergraduate students and majors, with the majority of undergraduates being seniors majoring in education. The graduate sample included 1,253 master's students in education and psychology programs and 161 doctoral law students. Participants were asked to answer demographic questions, provide a self-reported GPA, identify the mean educational level of their parents or guardians, and complete the Test Anxiety Inventory (TAI) (Spielberger, 1980).

Descriptive statistics for the entire sample revealed the average total TAI score of the undergraduates ($M = 39.88$, $SD = 13.2$) was significantly higher than that of the graduate students ($M = 36.79$, $SD = 12.6$), $F(1, 5412) = 58.5$, $p < .0001$. Similar to the previous research (Hembree, 1988; Cassady & Johnson, 2002), female undergraduates had higher test anxiety ($M = 42$, $SD = 13.9$) than male undergraduates ($M = 36.7$, $SD = 12$), $F(1, 2737) = 135.8$, $p < .0001$. This finding was also present for graduate students where female graduate students ($M = 37.9$, $SD = 12.9$) had significantly higher TAI total scores than their male classmates ($M = 33.8$, $SD = 11.3$), $F(1, 1263) = 29.1$, $p < .0001$. There was no significant difference in total test anxiety between master's students ($M = 36.6$, $SD = 12.6$) and doctoral students ($M = 38$, $SD = 12.5$), $F(1, 1412) = 1.71$, $p = .19$. Thus, being female gender in undergraduate or graduate education was a significant factor in mean test anxiety in this study.

Regarding GPA there was also significant differences among low-, moderate-, and high test-anxious undergraduate female students $F(2, 1665) = 25.97$, $p < .0001$. The low-test-anxious undergraduate female group had higher GPAs than the moderate and high-test-anxious groups, $p < .0001$, and the moderate group had higher GPAs than the high-test-anxious group, $p < .05$. There were also significant differences in GPA among low-, moderate, and high-test-anxious

male undergraduates, $F(2, 1058) = 16.80$, $p < .0001$. The low-test-anxious undergraduate male group had higher GPAs than the moderate and high-test-anxious groups, $p < .0001$, but there was no significant difference between the moderate- and high-test-anxious groups. GPA among graduate students followed a similar pattern with female students but not male students. There were significant differences in GPA among low-, moderate-, and high-test-anxious female graduate students, $F(2, 885) = 7.40$, $p < .001$. The low-test-anxious female graduate group had higher GPAs than the high-test-anxious group, $p < .001$, and the moderate group, $p < .05$, and the moderate group had higher GPAs than the high-test-anxious group, $p < .05$. Conversely, there were no significant differences in GPA among low-, moderate-, and high-test-anxious male graduate students, $F(2, 280) = 1.00$, $p = .37$. Thus, GPA decreased with increased levels of test-anxiety in female undergraduate and graduate students as well as male undergraduate students; however, this was not demonstrated in male graduate students. Congruent with the findings of Hembree (1988), the results indicate that test anxiety is associated with reductions in GPA at both undergraduate and graduate levels of education. It is also important to note that socioeconomic status (SES), measured by the mean education level of parents/guardians was significantly correlated to a number of study variables. Mean SES in this sample was equivalent to some college or two-year degree (Chapell et al., 2005). SES was significantly correlated to the mean TAI score ($r = -.07$, $p < .05$), TAI worry subscale ($r = -.06$, $p < .01$), TAI emotionality subscale ($r = -.07$, $p < .001$), and age ($r = -.23$, $p < .001$). Hembree (1988) also found a small (-.13) but significant ($p < .01$) mean effect of socioeconomic status on test anxiety, however this was only evaluated in grades 4-7, 10, and 11. However, these findings suggest that future test anxiety research should include mean education level of parents/guardians as a variable.

Summary

Test anxiety has been a topic of higher educational research since the 1950s. Test anxiety research first sought to develop instruments to measure the concept in higher education. The research by Sarason and Mandler (1952) and Alpert and Haber (1967) led to the development of test anxiety as a multidimensional construct that included worry and emotionality, ultimately leading to the development of Speilberger's Test Anxiety Inventory (1980) which acts as the most commonly used measure of test anxiety in higher education today. Research since the 1980s has sought to and identify test anxiety causes and consequences in academia and has noted several significant findings. First, empirical research provides support that test anxiety is more characteristic of females than males. Additionally, the evaluative nature of the testing situation tends to influence test anxiety, such that highly evaluative environments increase test anxiety whereas less-stressful testing environments decrease test anxiety. Fear of negative evaluation and decreased self-esteem were also found to influence test anxiety. Socioeconomic status and parent/guardian education level is thought to have a small, yet significant impact on test anxiety. Conversely, ethnicity and study habits were not found to significantly influence test anxiety. Importantly, test anxiety was found to be highly correlated to other types of anxiety; including general anxiety proneness, trait anxiety, and state anxiety. All studies reviewed indicated that test anxiety directly results in poor academic performance, primarily evidenced by decreased GPA. At the present, test anxiety research in higher education is focused on assessing cognitive-behavioral treatments for reducing test anxiety in hope of increasing academic performance.

Gaps in the Literature

There were several limitations of the previous research. The studies in this section primarily examine students in undergraduate psychology courses using small sample sizes. Only

one study used a large sample size of over 5000 students. Furthermore, there is limited use of ethnicity and socioeconomic status as variables in the majority of studies reviewed. Most importantly, due to the long history of test anxiety of research in higher education, a majority of instruments have been developed to measure the construct. The studies reviewed utilized several measures test anxiety, allowing generalizability of findings to be difficult.

Future research on test anxiety in higher education should aim to utilize larger sample sizes and a variety of student populations. Assessing test anxiety among students taking courses in their chosen major may provide a more reliable indicator of test anxiety rather than evaluating test anxiety primarily among students enrolled in undergraduate psychology courses, as courses in the major may be more difficult and weigh more heavily on GPA. Furthermore, research on various socioeconomic factors' influence on test anxiety remains limited. Determining the impact of various socioeconomic factors such as parents' level of education, ethnicity, and student employment responsibilities may provide insight into the picture of a test anxious student.

Test Anxiety in Health-Related Majors

Several studies that examined test anxiety in health-related disciplines are presented. Health-related majors typically require students to meet strict academic criteria such as a high minimum GPA. Additionally, health-related majors often require students to meet strict clinical performance criteria. Thus, test anxiety may be prevalent among health-related academic majors. Specifically, test anxiety in pharmacy and medical education are included in this section.

Pharmacy Education

A descriptive study by Sansgiry and colleagues (2005) aimed to delineate predictors of test anxiety among doctor of pharmacy students. A convenience sample of Doctor of Pharmacy (PharmD) students (N =244) enrolled in their first three didactic years at two diverse universities completed the researcher-developed questionnaire that assessed test anxiety, academic competence, test competence, time management, and strategic studying. The sample was 75% female (M = 27 years, SD = 4.06), and 57% of the sample reported at least part-time employment.

According to the researchers, academic competence measures how a student manages his or her study load, and also assesses the student's comprehension of the study material. Test competence was operationally defined in this study as "how students cope with the amount of study material to be mastered for examinations" (Sansgiry, Bhosle, & Dutta, 2005, p. 122). The researchers defined time management as a behavioral skill set that students use in the organization of study and course load. An operational definition of strategic studying was not provided. Reliability coefficients reported as Cronbach's alphas for each of the instrument's subscales were listed as follows: test anxiety .90, academic concept .70, test competence .75, time management .70, and strategic studying .72 (Sansgiry et al., 2005).

Students in this study reported a mean test anxiety score of 2.52 (SD = 0.84) on a 5-point Likert scale where 1= not typical of me and 5= very typical of me (Sansgiry et al., 2005). Multiple regression was then performed to identify the predictors of test anxiety. The independent variables of academic concept, test concept, time management, and strategic studying were included in the model. Academic competence (R^2 = .24) and test competence (R^2 = .22) were significant predictors of test anxiety (p <.05) while time management and study

behaviors were not. These findings are congruent with previous test anxiety research by Hembree (1988) that asserts study skills do not impact test anxiety.

Sansgiry and colleagues (2006) built upon their 2005 study and administered their instrument to another convenience sample of 198 PharmD students from one university. A cross-sectional descriptive correlational study was performed to further explore academic competence, test competence, time management, and study skills on test anxiety among PharmD students with low (less than 3.0) and high (3.0 or greater) cumulative grade point averages (Sansgiry, Bhosle, & Sail, 2006). Self-reported cumulative GPA was the primary indicator of academic performance and was measured on a scale ranging from 0 to 4. The sample was 73% female and 50% Asian-pacific islander, and included PharmD students in all four levels of education.

The mean test anxiety score was 2.6 (SD = 0.8) with a statistically significant difference ($p < .05$) in test anxiety levels between 2nd year (M = 3.1, SD = 0.8) and 4th year (M =2.3, SD = 0.8) students (Sansgiry et al., 2006). Additionally, the majority of students indicated that they did not have physical symptoms such as perspiration (76%), stomach upset (65%), and increased heart rate (58%) which supports Borkovec's cognitive avoidance theory of worry that suggests that worry disrupts fear exposure (physiological symptoms) resulting in maintained threat appraisals. Spearman's correlations for study variables were also reported. Contradictory to previous research (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988), test anxiety was not significantly correlated to GPA (r = -.15, p = .06) in this sample of PharmD students. However the results indicate that test anxiety was significantly correlated at the p <.05 level with academic competence (r = -.34), test competence (r = -.53), and time management (r =-.29).

Similar to their previous findings (Sansgiry et al., 2005), study skills were not significantly correlated to test anxiety in this population of students.

Medical Education

One study examined the roles of metacognitive beliefs, trait worry, and attentional control in performance test anxiety of objective structured clinical examinations (OSCEs) among medical students in the United Kingdom (O'Carroll & Fisher, 2013). A convenience sample of 240 first-year medical students was recruited for the study. Participants ranged from 18-35 years (M = 19.6, SD = 2.6), and females accounted for 54% of the sample.

Test anxiety was the dependent variable and was operationalized in the study as the summed scores from the 2 subscales of the Three-Factor Anxiety Inventory (TFAI), where the Factor 1 subscale assesses worry and self-focused attention and Factor 2 assesses autonomic response and somatic tension (O'Carroll & Fisher, 2013). Independent variables included metacognitive beliefs measured by the Metacognitions Questionnaire-30, which assesses five dimensions of metacognition: positive beliefs about worry, negative beliefs about worry, cognitive confidence beliefs, beliefs about need to control thoughts, and cognitive self-consciousness; attentional control, measured by the Attentional Control Scale (ACS) that assesses an individual's beliefs about his or her ability to voluntarily focus and switch attention; and the Penn State Worry Questionnaire (PSWQ) which is a self-reported measure of trait worry. Reliability coefficients for the aforementioned instruments were not reported in the study. Participants completed each questionnaire on the day they performed their OSCE.

Univariate statistics revealed that female students reported significantly higher (p <.001) scores than male students on three variables: MCQ-30 negative beliefs about the uncontrollability and danger of worry (t[238] = 3.64); MCQ-30 cognitive confidence beliefs

(t[238] =) 3.93), and PSWQ worry (t[238] = 5.36). Correlations then were conducted and revealed that six of the eight predictor variables were significantly correlated (p <.001) with test anxiety; MCQ-30 negative beliefs (r=0.61), MCQ-30 cognitive confidence (r =.28), MCQ-30 need to control thought (r = .33), MCQ-30 self-consciousness (r =.29), PSQW Worry (r = .61), and ACS attention focusing (r = -.27) (O'Carroll & Fisher, 2013). The six significantly correlated variables were entered into a regression equation. For female students, the regression model had an R^2 = .45 (F[6, 121] = 16.29, p < 0.001). The two variables that made independent contributions to predicting female test anxiety were PSWQ worry (β = 0.38, t[127] = 3.40, p < 0.001) and MCQ-30 negative beliefs about worry (β = .27, t[127] = 2.28, p < 0.024). In males, the overall model had an R^2 = 0.50 (F[6, 104] = 17.30, p < 0.001), and three variables made independent contributions to predicting test anxiety: PSWQ worry (β = 0.38, t[110] = 3.70, p < 0.001); MCQ-30 negative beliefs about the uncontrollability and danger of worry (β = 0.25, t[110] = 2.10, p < 0.037), and ACS attention focus (β = 0.18, t[110] =) 2.40, p < 0.018). These results support previous research that females experience more test anxiety than males (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988; Macher et al., 2012) and that worry is significantly related to test anxiety (Deffenbacher, 1978; Morris, Davis, & Hutchings, 1981). The fact that the study instruments were administered on the day of the OSCE acts a significant limitation in the study, as this may have positively skewered anxiety scores. Utilizing a repeated measures approach may have provided the researchers more meaningful data and would allow for utilization of t-tests to determine if anxiety was significantly different on the day of the OSCE than either before or after it was completed.

Another study sought to identify the prevalence of test anxiety and psychological distress among first-year Malaysian medical students. The study also examined to the extent to which

test anxiety influenced psychological distress. A convenience sample 154 of first-year medical students who completed their first five weeks of training participated in the study. The sample was 54% female (Saravanan, Kingston, & Gin, 2014).

The students were approached after their lecture hours to participate in this study by completing several self-reported questionnaires. Students first completed a demographic questionnaire. Students also completed the Westside Test Anxiety Scale (WTAS) to assess prevalence of test anxiety. The WTAS reports a mean total score in which a mean score of less than 3 is considered normal or low anxiety and mean score of more than 3 indicates test anxiety. The Cronbach's alpha for reliability of this scale in this study was .89 (Saravanan et al., 2014). The Kessler Psychological Distress Scale (K-10) was used to measure psychological distress in which a total score of 10 to 20 indicated non-distress while score of 21 to 50 was considered distress (Saravanan et al., 2014). The reliability of the K-10 in this study was .90. Last, students completed the Academic Motivation Scale (AMS) which was used to measure intrinsic motivation, extrinsic motivation, and demotivation. In scoring the AMS, higher scores indicate increasing severity of distress. The reliability of the AMS in this study was 0.92 (Saravanan et al., 2014).

Contrary to previous research in health related disciplines (O'Carroll & Fisher, 2013; Sansgiry et al., 2005; Sansgiry et al., 2006), descriptive statistics showed that 28 students (18%) exhibited test anxiety and 126 students (82%) were reported to have normal anxiety (Saravanan et al., 2014). Additional results revealed that 83 medical students experienced psychological distress (54%) and 71 (46%) did not have psychological distress. A significant strong positive correlation between test anxiety and psychological distress (r =0.60, $p < 0.01$) and demotivation (r =0.34, $p < 0.01$) was also noted (Saravanan et al., 2014). Conversely, test anxiety was not

significantly correlated with either intrinsic or extrinsic motivation. A regression analysis using total test anxiety score as a predictor variable and total demotivation score as criterion variables was then completed. According to the model, test anxiety was a significant predictor of demotivation ($\beta = .398$, $p < 0.001$) contributed 15% of the variance ($R^2 = .15$, $F(1, 152) = 27.87$, $p < .000$) in demotivation (Saravanan et al. 2014). These findings suggest that students who are test-anxious may develop a lack of motivation in their studies.

Summary

It is well documented that students in health related disciplines experience higher levels of test anxiety than the general university population. Specifically, pharmacy and medical students experience test anxiety during written and as well as objective clinical examinations. Similar to previous test anxiety research, females in health-related majors reported higher levels of test anxiety. Academic competence, similar to academic self-concept, was significantly negatively correlated to test anxiety, which has been identified in previous studies. In accordance with prior research, study habits were not significantly correlated with test anxiety in the health related disciplines.

Gaps in the Literature

Only four studies were found that examined test anxiety in health-related majors. The generalizability of these studies is limited by the use of small convenience samples. Additionally, two articles utilized researcher-developed instruments; however, appropriate reliability coefficients for these instruments were reported. Both studies that examined test anxiety among medical students utilized only first year-students, and both were conducted on students outside of the United States. Additionally, the two studies that examine medical students did not utilize any demographic information to assess impact of demographics on test

anxiety. Future research on test-anxiety in health-related disciplines should attempt to utilize valid and reliable instruments, include all levels of students, utilize demographic information as variables, and gather larger and more diverse samples to increase generalizability of findings.

Test Anxiety in Nursing Education

Test anxiety is an increasingly concerning phenomenon for nurse educators. This section reviews the conceptual definition of test anxiety in nursing education as well as quantitative and qualitative research on test anxiety in nursing education. Empirical research on the causes and consequences of test anxiety in nursing education programs is presented.

In a recent concept analysis of test anxiety in nursing education Gibson (2014) defined test anxiety as "an unpleasant feeling or emotional state that has both physiological and behavioral components and that is experienced in formal testing or other evaluative situations" (p. 272). Gibson proposed that test anxiety has the following defining attributes, or central characteristics; the presence of an examination or evaluation, a negative subjective feeling of worry, study habits or test-taking abilities, physical signs such as palpitations and sweating, and cognitive aspects such as disorganized or irrelevant thinking. However, literature revealed that while emotionality is often present in test-anxious students, cognitive worry maintains a stronger presence and elicits a more significant negative impact on academic performance (Borkovec et al., 1983; Hembree, 1988). In essence, not every test-anxious student will display physiological symptoms. Additionally, research remains ambiguous on the effect of study habits on test anxiety.

Qualitative Studies

Only one qualitative study that specifically examined test anxiety in nursing education was found. Edelman and Ficorelli (2005) performed a descriptive phenomenological study

which sought to provide a view of the reality of nursing students who experience test anxiety. The question was "What is the lived experience of the nursing student experiencing test anxiety?" A purposive sample of eight female nursing with ages ranging from 19 to 36 was utilized. The type of nursing program or year of study of the students was not provided.

Open-ended questions were used to interview participants. Data was generated in audio-taped interviews and then transcribed verbatim. Colazzi's method of data analysis was used in the study. According to Edelman and Ficorelli (2005), transcripts were read in their entirety; then significant statements about feelings of anxiety were extracted, meanings were formulated, and themes were generated from these meanings. Participants were invited to review the results as a means of determining whether the descriptions reflected their experiences.

Three themes emerged from the data: the reality of an anxiety episode, the academic implications of test anxiety, and effective measures of dealing with anxiety (Edelman & Fircorelli, 2005). The reality of an anxiety episode uncovered students' feelings and awareness of anxiety, primarily manifested by physical symptoms. These findings are congruent with previous test anxiety research (Liebert & Morris, 1967) that suggests emotionality acts as a concept within the realm of test anxiety. The academic implications of test anxiety consisted of negative thoughts, and participants identified fears associated with failing written examinations and not completing the nursing program. One participant stated, "What if I fail this exam? I'm barely passing as it is; if I don't get a good grade on this exam, I may be out of the program…" (Edelman & Ficorelli, 2005, p. 57). This finding further supports the worry component of test anxiety described in previous research in which negative thoughts consume the individual. Last, effective measures of dealing with anxiety included endurance, self-control, and self-discovery of measures of stress management. Becoming empowered and gaining/maintaining control of

their feelings and behaviors was central to this theme. Additionally, participants mentioned the issue of control (or lack of it). One student commented, "I feel like I can't stop these feelings…" (Edelman & Ficorelli, p. 58). These findings are similar to those of Borkovec (1983) who described that worried individuals had difficulty "turning off" negative thinking.

Summary

Only one qualitative study explored test anxiety in nursing students. Using Colazzi's method, Edelman and Ficorelli (2005) sought to define the lived experience of nursing students with test anxiety. Three themes emerged from the data; the reality of an anxiety episode, the academic implications of test anxiety, and effective measures of dealing with anxiety. This study was the first qualitative study to examine test anxiety in nursing students with an emphasis on assisting graduate nursing students to adjust to employment as registered nurses. This article focused on the experience of test anxiety in nursing students and new orientees, and suggested measures that nurse educators may employ in reducing this anxiety to facilitate learner progression through a nursing program or orientation.

Quantitative Studies

Several empirical studies and doctoral dissertations have examined test anxiety in pre-licensure nursing students. The majority of the research identified test anxiety as a concern for pre-licensure nursing students. This section describes the causes, correlates, and consequences of test anxiety in pre-licensure nursing education.

Carraway (1987) developed the Test Anxiety Questionnaire (TAQ) for nursing students for her doctoral dissertation. The purpose of this tool was to assist nurse educators in identifying test-anxious students. According to Carraway, nursing students constitute a unique population in higher education, and their reasons for developing test anxiety may be different than general

college students. Two panels of experts consisting of three members on each panel, served as content validity experts. Nursing faculty at the researcher's place of employment acted as the expert panel. The questionnaire initially included 40 items which were reviewed by the panel of experts, and all 40 items were retained. Respondents were asked to report the frequency of specific signs and symptoms of anxiety in testing situations using a four-point Likert scale with responses as follows: 1) almost never, 2) sometimes, 3) often, and 4) almost always.

The questionnaire was administered to second-year associate degree nursing students (N = 50) who were all female. To determine test-retest reliability, the questionnaire was administered one hour prior to a nursing test and then again one week later one hour prior to another nursing test. Test-retest reliability of the instrument was determined by Cronbach's alpha and indicated a strong positive correlation of .94. The possible range of summed scores was 40 to 160 points. Scores provided ranges for the level of anxiety as follows; 40-65 low anxiety (30% of students), 66-90 moderately low anxiety (50% of students), 91-115 moderately high anxiety (20% of students), and 116-140 high anxiety in which no students scored. These findings conflict current nursing research findings that the majority of nursing students are test-anxious.

Limitations of this study include the small, all-female sample, the close working relationship of the expert panel to the researcher, and the short-time period of one week between administrations of the instrument for test-retest reliability. While Carraway (1987) sought to elicit specific reasons for test anxiety unique to the nursing student population, review of the statements included in the questionnaire revealed broad statements that could be applicable to any type of college student, rather than being specific to only nursing students.

Howell and Swanson (1989) attempted to determine the influence of test anxiety on study habits, test-taking skills, cognitive interference, academic self-concept, and GPA among female junior nursing students (N = 57). Subjects were from a large urban university in Georgia whose ages ranged from 20-44 (mean and standard deviation not reported). The sample was primarily white (n = 48), followed by black (n = 8), and Asian (n = 1). Participants completed the Test Anxiety Scale, Self-concept of Ability Scale, and Brown's Effective Study Test two weeks prior to the third course exam of the semester. Immediately following the course exam, participants then self-reported their GPA on a demographic sheet and completed the Cognitive Interference Questionnaire.

Results found that test anxiety was significantly negatively correlated with academic self-concept (r = -.68, p <.05) and GPA (r = -.49, p <.05) and significantly positively correlated with cognitive interference (r = .53, p <.05). These findings are supported by Sansgiry and colleagues (2005). Also similar to the findings of Sansgiry and colleagues (2005), study skills and test-taking skills were not significantly correlated to test-anxiety. Additionally, the researchers performed a multiple linear regression analysis to attempt to best predict test anxiety in pre-licensure nursing students. The factors that significantly contributed to the model variance at the p <.0001 level included academic self-concept (R^2 = .47), cognitive interference (R^2 = .08), and GPA (R^2 = .04). Thus, academic self-concept, cognitive interference, and GPA accounted for 59% of the variance in test anxiety scores, (f = 25.13, p <.0001). These findings support previous test anxiety research that suggested self-esteem and cognitive interference (Hembree, 1988; Waltman, 1997) directly influence test anxiety. Additionally, GPA provided some variance in test anxiety scores, corroborating previous research that found "at-risk" or low performing students experience more test anxiety.

In 1997, Waltman compared traditional and non-traditional baccalaureate nursing students' test anxiety and major contributing factors using Meichenbaum and Butler's model of test anxiety. This model asserts that test anxiety and its treatment that includes both cognitive process and academic skills variables; and is comprised of four interdependent components: 1) cognitive structures, 2) internal dialogue, 3) behavioral acts, and 4) behavioral outcomes. (Waltman, 1997)

Baccalaureate nursing students (N = 110) in their first semester of nursing studies at two large state universities served as the sample. The sample included traditional (n = 63) and non-traditional (n = 47) students. For this study, traditional students were defined as "students between 18 and 24 years of age who had not assumed more than one of the social roles characteristic of adult status" (Waltman, 1997, p. 174). Data were collected on two different occasions at two to four week interval periods. During the first session, students completed a biographical data questionnaire, the TAI, Effective Study Test, and the Post-High School Self-Concept of Ability Scale. Students then completed the Cognitive Interference Questionnaire (CIQ) at the conclusion of a regularly scheduled course examination in an attempt to identify the frequency of negative internal thoughts.

Means and standard deviations for each of the selected variables were calculated for each student group. A t-test for mean differences was calculated to determine if any of the variable means differed significantly between the traditional and non-traditional student groups. Mean TAI scores fell within the moderate range for test anxiety in both groups (Waltman, 1997). A significant difference (p <.05) in the mean score on the CIQ for the traditional student group (M = 31.1, SD = 9.4) indicated high cognitive interference as compared to the non-traditional student group (M = 27.1, SD = 8.6). There was no significant difference on GPAs for the two

groups. Further analysis on the traditional group revealed significant correlations between academic self-concept and test anxiety, cognitive interference, and GPA. Academic self-concept was significantly negatively correlated at the p <0.5 level with TAI (r = -.42) as and CIQ (r = -.27). Conversely, academic self-concept correlated positively with GPA (r = .25, p <.05). For non-traditional students, the strongest correlation was between CIQ and scores on test anxiety and the worry component of its subscale (TAI total, r = .42; TAI Worry, r = .44), no other correlations were significant. Thus, as the frequency of negative thoughts increases, test anxiety also increased. Additionally, the analysis revealed no significant correlations between study and test-taking skills in the traditional student group. These findings are consistent with the aforementioned study by Howell and Swanson (1989). Similar to traditional students, non-traditional group data showed the strongest correlation between test anxiety and CIQ (TAI total r = .61, TAI worry r =0.55). The results of this study indicate no significant difference between traditional students and non-traditional students regarding test anxiety and that while incidence of cognitive interference was higher for non-traditional students, the difference was not significant.

Brewer (2002) performed a descriptive study to determine if debilitative anxiety in nursing students, presently known as test anxiety, was different than the level of debilitative anxiety within general university students. Participants (n=225) were drawn from the following convenience sampling method: senior undergraduate nursing students were asked to participate, non-nursing freshman students from a class in human motivation were asked to participate, and students in the researcher's course solicited general students from across campus. A total of 93 nursing students and 131 general university students participated in the study. Alpert and Haber's AAT was administered to all participants, no other data was gathered.

Univariate statistics revealed that the level of debilitative anxiety was not significantly different between nursing students and general university students, $F(2, 227) = 0.75$, $p = .42$. However, both nursing students' ($t[91] = 10.63$) and general university students' ($t[127] = 12.38$) debilitative anxiety scores were significantly higher ($p = .000$) than Alpert and Haber's normative values. Thus, Brewer suggests that nursing students and general university students report higher levels of debilitative anxiety than those found by Alpert and Haber (1960).

The nearly four-decade time lapse from normative AAT scores reported by Alpert and Haber may act as one reason that higher levels of debilitative anxiety were found in this study. One may argue that the evaluative nature of higher education has become more rigorous in the past 40 years. Additionally, the level of the general university students was not a variable in this study. Utilizing the educational level and selected majors of the general university population as a variable may have provided better insight into this phenomenon in the current study. Regardless, this study identified that both nursing students and general university students report more debilitative anxiety than university students in the 1960s.

Driscoll and colleagues (2009) used the Westside Test Anxiety Scale (WTAS) to assess the frequency and severity of test anxiety among nursing students. Previous combined data from WTAS scores of general college students and high school students ($N = 471$) was used to compare data to a convenience sample of $N = 305$ (n = state university and $n = 186$ private college) undergraduate nursing students. Mean WTAS scores were compared between the high school and general college students ($M = 2.87$) and the nursing students ($M = 3.14$). Standard deviations were not reported. The difference in mean WTAS scores was statistically significant ($F = 26.2$, $p < .001$, $SD = 0.67$) for the sample of nursing students (Driscoll, et al., 2009). While the results of this study indicate that nursing students reported higher levels of test anxiety than

high school and general college students, several limitations exist. First, nursing student data was compared to previously collected data. Furthermore, additional variables that may have contributed to the development of test anxiety were not included.

One study attempted to investigate the relationship between test anxiety and academic performance among nursing students in Nigeria (Afolayan et al., 2011). Specifically, Afolayan and colleagues sought to identify the various forms of anxiety experienced by students and investigate the relationship between anxiety and academic performance. A purposive sampling technique was used to select 50 students out of 100 students from 200-level sample of nursing students. The researchers sought these students because they identified the 200-level as a transition stage for nursing students from pre-clinical to clinical and thought this level to be associated with increased academic demands.

The questionnaire used for the study was designed by the researchers and consisted of two sections. The first section collected data on personal variables of gender, age and religion. The second section collected data related to anxiety and responses were on a 5-point Likert scale as follows: not at all typical of me, not very typical of me, somewhat typical of me, fairly typical of me and very typical of me (Afolayan et al., 2011). Content validity of the instrument used was established by presenting the research instrument to other research experts for assessment and suggestions. To establish reliability, the instrument was pilot tested on 10 students from the department of medicine.

Univariate statistics such as frequencies and percentages were provided for each item and its responses. The relationship between gender and test anxiety was only assessed by the responses to one item which stated "I do better when I am not anxious in an examination than in the one that I am anxious." There was no statistical significant relationship between gender and

anxiety with respect to student academic performance, $\chi^2(3) = 2.144$, $p < .05$. This conflicts the majority of test anxiety research (Cassady & Johnson, 2002; Chapell et al., 2005, Hembree 1988; Sansgiry et al., 2006) that suggested females are more prone to test anxiety than males.

Summary

The aforementioned studies identify that test anxiety is a phenomenon experienced by many pre-licensure nursing students and provides insight into the profile of test-anxious nursing students. Being a female non-traditional student significantly contributes to the development of test anxiety. Nursing students who are academically "at risk" and report lower academic self-concept also have a higher incidence of test anxiety. Importantly and contrary to nursing student beliefs, nursing students' test-taking and study skills were not significantly correlated to test anxiety. Thus, test anxiety research in nursing education supports previous test anxiety research that suggests the phenomenon is largely cognitive, rather than behavioral.

Gaps in the Literature

Test anxiety has been a topic of interest for nurse educators since the 1980s. However, research has gleaned little information about this phenomenon. The paucity of test anxiety research in nursing education research was largely descriptive and utilized small convenience samples. No studies were found that examined nursing education program in relation to test anxiety. Additionally, test anxiety was measured using several test anxiety instruments as well as researcher-developed instruments that lack established validity and reliability.

Further research should seek to utilize larger, more diverse sample sizes, include all levels of pre-licensure nursing students across all nursing education program types, explore demographic variables described in previous literature such as age, gender, employment, GPA,

and family members' educational attainment, and incorporate the use of valid and reliable test anxiety measurement instruments.

Academic Procrastination

Despite research describing negative consequences, academic procrastination has become increasingly prevalent in higher education students in recent years (Cao, 2012; Howell & Watson, 2007; Steel, 2007). Current estimates suggest that 70-90% of undergraduate students admit to procrastinating on their academic tasks (Steel, 2007) while over half procrastinate consistently and problematically (Day, Mensink, & O'Sullivan, 2000). At the present, an abundance of research has examined the prevalence, reasons, and consequences of academic procrastination in higher education. This section outlines the historical context of academic procrastination, identifies its associated correlates, and describes the consequences of academic procrastination in higher education.

Historical Context of Academic Procrastination in Higher Education

Procrastination is defined as the willful delay of completing a task. Academic procrastination is defined by as "intentionally deferring or delaying work that must be completed" (Schraw, Wadkins, & Olafson, 2007, p. 12). Presently, academic procrastination has received more attention than any other kind of procrastination. A historical analysis on procrastination by Milgram (1992), suggested that technically advanced societies require numerous commitments and deadlines, which gives rise to procrastination.

Academic procrastination has been a phenomenon that has been studied in higher education since the 1980s and has become increasingly studied in higher education since the year 2000 (Klassen, Krawchuck, & Rajani, 2008). Coincidentally, millennial students began entering higher education in the early 2000s. Millennial students have been described as

"digital natives" and have grown up in a technologically advanced society. Thus millennial college students, who are accustomed to technology, may experience more academic procrastination than previous generations of college students.

Early academic procrastination research focused on behavioral variables such as amount of time spent studying. However, the seminal work of Solomon and Rothblum (1984) identified academic procrastination as a concept in which faulty cognition played a larger role than behavioral measures such as time spent studying. Solomon and Rothblum suggested that negative cognitions may contribute to academic procrastination, and reasons include evaluation anxiety, difficulty in making decisions, rebellion against control, lack of assertion, fear of' the consequences of success, perceived aversiveness of the task, and overly perfectionist standards about competency. Since that time, academic procrastination research has sought to empirically identify reasons for procrastinating, characteristics of procrastinators, and consequences of academic procrastination.

Academic Procrastination and Associated Correlates

As mentioned previously, academic procrastination research since the 1980s has sought to identify students' reasons for procrastinating, ascertain characteristics of those who academically procrastinate, and explore the potential consequences of academic procrastination. The following sections review qualitative and quantitative literature regarding academic procrastination in higher education.

Qualitative Studies

A grounded theory study by Schraw, Wadkins, and Olafson (2007) sought to provide a detailed description of students' accounts of academic procrastination and ultimately develop a theoretical model by which future academic procrastination research could be tested. Students

pursuing elementary or secondary education who were enrolled in an undergraduate psychology class at a large midwestern university participated in the study as partial completion of course requirements. Random sampling was used to collect data over eight academic semesters and included a sample size of 67 (40 women and 27 men). All students were between the ages of 20 to 33 years of age, five students were identified as minority students. From the 67 students, theoretical sampling was used to identify students who were frequent procrastinators. The researchers utilized Strauss and Corbin's method for conducting grounded theory research. Data was collected during four phases; phase one included the use of focus groups whereas individual interviews were completed in phases two through four. All interviews utilized open-ended questions and were transcribed verbatim. Coding was performed in each phase to discuss themes and establish a story line that illustrates the paradigm model (Schraw et al., 2007).

From the data, a model of academic procrastination was constructed. This model included the antecedents of procrastination, the phenomenon itself, coping strategies, and consequences. Antecedents to academic procrastination included personal interest in the topic, teacher expectations, and task difficulty. If students had interest in the topic they tended to procrastinate less. Additionally, teachers with high expectations and stringent guidelines influenced students not to procrastinate. Difficult tasks, such as major writing assignments, increased procrastination and anxiety compared with less difficult tasks.

The phenomenon of academic procrastination identified whether students considered the behavior adaptive or maladaptive. Adaptive characteristics were identified as those that increase the likelihood of achieving a deep state of flow because procrastinators work under pressure for extended periods of time. In regard to adaptive aspects of academic procrastination, one participant noted, "I can't get in the flow unless I'm under pressure" (Schraw et al., p. 18, 2007).

Conversely, maladaptive aspects included fear of failure, laziness, and postponement of work. Most students reported moderate fears of failure, but that these fears rarely prevented them from successfully completing a project. Also, a number of students indicated that they experienced laziness as a consequence of boredom with their classes or assignments, rather than procrastination. Individuals offered three reasons for postponement of academic work; personal fun, employment obligations, and fatigue.

Coping strategies included planning to procrastinate and building that time into their schedule. Additionally, distributing cognitive workload by working in groups or using notes borrowed from friends or commercially available study guides, and engaging in positive self-talk such as "I know I can procrastinate and still get the job done" (Schraw et al., 2007, p. 20) were common coping strategies. Many students also reported in engaging in some sort of physical activity to help reduce stress. Conversely, a small number of students reported intense levels of partying immediately prior to the final drive to complete work.

Students reported mixed views regarding the consequences of procrastination. Most participants felt that quality of life decreased, whereas quality of work was not affected when procrastinating. All students experienced fatigue, stress, guilt, and anxiety resulting from procrastination. Most students reported high levels of irritability during intense periods of study and some reported feelings of isolation from friends. Contrary to previous research regarding academic outcomes such as grades, most respondents believed that procrastination did not have a negative impact on the quality of their work.

Another qualitative study investigated reasons and consequences of academic procrastination (Grunschel, Patrzek, & Fries, 2013). Additionally, the study explored whether students seeking help from student counseling services to overcome academic procrastination

reported more serious reasons and consequences of academic procrastination than students who procrastinate but do not seek support. A purposive sample of students from two German universities was recruited to participate in the study. The sample (N = 36) consisted of 20 female and 16 male students. The mean age of students was 27.47 years old (SD = 5.63). Students were enrolled in various majors and had been studying for 11.59 semesters (SD = 6.51). Students were also identified as seeking university provided treatment for academic procrastination (n = 16; 8 women and 8 men) or not seeking treatment for academic procrastination (n = 20).

Semi-structured digitally recorded interviews were performed by trained research assistants. The interviewers asked each student to define academic procrastination and to describe up to three episodes of academic procrastination they had experienced in the last semester and to specify which activity they had carried out instead. For each episode, the interviewers requested the students to describe reasons for and consequences of their procrastination. A team of research assistants transcribed the recorded interviews. The researchers then analyzed the interviews using the method of qualitative content analysis and combined the deductive and inductive approaches to develop a comprehensive description of reasons and consequences of academic procrastination. Categories and subcategories for reasons and consequences of academic procrastination were identified and compared among students utilizing university counseling for academic procrastination and students who were not seeking counseling for academic procrastination.

Analysis revealed that students most frequently mentioned procrastinating when writing term papers and when studying for exams. The participants more frequently identified internal reasons than external reasons for academic procrastination. Internal reasons included anxiety, frustration, lack of competence, fatigue, and dislike for the academic task. Students (n = 22)

reported anxiety as an affective reason citing fear of failure or anxiety concerning their future. Furthermore, 21 students attributed academic procrastination to a negative self-concept, identifying doubts about academic competence and low self-esteem. Further analysis found that 30 students indicated that they procrastinated tasks when they perceived them as aversive (i.e. students did not like the tasks or did not enjoy working on them). Most students procrastinated when they perceived the tasks as complex (27 students) or difficult (20 students). External reasons included academic working conditions, teacher characteristics, and institutional considerations (too many exams at the end of the semester, poor library conditions).

Only two consequences were reported by the majority of the 36 students; time pressure and no consequences. Twenty-one students mentioned time pressure as a negative consequence for the students' course of studies. A female illustrated her experience of time pressure when completing the preparation of an oral presentation as follows: "Ultimately, I sat there for three days and hardly slept." Interestingly, 21 students also experienced no consequences, or at least no negative consequences, due to academic procrastination. Other negative consequences of academic procrastination described by at least half of students were primarily affective and included mental stress, anger, anxiety, and feeling remorse (Grunschel et al., 2013).

In summary, the main categories concerning the reasons and consequences of academic procrastination were identical for those not seeking treatment for academic procrastination and those who were seeking treatment. However, on the subcategory level, students seeking treatment for academic procrastination identified more extreme reasons and serious consequences. For example, 94% of students in the counseling group reported anxiety as a reason for academic procrastination, in contrast to 35% of students in the non-counseling group. Similarly, 55% students in the non-counseling group compared to 13% in the counseling group

reported procrastinating when they perceived their tasks as not interesting. Additionally, the majority of students identified competence-related reasons such as lack of study skills and low self-regulation as reasons for academic procrastination.

Summary

Two qualitative studies aimed to examine academic procrastination in higher education and reported similar results. The reasons and consequences of academic procrastination were similarly reported between the two studies, however students in the study by Schraw and Wadkins (2007) identified academic procrastination as an adaptive as well as a maladaptive behavior, stating that feeling intense pressure to complete academic work helped them perform the task better. Those that stated the need to feel under pressure also often reported planning to procrastinate and making time for procrastination activities during their day. Both studies' participants reported fear of failure and task aversiveness as a reason for procrastination. One study reported that external reasons, such as teacher expectations may play a role in academic procrastination. For example, teachers with lax deadlines and who provided poor student support were seen to augment procrastination. Students in both studies commonly reported that writing papers and preparing for exams were the academic areas in which they procrastinated most.

Consequences of academic procrastination were identified as decreased quality of life during the procrastination period (feeling alone, stressed, and guilty). Interestingly, neither study reported negative academic consequences, as students indicated that they believed the quality of their work was not affected by procrastinating. Last, students who were seeking help in dealing with academic procrastination often reported more serious consequences (course failure, dismissal from school) than those who were not seeking treatment.

Gaps in the Literature

The construct of academic procrastination has not been widely studied from a qualitative perspective. Additionally, there were no studies that qualitatively examined academic procrastination among health-related majors. While, both studies ascertained reasons and consequences of academic procrastination the samples were obtained from within and outside of the United States. A majority of the participants in the studies reported feelings of anxiety, guilt, and stress as consequences of academic procrastination. Thus, utilizing a hermeneutical approach to understand the lived experiences of those who academically procrastinate may prove beneficial.

Quantitative Studies

Solomon and Rothblum's (1984) seminal work on academic procrastination in higher education has led to an abundance of research on the topic over the past several decades. Solomon and Rothblum argued that academic procrastination encompassed cognitive processes and should be measured more than by mere time spent studying or engaging in academic work. Their research sought to investigate the frequency of college students' procrastination on academic tasks and identify the reasons for procrastination behavior.

The subjects of the study included a convenience sample of 342 (101 males and 222 females) university students who were enrolled in two sections of an introductory psychology course and who expressed willingness to participate in the study. All levels of college students were represented in the sample with the majority of subjects being 18 to 21 years of age (mean and standard deviation were not provided).

The Procrastination Assessment Scale for Students (PASS) was developed by the researchers for the purpose of this study. The PASS included two sections; one section measured

prevalence and frequency of procrastination and the other assessed reasons for procrastination. Section one aimed to assess the prevalence of procrastination in six academic areas; writing a term paper, studying for an exam, keeping up with weekly reading assignments, performing administrative tasks, attending meetings, and performing academic tasks in general. In section one students were asked to indicate the degree to which they procrastinated on the tasks on a 5-point Likert scale (1 = never procrastinate; 5 = always procrastinate) as well the degree to which procrastination on the task is a problem for them (1 = not at all a problem; 5 = always a problem). In addition, subjects were asked to indicate on a 5-point Likert scale the extent to which they want to decrease their procrastination behavior on each academic task (1 = do not want to decrease; 5 = definitely want to decrease). Section two provided a procrastination scenario (delay in writing a term paper) and then listed a variety of possible reasons for procrastination on the task; evaluation anxiety, perfectionism, difficulty making decisions, dependency and help seeking, aversiveness of the task and low frustration tolerance, lack of self-confidence, laziness, lack of assertion, fear of success, tendency to feel overwhelmed and poorly manage time, rebellion against control, risk-taking, and peer influence. Two statements were listed for each of these reasons, and students were asked to rate each statement on a 5-point Likert scale according to how much it reflected why they procrastinated the last time they were in that situation. The PASS was not pilot tested prior to being administered to the sample.

Solomon and Rothblum (1984) also sought to determine affective, cognitive, and behavioral correlates of academic procrastination in this study. Therefore, participants completed the PASS and following self-report measures to which the PASS was correlated; the Rosenberg Self-Esteem Scale to assess self-esteem, the STAI to measure anxiety, the Delay Avoidance scale of the Survey of Study Habits and Attitudes to assess study habits, the College

Self-Expression scale designed to measure assertion, the Beck Depression Inventory, and the Ellis Scale of Irrational Cognition. Cronbach alphas for the aforementioned instruments in this study were not reported.

Univariate statistics regarding the frequency of procrastination on academic tasks as follows: 46% of subjects reported that they nearly always or always procrastinate on writing a term paper, 28% procrastinate on studying for exams, and 30% procrastinate on reading weekly assignments (Solomon & Rothblum, 1984). Regarding the degree to which subjects felt procrastination was a problem for them, 24% reported that it was nearly always or always a problem when writing a term paper, 21% said it was a problem when studying for exams, and 24% said it was a problem when doing weekly readings. Last, regarding the extent to which subjects wanted to decrease their tendency to procrastinate, 65% stated that they wanted to reduce their procrastination when writing a term paper, 62% wanted to reduce it when studying for exams, and 55% wanted to reduce it when doing weekly readings.

Furthermore, according to Solomon and Rothblum (1984), analyses of variance were performed to examine possible sex differences in procrastination. The results indicated that there were no significant sex differences for any area of academic procrastination nor for total self-reported procrastination, although F-test results were not specifically reported in the study. Similarly, course grade was not significantly correlated with self-reported procrastination, and this non-significant relationship was apparent for all types of academic tasks, although specific results were not specified in the article.

The PASS was then correlated to the aforementioned self-report instruments that assessed affective, cognitive, and behavioral measures. Correlational analysis indicated that the self-report measures that correlated most significantly with the total score on the PASS were

depression (r = .44, p < .0005), an affective measure; irrational cognitions (r = .30, p < .0005) and self-esteem (r = -.23, p < .0005), two cognitive measures; and punctuality and organized study (r = -.24, p < .0005), measures of behavior. Procrastination was also significantly correlated with anxiety (r = .13, p < .05), but to a lesser degree than it was with the previously mentioned measures. These findings suggest that academic procrastination is associated with affective and cognitive measures, as well as study habits.

The last portion of this study discussed validity and reliability of the PASS instrument. The researchers performed a factor analysis of subjects' reasons for procrastination. An item was included as loading significantly on a factor if its factor value was, greater than or equal to ± .50 (Solomon & Rothblum, 1984). Two factors were found to significantly contribute to academic procrastination. The first significant factor was fear of failure and accounted for 49.4% of the variance regarding reasons for procrastination. Fear of failure included items related to anxiety about meeting others' expectations (evaluation anxiety), concern about meeting one's own standards (perfectionism), and lack of self-confidence (Solomon & Rothblum, 1984). The second factor accounted for 18% of the variance and relates to aversiveness of the task and laziness. Thus, the factor analysis indicated that fear of failure and aversiveness of the task are the two primary independent reasons for academic procrastination. Analyses of variance of sex differences on the two primary reasons for procrastination yielded a significant difference for the Fear of Failure factor, F(l, 273) = 6.96, p < .001 in which females were significantly more likely to experience fear of failure as a reason for academic procrastination. Conversely, there was no significant sex difference on items that reflected aversiveness of the task.

To further evaluate reasons for academic procrastination, the researchers conducted frequency tabulations for each item, consisting of the percentage of subjects who highly

endorsed each item (i.e., marked 4 or 5 on a 5-point scale in which 1 = not at all reflects why I procrastinated and 5 = definitely reflects why I procrastinated). Subjects' endorsement of items constituting the Fear of Failure factor ranged from 6% to 14%. In contrast, endorsement of items constituting the Aversiveness of the Task factor ranged from 19% to 47%. These results suggested that two groups of academic procrastinators exist. First, a relatively small but extremely homogeneous group of students report procrastinating as a result of fear of failure and a second group that consists of a large and relatively heterogeneous sample that reports procrastinating as a result of aversiveness of the task. The researchers then performed a correlational analysis of the two factors to other self-report measures. The Fear of Failure factor was found to correlate significantly with depression (r = .41, p < .0005), irrational cognitions (r = .30, p < .0005), punctuality and organized study habits (r = -.48, p < .0005), and self-esteem (r = -.26, p < .005) but also with anxiety (r = .23, p < .0005). The Task Aversiveness Factor correlated with depression (r = .36, p < .0005), irrational beliefs (r = .23, p < .0005), and punctuality and organized study habits (r = -.53, p < .0005). However, it is noteworthy that the Aversiveness of the Task factor was not significantly correlated with anxiety or assertion.

Thus, the results of this study present several important findings. First, some students procrastinated because of aversiveness of the task while others procrastinated because of fear of failure, but the latter also reported high anxiety and low self-esteem. Secondly, contrary to prior assumptions, time management was not an independent factor that explained procrastination behavior. Solomon and Rothblum's (1984) work was the first to assert that procrastination is not merely a deficit of study habits and organization of time but involves a complex interaction of behavioral, cognitive, and affective components. Additionally, this study brought forward the most commonly used academic procrastination measurement tool in education. The PASS has

been utilized in samples of high school, college, and graduate students, yet remains to be employed in a sample of pre-licensure nursing students.

In another study, Solomon and Rothblum continued to expand upon their findings that academic procrastination encompassed affective, cognitive, and behavioral components by seeking to examine the relationship between academic procrastination and test anxiety, an affective variable; attributions of academic success and failure, a cognitive variable; and self-control, a behavioral variable (Rothblum, Solomon, & Murakami, 1986).

A convenience sample (N = 379; 261 females; 117 males) completed the PASS and the three other trait measures; the Test Anxiety Scale (Sarason, 1972), the Attribution Scale, and the Rosenbaum Self-Control Scale, reliability coefficients for these instruments are not provided in the article. Self-reported end of semester GPA was also an independent variable in the study.

First, the study differentiated between high and low procrastinators. Students who reported on the PASS that they nearly always or always procrastinated on studying for exams and that such procrastination nearly always or always made them feel anxious were considered high self-reported procrastinators. A total of 154 out of 379 subjects (41%) scored high on procrastination using these criteria. Of these subjects, 32% of males and 45% of females met criteria for high procrastination. The remaining subjects were classified as low procrastinators.

Regarding the frequency of test anxiety, both females $F(1, 377) = 6.45$, $p < .01$ and high procrastinators $F(1, 377) = 22.02$, $p < .001$ reported more test anxiety. For the cognitive measure of attribution (assesses failure attribution and success attribution), high procrastinators were more likely to attribute success on exams to more external circumstances such as luck, compared to low procrastinators, $F(1, 377) = 7.27$, $p < .01$. This finding supports Solomon and Rothblum's (1984) initial research that indicated a negative correlation between academic

procrastination and self-esteem. Results for the self-control measure indicated that high procrastinators $F(1, 377) = 18.0$, $p < .001$ and females $F(1, 377) = 5.25$, $p < .05$ perceive themselves to have less delay of gratification, lower self-efficacy, and less control over emotional reactions. Last, results also indicated that self-reported procrastination for the entire sample was negatively correlated ($r = -.22$, $p < .001$) with semester grade point average.

Another study sought to examine academic procrastination and self-determination. Using self-determination theory as a framework, Senécal and colleagues (1995) correlated motivational factors to academic procrastination. According to the researchers, "self-regulation concerns the way that individuals make use of internal and external clues to determine when to initiate, when to maintain, and when to terminate their goal-directed actions" (Senécal, Koestna, & Vallerand, 1995, p. 609).

A convenience sample ($N = 498$) of French-Canadian students attending a junior college served as the sample. The mean age of participants was 18.6 years and the majority (74%) of the sample was female. The time of the academic year in which the questionnaires were completed is not reported by the researchers. The packet of questionnaires included several self-reported instruments described next. The first instrument was the previously validated French version of the Academic Motivation Scale (AMS), which measures four learning regulation styles, lending the instrument to utilize four subscales. The internal reliability of each subscale in the study was reported as follows: intrinsic scale $\alpha = .89$, identified regulation scale $\alpha = .61$, external regulation scale $\alpha = .80$, and the amotivation scale $\alpha = .84$. Participants also completed the PASS, which demonstrated a Cronbach's alpha of 0.88 in a preliminary study using 160 participants from the junior college. The French version of the Self-Esteem Scale was also administered and found to be highly internally consistent ($\alpha = .88$). The Depression scale from the Hopkins symptoms

checklist was translated into French and administered to participants, demonstrating a Cronbach's alpha of 0.78. The Clinical Anxiety Scale, which reflects the frequency and intensity of anxious feelings was also administered ($\alpha = .86$). Last, a demographic questionnaire was included and asked participants to include their age, sex, area of residence, grades, and number of semesters completed (Senécal et al., 1995).

Correlations between the four self-regulation subscales scales, the three scales measuring fear of failure (anxiety, depression, and self-esteem), and academic procrastination were performed. In support of previous research (Solomon & Rothblum, 1984), academic procrastination was significantly correlated with anxiety ($r = .22$, $p < .01$), depression ($r = .27$, $p < .05$), and low self-esteem ($r = -.21$, $p < .05$). Additionally, three of the four self-regulation scales were significantly correlated with academic procrastination; intrinsic motivation ($r = -.28$, $p < .01$), external regulation ($r = .17$, $p < .01$), and amotivation ($r = .26$, $p < .01$). A t-test was also performed to determine gender difference, and revealed that men ($M = 47.31$, SD not reported) procrastinated on academic tasks significantly more than women ($M = 43.6$, SD not reported), $t(480) = 3.38$, $p < .001$). An additional correlation performed supports previous findings (Rothblum et al., 1986) that procrastination is negatively correlated with grade point average ($r = -.41$, $p < .01$).

Last, a multiple regression was performed to assess the impact of self-regulation styles on academic procrastination. Scores on the fear of failure measures of anxiety, depression, and low self-esteem were entered together as Step 1, and the scores on four self-regulated learning styles were entered together as Step 2, resulting in a significant multiple correlation of .50, $F(7, 461) = 21.73$, $p < .0001$. In support of previous research (Solomon & Rothblum, 1984), it was noted that the fear of failure measures accounted for 14% of the variance ($p < .0001$) while

the self-regulated learning styles accounted for 25% of the variance in academic procrastination scores (Senécal et al., 1995).

The results of this study support previous research that procrastination negatively impacts academic performance (Rothblum et al., 1986) and that fear of failure leads to high levels of academic procrastination (Solomon & Rothblum, 1984; Rothblum et al., 1986). This research also suggested that males academically procrastinated significantly more than females. Additionally, this research proposed that self-regulated learning styles significantly contributes to academic procrastination; in that students who were intrinsically motivated tended to procrastinate less whereas those who were extrinsically motivated procrastinated more on academic tasks (Senécal et al., 1995).

Reasinger and Brownlow (1996) also examined academic procrastination in relation to motivation styles among college students. A convenience sample of 96 undergraduate students (48 men, 48 women; distributed among college class) included students who volunteered or those who participated for extra course credit. Participants completed several self-reported questionnaires either alone or in mixed-sex groups of two to 10 people (Reasinger & Brownlow, 1996).

Study measures included the PASS, the Multidimensional-Multiattributional Causality Scale which measures internal and external attributional style, the Brief Fear of Negative Evaluation scale which assesses concern about negative evaluations received by others, the Work Preference Inventory which measured intrinsic and extrinsic motivation, Burns' Perfectionism Scale, and the Locus of Control Scale.

A multiple regression analysis was performed using major motivation scales (intrinsic and extrinsic), Perfectionism, Fear of Negative Evaluation, Locus of Control (both scales),

MMCS (internal and external measures), and participant gender as predictors of scores on the PASS. This model was significant, $F(10, 83) = 5.55$, $p < .001$, and accounted for 63% of the variance in PASS scores (Reasinger & Brownlow, 1996). Additionally, significant predictors of procrastination included an external attributional style ($\beta = .25$), Perfectionism ($\beta = .41$), lack of extrinsic motivation ($\beta = -.37$), and being male ($\beta = -.22$). These findings support those of Senécal and colleagues (1995) in which males were found to procrastinate significantly more than females.

Next, PASS scores were used to differentiate high versus low procrastinators in order to directly compare the motivation, attributional style, and self-reported reasons for procrastination of those students who tend to procrastinate often with those students who do not. As expected, high procrastinators were less intrinsically motivated than low procrastinators, $F(1, 78) = 7.05$, $p < .01$) and that low procrastinators were more extrinsically motivated than were high procrastinators, $F(1, 78) = 3.84$, $p < .05$). Similar to the findings of Senécal and colleagues (1995), high procrastinators cited attributions such as luck for their successful behaviors more than did low procrastinators $F(1, 78) = 4.18$, $p < .05$). Last, low procrastinators indicated that they found academic tasks more satisfying than did high procrastinators, $F(1, 78) = 6.24$, $p < .05$ while high procrastinators reported putting off academic tasks due to task aversion more than low procrastinators, $F(1, 80) = 10.75$, $p < .01$. These findings contrast those of Solomon and Rothblum (1984) in which procrastinators reported doing so primarily because of fear of failure.

Another study sought to predict academic procrastination using a self-efficacy framework (Haycock, McCarthy, & Skay, 1998). A convenience sample ($N = 141$) of students from a large midwestern university were invited to participate in the study, and were informed that the intent of the study was to assess procrastination. Participants' ages ranged from 18-54 ($M = 24.50$,

SD = 7.40) and the majority of participants were white (86%). The sample also included undergraduate (82%) and graduate students, with a variety of academic majors represented.

Research variables included self-efficacy, procrastination, and anxiety. The researchers developed the self-efficacy inventory (SEI) for the purpose of this study, which underwent content validation and pilot testing prior to using it in the study. Three subscales; efficacy level, average efficacy strength, and cumulative efficacy strength comprised the SEI. Cronbach's alphas for each subscale of the SEI ranged from .60 to .91 (Haycock et al., 1998). A modified version of Form G of the Procrastination Inventory (PI) was used to measure procrastination and the authors report a Cronbach's alpha of .84 of this instrument when used in the current study. Last, the STAI was used to measure anxiety. The authors did not report reliability coefficients for the STAI in this study. Last, nine demographic questions were collected to gather information regarding age, gender, ethnicity, relationship status, student status, educational level, income, and employment (Haycock et al., 1998).

Univariate statistics revealed that the cumulative sample reported moderate amounts of procrastination (*M* = 33.9, *SD* = 5.1) on the PI (scores can range 23-46), high scores on the SEI (range 0-31) indicating high self-efficacy expectations (*M* = 25.8, *SD* = 4.3), high state anxiety (*M* = 45.9, *SD* = 12.2), and moderate trait anxiety (*M* = 41.61, *SD* = 10.57) (Haycock et al., 1998). The researchers reported that ANOVAs were performed to assess for differences in procrastination, efficacy, and anxiety among demographic variables and that no significant differences were found. However, correlations were calculated for procrastination scores, self-efficacy, and anxiety for age and gender. Similar to previous research (Solomon & Rothblum 1984) procrastination was significantly correlated to anxiety ($r = .31$, $p < .05$). Procrastination was also significantly correlated with all measures of self-efficacy at the $p < .05$ level; efficacy

level (r = -.40), cumulative efficacy strength (r = -.50), and average efficacy strength (r = -.39). In disagreement with prior studies, this study found no significant correlation of academic procrastination to age or gender. A multiple regression model was also constructed using the independent variables of efficacy level, cumulative efficacy strength, average efficacy strength, state anxiety, trait anxiety, age, and gender. In the model, $F(7, 133) = .771$, $p < .0001$, $R^2 = .288$, only one variable, cumulative efficacy strength, significantly contributed to academic procrastination, and accounted for 25% of the variance in academic procrastination scores. Finally, it should be noted that while the sample included undergraduate and graduate students, the educational level of students was not examined as a correlational variable.

This was the first study to examine self-efficacy in relation to academic procrastination. Results supported previous findings which proposed that academic procrastination is correlated to anxiety (Solomon & Rothblum, 1984) but opposed previous findings that suggested males procrastinate more than females (Reasinger & Brownlow, 1996; Senecal et al., 1995). This study recommended that self-efficacy should now be considered to have a significant effect on students' tendency to academically procrastinate.

Prohaska and colleagues (2000) were the first to study academic procrastination in a solely non-traditional convenience sample (N = 286) of students. Participants were compensated for participating in the study either by receiving extra credit toward their course grade or receiving a payment of $8 (Prohaska, Morril, Atiles, & Perez, 2000). Participants in this study completed the PASS and a demographic questionnaire in one of a number of group settings ranging in size from 5 to 25 at their respective campuses. The demographic questionnaire requested that participants indicate their age, gender, ethnic affiliation, high school education, whether they were the first family member to attend college, and whether they were born in the

United States (Prohaska et al., 2000). The sample was primarily female (80%), with an age range of 17-44 years (M = 25.85, SD = 8.97). Thirty-two percent of students attending the community college reported that they held a general education degree (GED) rather than a high school diploma, whereas this number decreased to 12% in the 4-year college setting. Additionally, 33% of 4-year students reported they were the first in their family to attend college while 30% of community college students responding as such. Permission was also obtained for the researchers to access participants' current GPAs from college records.

A t-test comparing total PASS scores for the 4-year and community college samples also revealed that total PASS scores were not different among the groups, $t(370) = .40$, $p < .7$ (Prohaska et al., 2000). Similar to Solomon and Rothblum's (1984) initial study, univariate statistics showed greatest amount of reported academic procrastination occurred for the three academic items: writing a term paper (38%), keeping up with weekly reading assignments (39%), and studying for examinations (34%). Also in support of previous research (Reasinger & Brownlow, 1996; Rothblum et al., 1986; Senécal et al., 1995), a gender difference was found in total PASS scores between men and women. The mean PASS score for males was 34.51 (SD = 8.05) while the mean for women was 31.94 (SD = 7.02), $t(370) = 2.86$, $p < .005$. Regarding ethnicity, participants born in the United States (US) had higher PASS scores (M = 33.29, SD = 7.36) than those born outside of the US (M = 31.67, SD = 7.09), $t(371) = 2.11$, $p < .05$. Furthermore, no significant differences were observed based on whether participants possessed a high school diploma, $t(371) = 1.08$, $p < .3$, or were the first family member to attend college, $t(371) = 1.83$, $p < .07$. A significant negative correlation was observed between participant age and total PASS score (r = -.10, $p < .05$). Contrary to previous research (Solomon

& Rothblum, 1984; Rothblum et al., 1986), there was no correlation between GPA and total PASS score ($r =$ -.06, $p < .4$)

This study implied that the highest levels of academic procrastination were for those areas most important to students' grades such as writing a term paper, studying for exams, and weekly reading assignments. Additionally, results suggested that ethnicity was not a major factor in academic procrastination in this sample. While older students reported significantly less procrastination ($r = -.10$, $p < .05$) than younger students, there was no statistically significant difference in procrastination between the 4-year and community college participants. This study adds to research on academic procrastination by including nontraditional and Hispanic students; however, no data were collected concerning reasons for self-reported procrastination or assessing how procrastination relates to other personality variables, such as self-esteem (Prohaska et al., 2000).

While Solomon and Rothblum (1984) were the first to propose that academic procrastination included cognitive and affective components in addition to behavioral components, little research has focused primarily on affective links to academic procrastination. Fee and Tagney (2000) attempted to clarify the relationship of chronic procrastination with affective experiences of shame and guilt. The specific aims of the study were to examine the relationship of chronic procrastination to several personality constructs, including shame-proneness, guilt-proneness, fear of negative evaluation, and conscientiousness. A small convenience sample (N = 86) of undergraduate students completed two measures of chronic procrastination as well as measures of shame, guilt, perfectionism, self-esteem, fear of negative evaluation, and conscientiousness. The sample was drawn from a large east coast public university, and students received credit in an undergraduate psychology course in exchange for

their participation. Participants ranged in age from 18 to 40, (M = 21.86, SD = 4.32); 40% were male and 60% were female.

Participants completed a demographic questionnaire and nine paper-and-pencil questionnaires (given to all participants in the same order), however results from seven of these questionnaires were presented in the study. The Test of Self-Conscious Affect (TOSCA) provides indices of shame-proneness, guilt-proneness, externalization, detachment-unconcern, alpha pride (pride in self), and beta pride (pride in a specific behavior); and is measured by two subscales, shame and guilt. In this study, estimates of internal Cronbach's alpha for the Shame and Guilt scales were .74 and .73 (Fee & Tagney, 2000). Two measures of procrastination were utilized, the General Procrastination (GP) Scale and the Adult Inventory of Procrastination (AIP). Both scales measure the chronic tendency to procrastinate in everyday life, rather than being limited to academic procrastination. Adequate internal consistency was reported for the GP (α = .85) and the AIP (α = .88). The Multidimensional Perfectionism Scale was used in this study to assess perfectionism characteristics. This instrument includes three subscales which measure types of perfectionism; self-oriented, other-oriented, and socially-prescribed. As the instrument uses a true/ false format, reliability estimates were reported as Kuder-Richardson 20 (KR-20) values for the MPS subscales as follows: Self-Oriented Perfectionism = .76; Other-Oriented Perfectionism = .76; Socially-Prescribed Perfectionism = .72 (Fee & Tagney, 2000). The Fear of Negative Evaluation (FNE) was also used and the authors report a reliability coefficient of 0.92 for this instrument. Self-esteem was assessed using the Rosenburg Self-Esteem scale, and the estimates of internal consistency reliability (Cronbach's alpha) were .84 for the Self-Esteem and .76 for Stability of Self-Esteem components. Last, the Conscientiousness scale was used and measures individual differences in the process of

planning, organizing, and completing tasks. The authors report the Cronbach's alpha for the Conscientiousness scale was .86 (Fee & Tagney, 2000).

Correlational analysis of the two procrastination scales revealed significant correlations of both scales to shame (GP r =.26, p <.05; AIP r =.25, p <.05) and conscientiousness (GP r = -.58, p <.001; AIR r =-.65, p <.001) (Fee and Tagney, 2000). In contrast, there was no consistent link between guilt and procrastination. In disagreement with prior research (Haycock et al., 1998; Senécal et al., 1995; Solomon & Rothblum, 1984), additional correlations did not reveal a significant relationship between self-esteem and procrastination or fear of negative evaluation (Fee & Tagney, 2000). Results of this study indicate that the tendency to procrastinate is associated with vulnerability to feelings of shame about the self, rather than a generalized tendency to feel guilty about engaging or not engaging in particular behaviors. While this study addressed procrastination in daily life rather than academic procrastination, the findings are important to remember, as this study suggests that shame plays an important role in the context of chronic procrastination. It may prove helpful to conduct a similar study using academic procrastination as the dependent variable rather than general or chronic procrastination.

A study by Onwuegbuzie (2004) examined academic procrastination in regard to statistics anxiety. The study specifically sought to examine the prevalence of procrastination among graduate students and to investigate the relationship between academic procrastination and statistics anxiety. A convenience sample of 135 graduate students from various education majors who were enrolled in a required introductory-level educational research course at a university in the southeastern part of the United States was used. Participants were offered extra course credit for their participation. The ages of the participants ranged from 21 to 51 (M = 26.0, SD = 6.8). Mean academic achievement, as measured by grade point average, was 3.57

(*SD*= .36). The majority of participants was female (93%) and Caucasian (93%). Prior to further analysis, the author performed a non-parametric two-sample t-test to assess for gender differences in the sample, which revealed no gender difference (p <.05) in levels of academic procrastination, fear of failure, and task aversiveness (Onwuegbuzie, 2004).

Two instruments were administered to the sample, the Statistical Anxiety Rating Scale (STARS) and the PASS. The STARS assesses statistics anxiety in a variety of academic situations and includes six subscales; worth of statistics, interpretation anxiety, test and class anxiety, computational self-concept, fear of asking for help, and fear of the statistics instructor (Onwuegbuzie, 2004). Reliability coefficients were reported for each subscale and ranged from .81 to .96. Additionally, the coefficient alpha score reliability of the PASS measures were .84 for the procrastination scale, .85 for the fear of failure factor, and .76 for the task aversiveness factor (Onwuegbuzie, 2004).

According to Solomon and Rothblum (1984), scores on the PASS range from 12-60, fear of failure scores may range from 5-25, and task aversiveness scores include a possible range of 3-15. Onwuegbuzie (2004) reported univariate statistics on PASS measures as follows: PASS total mean score 34.52, *SD* = 12.80; fear of failure mean 9.82, *SD* = 4.35, and task aversiveness mean 8.39, *SD* = 1.65. Percentages were reported for the frequency of procrastination for a variety of academic tasks, revealing that 42% of the graduate students reported that they nearly always or always procrastinate on writing a term paper, 39% procrastinate on studying for examinations, and 60% procrastinate on keeping up with weekly reading assignments. Additionally, 24% of graduate students felt that procrastination was a problem for them, 24% reported that it was nearly always or always a problem when writing a term paper, 22% reported that this was a problem when studying for examinations, and 42% indicated that it was a problem

when completing weekly readings. Last, in terms of wanting to decrease procrastination tendencies, 65% of participants identified that they wanted or definitely wanted to reduce their procrastination when writing a term paper, 68% wanted to reduce it when studying for examinations, and 72% wanted to reduce it when undertaking reading assignments (Onwuegbuzie, 2004). All of the aforementioned findings are consistent with the initial research of Solomon and Rothblum (1984).

Pearson-product moment correlations were also executed for the PASS total score, the fear of failure factor, and the task aversiveness factor for each of the six STARS subscales. The fear of failure factor was significantly correlated ($p < .001$) to worth of statistics ($r = .34$), computational self-concept ($r = .30$), fear of asking for help ($r = .39$), and fear of the statistics instructor ($r = .31$). Similarly, the task aversiveness factor was positively correlated ($p < .001$) to worth of statistics ($r = .38$), computational self-concept ($r = .32$), and fear of the statistics instructor ($r = .37$). These findings support those of Schraw and Wadkins (2007) who suggested that academic self-concept influences academic procrastination.

Onwuegbuzie (2004) also compared the frequency and reasons for academic procrastination in his sample to those reported by Solomon and Rothblum's (1984) normative sample. Most notably, it was found that a larger proportion of students in the present study than in the undergraduate norm group reported that they nearly always or always procrastinate on studying for examinations and on weekly reading assignments. Onwuegbuzie proposed graduate students procrastinate more for different reasons than undergraduates. Last, while the study presents strong evidence for a relationship between academic procrastination and statistics anxiety, it is not clear whether the relationship is causal (Onwuegbuzie, 2004).

Another study attempted to predict the relationship between statistics anxiety, individual characteristics (trait anxiety and learning strategies), and academic performance (Macher, Paecheter, Papusek, & Ruggeri, 2012). Participants (N = 147) included undergraduate students enrolled in an introductory statistics course as required by psychology (n = 143) or other studies in social sciences (n = 4) at Karl-Franzens-University Graz, Austria. The age of the participants ranged from 18 to 45 years (M = 20.80, SD = 3.63). Multiple measures were utilized in the study and included that Statistics Anxiety Rating Scale (STARS), the trait subscale of the STAI, a German-adapted Modified Strategies for Learning Questionnaire (MSLQ), the Procrastination Assessment Scale for Students (PASS), academic self-concept in mathematics, interest in statistics, and academic performance measured by the score on the final statistics course examination.

Results indicate that four variables are related to statistics anxiety; trait anxiety, statistics anxiety, mathematical self-concept, and interest in statistics. Comparable to previous research findings (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988) in which students with trait anxiety reported higher test anxiety, participants in the current study with higher levels of trait anxiety reported higher levels of statistics anxiety (r = .54, p <.001). Furthermore, female students reported higher levels of statistics anxiety (M = 2.25, SD = .75) than males (M = 1.74, SD = .71) which is similar to the previous findings that female students report higher levels of test anxiety. Interest in statistics was the highest predictor of (β = -.31) statistics anxiety. Last, both trait anxiety ($\beta 1$ = .24) and statistics anxiety ($\beta 2$ = .27) significantly predicted procrastination (higher levels of anxiety indicated a higher level of procrastination; and male students (M = 3.00), SD = .52) demonstrated higher procrastination values than female students (M = 2.67, SD = .60). Contrary to previous research (Cassady & Johnson, 2002; Chapell et al.,

2005), there was no significant difference with regard to academic performance between male and female students as evidenced by final exam scores $t(146) = -.30$, $p = .76$.

Similar to Senécal and colleagues (1995), Howell and Watson (2007) examined academic procrastination within a self-regulatory and academic goal orientation framework. Canadian undergraduate students ($N = 177$) enrolled in an introductory psychology course participated in the study. The sample was primarily female (70%) and ages ranged from 17 to 47 (M = 20.13, SD = 3.92). Study measures included the PASS (α = .75), the 16-item Procrastination Scale (α = .90), the Achievement Goal Questionnaire which includes four achievement goal orientations; mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance (α ranged from .83 to .92), the Motivated Strategies for Learning Questionnaire (MSLQ) (α not reported), and an instrument that measured intellectual processing (deep, surface, and disorganization, α ranged from .66 to .84) (Howell & Watson, 2007). Students completed the packet of questionnaires during the final week of classes and also granted permission for the researchers to access their final course grade.

Means and standard deviations were reported for all study variables; the PASS mean was 34.58 ($SD = 7.44$) while the 16-item Procrastinations scale had a mean of 40.51 ($SD = 8.54$). Pearson correlations between variables were also performed. In contrast to previous research (Prohaska et al., 2000; Reasinger & Brownlow, 1996; Senécal et al., 1995; Rothblum et al., 2006), no significant gender differences were found regarding academic procrastination between men and women. Additionally, age did not significantly correlate to any of the study variables. Negative correlations between the mean scores on the PASS ($r = -.25$, $p < .05$) and the 16-item Procrastination Scale ($r = .25$, $p < .001$) were noted with MSLQ mastery-approach goal orientation. Additionally, PASS scores and Procrastination Scale scores were inversely

correlated to cognitive strategies usage (PASS r = -.28, p <.001; Procrastination Scale r = -.35, p <.001) and meta-cognitive strategies usage (PASS r = -.29, p <.001; Procrastination Scale r = -.40, p <.001) (Howell & Watson, 2007). Multiple regressions were also executed for PASS scores and Procrastination Scale scores using the four goal and orientations and learning strategies as predictor variables. For the PASS, the model indicated that the four goal orientations accounted for 8% of the variance in scores $F(4, 165) = 3.57$, $p < .01$ (Howell & Watson, 2007). When learning strategies were added to the model, they accounted for 22% of the variance in PASS scores $F(5, 160) = 5.54$, p <.001. Significant predictors of PASS scores in this model were disorganization ($\beta = .26$, p <.001) and cognitive strategies usage (β = -.26, p <.05). Similarly, the regression model for the four goal orientations accounted for 10% of the variance in Procrastination Scale scores, $F(4, 164) = 4.50$, p <.01, and adding learning strategies to the model accounted for 33% of the variance in scores $F(5, 159) = 10.79$, p <.001. The strongest predictor of Procrastination Scale score was disorganization ($\beta = .36$, p <.001). Ultimately, this study suggests that students who are disorganized and report lower cognitive and metacognitive learning strategies are more likely to academically procrastinate, Howell and Watson classify such individuals as those who possess low self-regulation. Interestingly, gender and age were not significantly correlated to academic procrastination in this sample.

Steel (2007) conducted a meta-analysis of procrastination stating that there was a need for a comprehensive and detailed examination of the research on procrastination. Steel had three goals in completing the meta-analysis, 1) to establish the nature of procrastination conceptually; 2) to broadly explore the causes and correlates of procrastination; and 3) to integrate the findings with respect to temporal motivation theory, which seeks to explain self-regulatory behavior in a way that is consistent with a variety of theoretical perspectives (e.g., economics, personality,

expectancy theory, goal setting) (Steel, 2007). The meta-analysis included academic as well as non-academic literature.

Steel (2007) first reviewed the literature for definitions of procrastination and developed a conceptual definition of the construct. According to Steel, "To procrastinate is to voluntarily delay an intended course of action despite expecting to be worse off for the delay" (Steel, 2007, p. 66). Next, Steel examined 691 correlations noted within the literature to determine the causes and correlates of procrastination and formed four major sections: task characteristics, individual differences, outcomes, and demographics. Task characteristics describe possible environmental causes of procrastination, such as timing of rewards and personal fondness for the task. The section on individual differences deals with personality traits such as self-efficacy and self-esteem. Outcomes indicate the performance effects of procrastination. Last, the demographics section reviews possible demographic contributors such as age and gender. Each section is then subdivided into more specific constructs.

Prior research has demonstrated that task aversiveness contributes to academic procrastination (Solomon & Rothblum, 1984; Onwuegbuzie, 2004). Steel (2007) performed a meta-analysis using the Hunter and Schmidt (1990) psychometric meta-analytic procedure, which is designed for estimating the mean effect size and the amount of residual variance in observed scores after considering artifacts, usually sampling error and unreliability (Steel, 2007). Using this method, mean effects sizes are expressed as correlations. The meta-analysis is limited to when there are at least five cases (K) per variable. Results are reported as correlations and K values where statistically significant at the $p < .01$ level. Data for the analysis was obtained from 691 correlations in the literature from the 1970s to early 2000s.

Steel (2007) described two predictable environmental factors of task characteristics in his meta-analysis: timing of rewards and punishments, and task aversiveness; however, only task aversiveness proved amenable to meta-analytic summary. Timing of rewards explains that the further away an event is on a time continuum, the less impact it has upon one's decisions. This can be exhibited in the academic realm when students report procrastinating in writing term papers. Task aversiveness occurs when one seeks to avoid aversive stimuli. Steel asserts that the more aversive the task, the more likely one is to procrastinate. Additionally, Steel states that although the extent to which people dislike a task may be influenced by a variety of personal characteristics, if the task is perceived as unpleasant, research has indicated that they are indeed more likely to put it off. Most importantly, Steel notes that task aversiveness needs the previous concept, timing of rewards and punishment, to account for procrastination. Task procrastination refers to whether anyone would procrastinate about performing a specific task if it was aversive and trait procrastination refers to whether procrastinators find more of life's tasks (e.g., washing dishes, paying bills) aversive. Thus, Steel reported the correlations for task procrastination as r = .40, K = 8 and trait procrastination as r = .40, K = 10.

Literature has yielded abundant descriptions of individual differences or personality traits that may contribute to procrastination. In describing individual differences related to procrastination, Steel (2007) first explained that neuroticism weakly contributes to procrastination (r =. 24, K = 59). Neuroticism is similar to worrying, trait anxiety, or negative affect, however Steel suggests that neuroticism's connection to procrastination is primarily due to impulsiveness, not anxiety. Consequently, the highly anxious or neurotic individual will illogically put off many of life's daily activities. Steel also described low self-efficacy (r = -.38, K = 39) and low self-esteem (r = -.27, K = 3) were highly correlated to procrastination in the

literature. Additionally, self-handicapping, or placing physical or emotional obstacles that hinder one's own good performance was highly correlated with procrastination, r =.46, K = 16. Self-handicapping acts as a coping mechanism to protect one's self-esteem by giving oneself an external reason, an "out," if one fails to do well (Steel, 2007). Depression was another individual difference that correlated to procrastination, r = .28, K = 56. Steel asserted that depression, low energy, learned helplessness, and pessimism are closely related to each other and to neuroticism, irrational beliefs, and low self-efficacy or self-esteem. Clinically depressed individuals are often unable to take pleasure in life's activities, report fatigue, and may have problems concentrating; which may increase procrastination habits (Steel, 2007). Thus, as energy wanes it becomes harder for individuals to initiate tasks. Rebellion against control was also described by Steel as contributing to procrastination, r = -.12, K = 24. Steel explained that individuals who lack agreeableness are more likely to experience externally imposed tasks as aversive and attempt to avoid them. By delaying work and starting it on their own schedule, individuals attempt to regain autonomy. The additional personal characteristics of impulsiveness (r =. 41, K = 22) and sensation-seeking (r = .17, K = 11) are also described by Steel (2007) as contributing to procrastination. Impulsive people may be more likely to procrastinate, as they are likely to focus on the present moment than long-term goals. Additionally, impulsive individuals typically pursue instant gratification and neglect or ignore long-term responsibilities. Thus, impulsiveness is similar to the construct of present-time orientation. Similarly, sensation-seeking individuals are easily bored and often intentionally put off work in order to feel the tension of working close to a deadline and their delays are often purposefully planned (Steel 2007). Steel further asserts that conscientiousness (r = -.62, K = 20) inversely contributes to procrastination. Conscientiousness allows an individual to manage distracting cues or ideas, to plan and organize

time according to the task, set high goals and perceive tasks as personally satisfying, and continually re-evaluate their plans.

Outcomes of procrastination included mood and performance (Steel, 2007). Steel suggested that procrastination impacts mood negatively; as procrastinating may initially improve mood, one's mood worsens as a deadline approaches. However, empirical evidence concerning mood is not definitive, and therefore no correlations could be drawn between mood and procrastination. Regarding performance, procrastination has been shown in the literature to both help and hinder performance, although more empirical literature points to a decrease in performance (Steel, 2007). A small number of people report using procrastination as performance-enhancing strategy, as it helps get them to cope with an oncoming deadline. More often, however, procrastination has been correlated to overall poor performance. Results indicated a weak but negative relationship between academic performance and procrastination (r = .19, K = 41). Additionally, the following measures of academic performance were significantly negatively correlated to academic procrastination; GPA (r = -.16, K = 19), final course grade (r = -.25, K = 10), final exam grade (r = -.17, K = 11), and assignments (r = -.21, K = 13). Individuals that procrastinate and are subsequently affected by poor performance tend to make excuses for the poor performance as a coping mechanism. Thus, Steel suggests that procrastination may lead to poorer performance, which ultimately lowers self-efficacy, which in turn leads to more procrastination.

Last, Steel (2007) examined the demographic variables of age, gender, and year on procrastination. Consistently in the literature, age has been an ambiguous variable regarding procrastination. Steel suggests that people procrastinate less as they age and learn. Age was inversely correlated to procrastination (r = -.48, K = 16). Similar to age, reports of gender

correlation to procrastination in the literature are many and varied. Ultimately, Steel explained that procrastination is weakly associated with male gender (r = -.08, K = 44). Additionally, a number of empirical studies cite that all forms of procrastination are beginning to rise. In the meta-analysis, Steel asserted that year (in time) had little direct impact on procrastination. Using publication year to indicate sample year and controlling for different procrastination measures, Steel (2007) revealed sample year had a significant effect for data up to 2003, $F(1, 123) = 7.81$, $p = .006$). However, including 2004 data diminished this effect and by 2005 it no longer was significant, $F(1, 135) = 3.12$, $p = .08$. As society becomes more technologically advanced, more distractions and thus more reasons for procrastination become evident.

Klassen and colleagues (2008) sought to examine the roles of self-efficacy and self-regulation in academic procrastination. The results of two studies by Klassen and colleagues (2008) were reported in one article. Study one sought to determine if self-efficacy for self-regulation predicts academic procrastination when controlling for GPA, general academic self-efficacy, self-regulation practices, and self-esteem (Klassen, Krawchuk, & Rajani, 2008). According to the researchers, self-efficacy for self-regulation "reflects an individual's beliefs in his or her capabilities to use a variety of learning strategies, resist distractions, complete schoolwork, and participate in class learning" (Klassen et al., 2008, p. 918). A convenience sample of 261 undergraduate upperclassmen enrolled in an educational psychology course participated in the study. The sample was primarily female (81%) with ages ranging from 18 to 53 years (M = 23.3, SD = 5.19).

Students completed Tuckman's 16-item Procrastination Scale and provided self-reported GPAs. Additional study measures included the MSLQ and the Rosenburg Self-Esteem Scale. The reliability coefficients for all study measures were acceptable and ranged from .80 to .90

(Klassen et al., 2008). Correlations between procrastination and all independent study variables were all significant at the $p < .001$ level. A hierarchical multiple regression equation was then performed to determine the level of influence of each study variable on procrastination. Results suggested that GPA was a small but significant predictor of academic procrastination ($\beta = -.22$, $p < .001$). Next, adding self-regulation, self-efficacy, and self-esteem significantly changed the variance in procrastination scores, $\Delta R^2 = .15$, $F(3, 256) = 15.32$, $p < .001$. Self-efficacy for self-regulation was added to the final step and accounted for a significant increase in explained variance, $\Delta R^2 = .19$, $F(1, 255) = 79.90$, $p < .001$ (Klassen et al., 2008). After examining the betas for each independent variable, it was noted that self-efficacy for self-regulation was the strongest predictor ($\beta = -.52$, $p < .001$) of academic procrastination. While the results support previous research that has identified GPA, self-efficacy, and self-esteem (Steel, 2007) as contributors to academic procrastination, this was the first study to specifically evaluate self-efficacy for self-regulation.

Klassen and colleagues (2008) also performed another study in which the aim was to examine academic and motivation characteristics of undergraduate students who are most negatively impacted by procrastination. The sample ($N = 195$) was again drawn from a large public university in Canada using students enrolled in an educational psychology course. However, the sample for study two was drawn from different course sections than the sample in study one. The sample was again primarily female (72%) with an age range of 19 to 40 years ($M = 23.20$, $SD = 3.89$).

Study measures included self-reported GPA, an adapted instrument that assessed daily procrastination, task procrastination, negative impact of procrastination, self-efficacy for self-regulation, and reasons for procrastination. While the instrument was pilot tested on 16 students,

a reliability coefficient for this instrument was not reported. Students completed the study measures during the first few weeks of the academic semester.

Correlations among the variables suggested that the negative impact of procrastination was most closely correlated with hours of daily procrastination (r =.38, p <.01) and self-efficacy for self-regulation (r =.36, p <.01) (Klassen et al., 2008). Univariate statistics revealed that over 90% of the sample reported procrastinating more than one hour per day. Regarding the type of academic tasks on which students procrastinate, writing and studying tasks were more frequently reported. These results are similar to those of Solomon and Rothblum (1984). A stepwise hierarchical regression was also performed and after accounting for all variables, GPA (β = -.19, p <.001), daily procrastination (β = .27, p <.001), and self-efficacy for self-regulation (β = -.23, p <.001) predicted the degree of negative impact of academic procrastination. These findings support those that suggest GPA (Onwuegbuzie, 2004; Steel, 2007; Solomon & Rothblum, 1984) and self-efficacy for self-regulation (Klassen et al., 2008) impact academic procrastination.

In 2010, Wohl and colleagues took a different approach in examining academic procrastination and examined the association of forgiving oneself for a specific instance of procrastination and procrastinating on that same task in the future (Wohl, Pychyl, & Bennett, 2010). The researchers proposed that forgiving oneself for procrastinating may lead to a change in motivation and future procrastination. The study was carried out in two phases, a convenience sample (N = 312) of first-year Canadian university students in an introductory psychology course completed phase one, and 134 students completed phase two. The researchers devised an instrument which included three items that assessed procrastination (α = .84) and self-forgiveness for procrastinating (α= .86). Participants completed the questionnaire immediately before the first midterm course exam, although the specific time frame was not indicated. Then,

midway between the first and second midterm exam, participants were asked to indicate if they felt that procrastination had influenced their performance on the first exam, and were also asked to complete instruments that assessed positive and negative affect regarding their performance on the first exam. Immediately prior to the second midterm, participants were asked about frequency of procrastination prior to that exam. Participants also granted permission for the researchers to access their course grade.

One-way ANOVAs on all predictor variables and gender revealed no significant effect on gender, $p > .22$ (Wohl et al., 2010). Correlational analysis demonstrated that the score on exam one was significantly correlated to the score on exam two, $r = .72$, $p < .001$. The correlation between procrastination and the grade on exam one was -.26 ($p = .04$) and -.42 ($p < .001$) on exam two. Additionally, self-forgiveness was not related to performance on exam one ($p = .21$) while it did impact the score on exam two ($p = .03$) (Wohl et al., 2010). This was the first study to explore self-forgiveness and academic procrastination, and results suggested that forgiving oneself for procrastination in preparing for an examination may ultimately reduce subsequent procrastination on the same task by reducing the negative affect associated with the outcome of the examination. Importantly, the authors noted that students may have forgiven themselves for procrastinating if the procrastination occurred due to unforeseen circumstances, such as being ill (Wohl et al., 2010). Additionally, this study only examined self-forgiveness for procrastination on exam preparation and did not assess self-forgiveness for procrastinating on other academic tasks such as writing papers or submitting assignments.

Hen and Goroshit (2012) were the first to utilize a sample of learning disabled (LD) students in a study on academic procrastination. This study examined the relationships among academic procrastination, emotional intelligence (EI), and academic self-efficacy in 287 LD and

non-LD students. The main purpose of the current study was to examine the effect of EI on academic procrastination and GPA through academic self-efficacy, among LD and non-LD students, and to compare the effects of EI on academic self-efficacy, academic procrastination, and GPA in LD versus non-LD students (Hen & Goroshit, 2012).

A convenience sample (N = 287) of second-year undergraduate students (14% males, 86% females) from a variety of departments at Tel-Hai Academic College in Israel participated in the study. The mean age was 25.1 years (SD = 4.5), and 35% (n = 99) of the participants were classified as having some kind of LD and 65% (n = 188) of them as not having LD. All LD students in the sample received specific academic accommodations from a special support center within the college. To maintain confidentiality, LD students were not asked to report their specific diagnosis for this study. To classify students as LD or non-LD, the participants were asked the question: "Are you supported by the LD students support center during your studies?" The variable was coded as dichotomous, in which participants who replied yes were classified as LD students. Study measures included a demographic questionnaire and three self-reported instruments which measured emotional intelligence, self-efficacy, and academic procrastination during class time, however the particular class was not described. The Schutte Self Report Emotional Intelligence Test (α = .78) was administered to assess EI; the College Academic Self-Efficacy Scale (α = .73) was used to assess academic self-efficacy and included three subscales: Technical Skills (α = .60), Social Situations (α = .76), and Cognitive Operations (α = .84); and a researcher-modified version of the Academic Procrastination Scale (α = .81) containing subscales which measured procrastination in the academic areas of homework (α = .85), writing papers (α = .74), and preparing for examinations (α = .85) (Hen & Goroshit, 2012). GPA was a self-reported measure that asked students to indicate their GPA in the last academic year.

The means of EI, academic self-efficacy, and academic procrastination in LD and non-LD students were assessed using multivariate analysis of variance (MANOVA). The results indicated that differences in the means on all three measures were statistically significant, $F(3, 283) = 7.83$, $p < .001$, $\eta^2 = .077$, between LD and non-LD students. Specifically, LD students had significantly lower EI, $F(1, 285) = 23.12$, $p < .001$, and academic self-efficacy, $F(1, 285) = 4.71$, $p < .05$, and higher academic procrastination, $F(1, 285) = 6.06$, $p < .05$ (Hen & Goroshit, 2012). Additionally, LD and non-LD groups were compared to determine the indirect effect of EI on academic procrastination and showed that the model had a worse fit ($\Delta\chi 2 = 6.97$, $p < .05$), suggesting that the indirect effect of EI on academic procrastination is significantly stronger for LD students. Interestingly, there was no significant differences between the groups in GPA scores ($p = .08$) however the authors suggest that this may be due to LD students receiving academic accommodations (Hen & Goroshit, 2012). In summary, while test anxiety is not classified as a learning disability, one may argue that the majority of students with diagnosed test anxiety are provided academic accommodations. This was the first study to include LD students in assessing academic procrastination, and results imply that academic procrastination is more prevalent in LD students.

Summary

Literature regarding academic procrastination in higher education remains abundant. While the studies included in this review of the literature measured various correlates and consequences of academic procrastination in higher education, similar results were reported. First, empirical literature has established that academic procrastination remains a concern for students in higher education and that the majority of those who procrastinate wish to reduce this behavior (Solomon & Rothblum, 1984; Onwuegbuzie, 2004). Research has clearly supported

the notion that academic procrastination is predominantly associated with fear of failure and task aversiveness (Solomon & Rothblum, 1984; Steel, 2007; Rothblum et al., 1986). Additional reasons for academic procrastination reported in the literature include rebellion against control (Solomon & Rothblum, 1984; Steel, 2007), and poor self-regulated learning strategies (Howell & Watson, 2007; Senécal et al., 1995). Furthermore, the academic tasks students identified as those in which they procrastinate most were similar to what was reported in the qualitative literature and included writing papers, studying for examinations, and completing weekly readings (Onwuegbuzie, 2004; Prohaska et al., 2000; Solomon & Rothblum, 1984).

Additionally, empirical literature has supported that academic procrastination is highly correlated to conscientiousness (Fee & Tagney, 2000) depression (Senécal et al., 1995; Solomon & Rothblum, 1984; Steel, 2007), self-esteem (Senécal et al., 1995; Solomon & Rothblum, 1984; Steel, 2007), self-efficacy (Haycock et al., 1998; Steel, 2007; Klassen et al., 2008), anxiety (Haycock et al., 1998; Solomon & Rothblum, 1984; Senécal et al., 1995) and academic self-regulation (Howell & Watson, 2007; Senécal et al., 1995). While less clear, associations have been noted between gender and academic procrastination, in which males were more likely to procrastinate (Prohaska et al., 2000; Reisinger & Brownlow, 1996; Senécal et al., 1995; Steel, 2007). Importantly, Solomon and Rothblum stated that while males reported significantly higher levels of academic procrastination, females were more likely to academically procrastinate due to fear of failure than males.

Furthermore, a weak association between ethnicity and academic procrastination was mentioned in one study that suggested that US-born students were more likely to procrastinate (Prohaska et al., 2000). Interestingly, only one study examined the association of being a first-generation college student to academic procrastination, and reported that the correlation was not

significant (Prohaska et al., 2000). At the present, literature remains ambiguous regarding age and impact on academic procrastination; Haycock and colleagues suggested that age had no direct correlation to academic procrastination (Haycock et al., 1998), while others suggested that increasing age decreased procrastination (Prohaska et al., 2000; Steel, 2007). Last, one study suggested that students with learning disabilities were more likely to academically procrastinate (Hen & Goroshit, 2012).

Poor academic performance was cited in the majority of the literature as a consequence of academic procrastination (Rothblum et al., 1986; Senécal et al., 1995; Steel, 2007); however, several studies indicated no significant effect of academic procrastination on academic performance (Hen & Goroshit, 2012; Prohaska et al., 2000; Solomon & Rothblum, 1984). Consequently, academic performance was operationalized differently in the majority of studies; where academic performance may have been measured by cumulative GPA, semester GPA, course grade, examination grade, or a combination of these. In addition, the majority of studies reviewed utilized students' self-reported GPA as a study variable, which may act as a limitation since students may not know or report their true GPA. Affective consequences of academic procrastination were less reported in the literature and included mental stress, fatigue, and anxiety. One study (Wohl et al., 2010) also reported shame as a consequence of academic procrastination.

In summary, college students identify procrastination as a problem that they would like to remedy. The most commonly reported academic tasks in which students procrastinate in completing are writing papers, studying for examinations, and completing weekly readings. Reasons for academic procrastination largely include fear of failure, task aversiveness, rebellion against control, and lack of cognitive and metacognitive learning strategies. Age and gender

have shown weak correlations on academic procrastination in the literature, while depression, anxiety, and low self-esteem and self-efficacy have demonstrated strong correlations to academic procrastination. Finally, the ultimate consequence of academic procrastination is decreased academic performance.

Gaps in the Literature

Although academic procrastination in higher education has been extensively examined, several gaps in the literature exist. First, the majority of studies utilized small sample sizes from one academic institution. Only one study utilized a large sample size of over 5,000 students across two college campuses. Additionally, the majority of participants in the studies were undergraduate students enrolled in various psychology courses in which participants were mostly female and Caucasian. Consequently, participants often received compensation for participating in studies in the form of extra class credit. Furthermore, little research has examined academic procrastination among the graduate student population and no research has examined academic procrastination from the faculty perspective. An additional methodological inconsistency includes the timing of administration of research instruments. Students may be more or less likely to academically procrastinate at different times throughout the academic year. Last, none of the reviewed studies utilized an experimental design. All studies reviewed relied solely on self-reported instruments in which social bias may have influenced the truthfulness of responses.

Academic procrastination research could be enhanced by utilizing larger sample sizes across various geographic regions. Perhaps following a group of students longitudinally over an academic semester or throughout their undergraduate education may provide more rich data on academic procrastination. Additional research should also aim to examine academic

procrastination among graduate students as well as gain insight into faculty perceptions of academic procrastination.

Academic Procrastination in Health-related Majors

A search of current academic literature revealed no research that examined procrastination in health-related studies such as pharmacy education, medical education, respiratory therapy education, physical therapy education, or occupational therapy education.

Academic Procrastination in Nursing Education

At present, no studies have been performed that examine academic procrastination in pre-licensure nursing education programs.

Gaps in the Literature

As academic procrastination has not yet been studied among health-related majors, many gaps in the literature exist. Determining the frequency and prevalence of academic procrastination in nursing and other health-related majors may prove beneficial. Additionally research should aim to determine if the reasons for academic procrastination are similar or different than those of the general college population. Last, determining the impact of academic procrastination on academic performance proves worthy of study, as many nursing and health-related students must adhere to strict GPA requirements to remain in their respective programs of study.

Instruments

Test anxiety and academic procrastination have been of interest to higher education faculty for a number of years. As such, a variety of instruments have been developed and utilized to measure these constructs. This research study will use the Test Anxiety Inventory (TAI) and the Procrastination Assessment Scale for Students (PASS) to measure test anxiety and

academic procrastination, respectively. The following sections review the research studies that have utilized these instruments to measure test anxiety and academic procrastination.

Measurement Tools for Test Anxiety

As mentioned previously, test anxiety has been extensively researched since the 1950s. In 1967, Liebert and Morris identified worry and emotionality as the two major components of test anxiety, defining worry as cognitive concerns about the consequences of failure whereas emotionality was defined as the reaction of the autonomic nervous system evoked by evaluative stress. As such, various test anxiety instruments have been developed and utilized to examine test anxiety in higher education, including the Test Anxiety Inventory (TAI) (Spielberger, 1980), Test Anxiety Scale (TAS) (Sarason, 1978), Achievement Anxiety Test (AAT) (Alpert & Haber, 1967), Westside Test Anxiety Scale (WTAS) (Driscoll, 2009), and the Cognitive Test Anxiety Scale (CTAS) (Cassady & Johnson, 2002). A review of the literature revealed that all of these instruments, except the CTAS, have been used in nursing education. In addition to the aforementioned instruments, test anxiety research has also been performed using a number of researcher-developed test anxiety instruments that lack documented reliability and validity. However, the majority of test anxiety research has used the TAI as the operational measure of test anxiety.

Test anxiety inventory (TAI). Several studies have used the TAI to measure test anxiety in the general college population as well as the nursing student population. The TAI is a self-reporting psychometric scale which measures individual differences in test anxiety as a situation-specific personality trait (Spielberger, 1972). Respondents are asked to report how frequently they experience specific symptoms of anxiety before, during, and after examinations. In addition to measuring anxiety proneness in test situations, the TAI subscales assess worry and

emotionality as major components of test anxiety. The TAI includes 20 items and was designed for self-administration individually or in groups. Although there are no time limits, according to Spielberger (1980) most high school and college students complete the inventory in 8 to 10 minutes. A four-point Likert scale (1 = almost never, 2 = sometimes, 3 = often, and 4) almost always is used to report how frequently individuals experience specific symptoms of anxiety in test situations. All 20 items are used to determine the TAI Total score. Because each response may be weighted from one to four, the minimum TAI Total score is 20 and the maximum is 80. The subscales, which measure the two major components of test anxiety, are Worry (TAI/W) and Emotionality (TAI/E). Each subscale consists of eight items, and therefore weighted scores range from eight to 32.

Normative data for the TAI are available for large samples of college undergraduates, college freshmen, and high school students and for a smaller sample of community college students. The TAI norms for college students are based on 1,449 undergraduates (654 males, 795females) and 1,129 incoming freshmen (533 males, and 596 females) from one university in the southwest. The community college norms are based on 320 students (136 males and 184 females) enrolled in the community college in the southwest. According to Spielberger (1980), the TAI Total scores for females were consistently three to five points higher than males in the four normative samples that included both sexes. Reliability coefficients were computed by Kuder-Richardson Formula 20 (KR-20) and reported for the TAI Total, TAI Worry, and TAI Emotionality subscales for both male and female college students as follows: TAI total .92 to .96, TAI Worry .93 to .90, and TAI Emotionality .85 to .91. Test-retest reliability coefficients of the TAI Total scale are for time periods varying from two weeks to six months. For the shorter periods, the reliability coefficients were .80 or higher, but dropped to .62 for the group of high

school students who were retested after six months. During the longer intervals, personality traits may change, causing lower stability coefficients. Regarding validity, Spielberger (1980) correlated the TAI with six other anxiety measures, including Sarason's (1978) Test Anxiety Scale (TAS) and Liebert and Morris's (1967) Worry and Emotionality Questionnaire (WEQ) for male and female undergraduates. The correlations of the TAI Total scale with the TAS, .82 for males and.83 for females, are comparable to the reliability coefficients for each scale and suggest that the 20-item TAI Total scale and the 37-item TAS are essentially equivalent measures. Additionally, correlations of the TAI scales with measures of study skills, intelligence and ability, and academic achievement are reported for three groups of high school and college students. The TAI generally had low-to-moderate negative correlations with study skills; the correlations tended to be stronger for males (r = -.48) than females (r = -.14).

Test Anxiety Inventory in nursing education research. A review of the nursing education literature revealed that four studies involving pre-licensure nursing students utilized the TAI as a measure of test anxiety. A master's thesis by Mastorovich (1994) used the TAI in a prospective study that examined the relationship between test anxiety and performance on the National Council Licensure Examination for Registered Nurses (NCLEX®-RN) in diploma nursing graduates, however a reliability coefficient of the TAI was not reported in the study. Waltman (1997) also used the TAI to compare traditional and non-traditional baccalaureate student nurses on test anxiety and major contributing factors. While Waltman (1997) did not report a reliability coefficient of the TAI in her study, she stated that, "validity is demonstrated by strong correlations between the TAI and other anxiety measures, including Sarason's (1980) Test Anxiety Scale (r = .82) and Liebert and Morris' (1967) Worry and Emotionality subscales (r = .69 to .85)" (Waltman, 1997, p. 174). In 2007, Zlomke utilized the TAI in a master's thesis

that assessed the effectiveness of a finger-tapping technique to reduce test anxiety in first-semester pre-licensure nursing students. Zlomke (2007) did not report that reliability of the TAI in her sample. Last, another study used the TAI to measure test anxiety and the effects of a biofeedback-assisted relaxation training program in pre-licensure nursing students (Prato & Yucha, 2013). This study also did not report reliability of the TAI in the study sample, but rather cited the reliability of the initial normative data reported by Spielberger (1980).

In summary, the TAI possesses the ability to assess both the worry and emotionality components of test anxiety. The TAI has well documented validity and reliability within higher education, and has been used in numerous educational research studies across majors. The TAI has also been employed in nursing education research and will be further discussed in Chapter 3.

Measurement Tools for Academic Procrastination

Several instruments to measure academic procrastination in higher education were uncovered in the literature review, primarily the Procrastination Assessment Scale for Students (PASS) (Solomon & Rothblum, 1984) and the Procrastination Scale (Tuckman, 1991). One instrument, the General Procrastination Scale (Lay, 1986) was designed to measure student procrastination on everyday tasks such as mailing letters and returning phone calls. Because this instrument measured general procrastination rather than solely academic procrastination, it was not considered for use in this research study. As mentioned previously, academic procrastination has not yet been researched in the pre-licensure nursing student population. This section will review the PASS to serve as a foundation for tool selection.

Procrastination Assessment Scale for Students (PASS). The Procrastination Assessment Scale for Students (PASS) was developed by Solomon and Rothblum (1984). The PASS was developed for two purposes, to determine the prevalence of procrastination on six

main academic tasks and to determine the reasons for academic procrastination. Thus, the instrument includes two separate sections. The first section of the PASS assesses the prevalence of procrastination in six academic areas, including: (a) writing a term paper, (b) studying for an exam, (c) keeping up with weekly reading assignments, (d) performing administrative tasks, (e) attending meetings, and (f) performing academic tasks in general using a 5-point Likert scale to indicate the degree to which they procrastinate on the task (1 = never procrastinate; 5 = always procrastinate) (Solomon & Rothblum, 1984). Additionally, participants are asked to indicate the degree to which procrastination on the task is a problem for them (1 = not at all a problem; 5 = always a problem) (Solomon & Rothblum, 1984). Last, in completing section one, participants are also asked to indicate on a 5-point Likert scale the extent to which they want to decrease their procrastination behavior on each academic task (1 = do not want to decrease; 5 = definitely want to decrease) (Solomon & Rothblum, 1984).

The second section of the PASS provides an academic procrastination scenario in which one delays in writing a term paper. A variety of possible reasons for procrastination on the task are presented and include: (a) evaluation anxiety, (b) perfectionism, (c) difficulty making decisions, (d) dependency and help seeking, (e) aversiveness of the task and low frustration tolerance, (f) lack of self-confidence, (g) laziness, (h) lack of assertion, (i) fear of success, (j) tendency to feel overwhelmed and poorly manage time, (k) rebellion against control, (1) risk-taking, and (m) peer influence. Two statements are listed for each of these reasons, and students are asked to rate each statement on a 5-point Likert scale according to how much it reflects why they procrastinated the last time they were in that particular situation (Solomon & Rothblum, 1984).

The main purpose of Solomon and Rothblum's (1984) work was to develop and validate an academic procrastination scale for use in higher education. However, in addition to developing the PASS to determine frequency and reasons for academic procrastination, Solomon and Rothblum (1984) also correlated the instrument to various self-reported instruments. Since that time, numerous studies have used the PASS in higher education research. Another study used the PASS to investigate psychological factors related to academic procrastination, including examining the relationship between academic procrastination and test anxiety, attributions of academic success and failure, and self-control (Rothblum et al., 1986). The study also assessed procrastination over time in order to detect differences between high and low procrastinators as a deadline approaches.

The PASS has also been used to measure academic procrastination of students enrolled in statistics courses (Macher et al., 2012; Onwuegbuzie, 2004) for a variety of majors. Both studies used the PASS to examine the role and correlation of academic procrastination to statistics anxiety in undergraduate (Macher et al., 2012) as well as graduate (Onwuegbuzie, 2004) students. These studies reported adequate internal consistency of the PASS (Cronbach's α) of .72 (Macher et al., 2012) and .84 (Onwuegbuzie, 2004), respectively. The study by Onwuegbuzie was the first to use the PASS in a purely graduate student sample.

A study by Prohaska and colleagues (2002) was the first study to use the PASS in a solely non-traditional sample of students. This study is also unique due to its ethnically diverse sample in which the majority of students were Hispanic (47%), followed by African American (29%), Caucasian (18%), and Other (6%). The purpose of the study was to examine the frequency and reasons for academic procrastination among a non-traditional, ethnically diverse

sample of students. The unreported internal consistency of the PASS in this sample acts as a limitation to this study.

In summary, the PASS has been used as a measure of academic procrastination since the 1980s. Additionally, the PASS has been utilized in various samples of students and continues to demonstrate moderate to high internal consistency. Most importantly, the PASS allows for examination of both the frequency and reasons for academic procrastination. Although not specifically used in nursing education, the PASS has well documented validity and reliability within higher education and will be further discussed in Chapter 3. Further research is needed to examine academic procrastination using the PASS and different samples of students within nursing education.

Chapter Summary

This chapter provided a review of the conceptual framework for this study, the cognitive avoidance theory of worry. The historical context of test anxiety in higher education including its two major components, worry and emotionality, was discussed. In addition, causes, correlates, and consequences of test anxiety in higher education and nursing education were presented. The concept, causes, correlates, and consequences of academic procrastination in higher education were also described. In addition, an overview of literature regarding the Test Anxiety Inventory (TAI) and Procrastination Assessment Scale for Students (PASS) was presented. Chapter Three describes the methodology of the current study including the study design and method, ethical issues for the study of human subjects, sampling and recruitment plan, and data collection and analysis methods.

CHAPTER THREE

METHODOLOGY

This chapter describes the methods that were used in this research study. First, the study design is described, followed by the specific research questions that guide this study. Next, the study setting, ethical considerations for the study of human subjects, sampling plan, and recruitment strategies are discussed. The study instruments and data collection procedures are then explained. Last, this chapter concludes with a plan regarding data analysis methods.

Study Design

This research sought to examine (a) the relationship of test anxiety and academic procrastination among pre-licensure nursing students, (b) the differences in test anxiety and academic procrastination among nursing program types (diploma, associate, baccalaureate), and (c) factors that may influence academic procrastination among pre-licensure nursing students. Therefore, a quantitative cross-sectional descriptive correlational design was used for this study. This approach is useful for describing the relationships among variables (Polit & Beck, 2012). This study aimed to answer the following research questions:

1. What is the relationship between test anxiety and academic procrastination among pre-licensure nursing students?
2. What is the relationship between test anxiety and nursing education program type (diploma, associate, or baccalaureate)?
3. What is the relationship between academic procrastination and nursing education program type (diploma, associate, or baccalaureate)?
4. What factors influence pre-licensure nursing students' academic procrastination?

5. What academic tasks do pre-licensure nursing students most frequently procrastinate upon?

Setting

The setting for this study included various pre-licensure nursing education programs in southwestern and central Pennsylvania. A sample of students representing diploma, associate, and baccalaureate pre-licensure nursing students within a 50-mile radius of Indiana University of Pennsylvania was utilized.

Sample

This section describes the sampling approach for the current study. The study's population and sample, ethical considerations for human subjects, eligibility criteria, sample size, and power analysis are presented.

Population and Sample

The study's population included full-time, pre-licensure nursing students in the United States. For the purpose of this study, the sample included full-time, pre-licensure nursing students within diploma, associate, and baccalaureate nursing education programs in Pennsylvania. A convenience sample of students enrolled in pre-licensure nursing education programs including baccalaureate, associate, and diploma, within geographic proximity to the researcher was utilized. Therefore, the participants were from the southwestern and central portions of Pennsylvania.

Ethical Considerations for Human Subjects

Institutional review board (IRB) approval (Appendix A) was obtained from Indiana University of Pennsylvania (IUP) prior to conducting the study. IRB approvals were also obtained from the diploma (Appendix B) and associate degree (Appendix C) nursing education

programs. An overview of the study was presented to participants via a cover letter (Appendix D) that explained the purpose of the study as well as risks and benefits of participation. Informed consent was implied if participants completed and returned the survey instruments. All information obtained was anonymous. Due to anonymity, participants were unable to withdraw their responses once the surveys were completed and submitted to the researcher.

Eligibility Criteria

This section discusses the eligibility criteria for the study participants. Both the inclusion and exclusion criteria are described.

Inclusion criteria. The study's inclusion criteria stated that participants must be:

1. enrolled as a full-time student within a pre-licensure nursing education program in Pennsylvania (diploma, associate, or baccalaureate).
2. enrolled in at least one nursing course.
3. English speaking.

Exclusion criteria. Students meeting the following criteria were excluded from the study:

1. Part-time nursing students.
2. Pre-nursing students.
3. Students not currently enrolled in a nursing course.
4. Non-English speaking.

Sample Size and Power Analysis

A power analysis was used to determine the appropriate sample size. To answer research question two, which aimed to identify differences in test anxiety and academic procrastination among nursing education program type, the statistical method of analysis of variance (ANOVA)

was utilized. According to Polit and Beck (2012), estimating eta-squared (η^2) is an approach to estimate effect size when performing ANOVA, and the conventional estimates for a medium effect size is $\eta^2 = .06$. Additionally, Polit and Beck (2012) state that most nursing studies have modest to medium effects. Thus, the online power analysis tool *G*Power* was used to calculate the sample size for a three group ANOVA to achieve .80 power with a medium effect size ($\eta^2 = .06$) and significance level (α) of .05. The calculated sample size was determined to be $n = 53$ participants in each group for a total sample size of 159 participants. The total number of participants recruited for this study was $N = 202$. Of the 202 participants, 73 were from a diploma program, 68 from an associate degree program, and 61 from a baccalaureate program.

Recruitment

A convenience sampling approach was used to recruit potential study participants from pre-licensure nursing education programs within southwestern and central Pennsylvania within geographic proximity to the researcher. Deans and directors were contacted via email regarding having their students participate in the research study.

After establishing contact with deans and program directors, the researcher established data collection times by collaborating with individual faculty within the participating nursing education programs. As data collection took place during nursing theory class time, the researcher contacted individual faculty members via email to establish a mutually agreed-upon date and time for data collection. Most importantly, the researcher assured that data collection did not occur on a day in which students were taking an examination in their nursing course(s).

Face-to-face recruitment is generally more effective than solicitation by a telephone call, email, or postal letter (Polit & Beck, 2012). Therefore, to provide face-to-face interaction with study participants, the researcher traveled to each nursing education program for data collection.

The researcher verbally explained the purpose of the study to potential participants as well as provided a cover letter explaining the study. Additionally, the researcher was present in the room during survey completion to answer questions if needed. Students were informed that participation in the study would not influence course grades. As mentioned previously, consent to participate was implied when students completed and returned the survey packet to the researcher. Students not wishing to participate were offered an alternative activity to complete during the data collection period.

Incentive

An inventive was offered to increase participation. The last page of each survey included a contact information form (Appendix E) in which participants listed their name, address, email address, and phone number. This page was separated from the survey packet and collected in a separate container located within the classroom. The participants who completed the survey instruments and entered their contact information were entered into a drawing to receive a $50 Amazon gift card. The drawing occurred randomly at each school immediately following data collection. The winners were immediately notified by phone and gift cards were given to the winning participants at each data collection site.

Instruments

This section reviews the study instruments including descriptions of each tool, reliability and validity, scoring, and coding of responses. Each participant received a survey packet that included a demographic questionnaire (Appendix F), the TAI (Appendix G), and the PASS (Appendix H).

Demographic Questionnaire

The first portion of the survey packet consisted of a demographic questionnaire. Eleven questions were used to elicit information regarding gender, age, employment status, type of nursing program enrolled, family level of education, and GPA.

Spielberger Test Anxiety Inventory

Test anxiety was measured using the Test Anxiety Inventory (TAI) (Spielberger, 1980). The license to reproduce the TAI (Appendix I), as well as the TAI Instrument and Scoring Guide (Appendix J) were purchased by the researcher for use in this study. The TAI is the most commonly used instrument to measure test anxiety in educational research settings (Chapell et al., 2005). The TAI is a self-reported psychometric scale developed to measure individual differences in test anxiety as a situation-specific personality trait (Spielberger, 1980) in which respondents are asked to report how frequently they experience specific symptoms of anxiety before, during, and after examinations. The TAI includes 20 items comprised by two subscales, worry and emotionality. Participants are asked to respond to each statement using a 4-point Likert-type scale (1 = Almost Never; 2 = Sometimes; 3 = Often; 4 = Almost Always) that indicates how often they have experienced the reaction to tests described in the statement, yielding a total TAI score ranging from a minimum of 20 to a maximum of 80 points. According to Spielberger (1980), the TAI was designed for self-administration and may be given individually or in groups, and most high school and college students complete the inventory in eight to 10 minutes.

TAI coding and scoring. As mentioned**,** participants used a 4-point Likert scale to report how frequently they experience specific symptoms of anxiety in test situations. The four choices were: (1) almost never, (2) sometimes, (3) often, and (4) almost always. Item one was

reverse-coded according to the scoring manual. All 20 items are used to determine the TAI Total score. Because each response may be weighted from one to four, the minimum TAI Total score is 20 and the maximum is 80. Additionally, the subscales of worry (TAI/W) and emotionality (TAI/E) each consisted of eight items, and therefore weighted scores ranged from 8 to 32.

Reliability and validity. The TAI norms were tested using college students, high school students, and male navy recruits. The normative data for college students are based on 1,449 undergraduates (654 males, 795 females) and 1,129 incoming freshmen (533 males, and 596 females) from the University of South Florida and the norms for high school students are based on 1,118 ninth through twelfth-grade students (527 males, 591 females) enrolled in public high schools in Jacksonville and Pinellas County, Florida. Additionally, 190 male navy recruits were utilized in norming the instrument. The alpha coefficients for the five normative samples range from .83 to .96, and are evidence of the internal-consistency reliability of the TAI and its subscales (Spielberger, 1980). Additionally, the correlation coefficients for the TAI Total scale were uniformly high for both males and females (.92 or higher). The correlation coefficients for the TAI/W and TAI/E subscales, .88 and .90, indicate satisfactory internal consistency for each subscale (Spielberger, 1980).

Cronbach's alpha for reliability of the TAI using the current study's data set was performed. The total TAI displayed high reliability ($\alpha = .95$) as well TAI worry subscale ($\alpha = .89$) and TAI emotionality subscale ($\alpha = .92$).

Validity was established by correlations between the TAI and other anxiety measures, including Sarason's Test Anxiety Scale (TAS) and Liebert and Morris' Worry and Emotionality Questionnaire (WEQ). Relatively high correlations of the TAI scales with the *TAS* ($r = .82$ for

males and .83 for females) and the WEQ Worry (r = .77) and Emotionality (r = .73) scales provide further evidence of the concurrent validity of the TAI as a measure of test anxiety.

Procrastination Assessment Scale for Students

One of the seminal studies in academic procrastination was performed by Solomon and Rothblum (1984) who developed the self-report instrument, the Procrastination Assessment Scale for Students (PASS). The PASS specifically assesses procrastination on academic tasks and continues to be a commonly used instrument used to measure academic procrastination (Ferrari, 1992; Onwuegbuzie, 2004; Prohaska et al., 2007). The PASS focuses on academics and yields two indices of academic procrastination. A free downloadable Microsoft Word version of the PASS and the scoring instructions can be found on Esther Rothblum's website (http://rothblum.sdsu.edu/research.htm).

The first portion of the PASS assesses the prevalence of academic procrastination in six academic areas; writing a term paper, studying for an exam, weekly reading assignments, performing administrative tasks, attending meetings, and performing academic tasks in general. Participants indicate the extent to which they procrastinate on each task using a five-point Likert scale (1 = never procrastinate; 5 = always procrastinate), and the extent to which procrastination on each task is a problem for them (1 = not at all a problem; 5 = always a problem) (Solomon & Rothblum, 1984). The extent of procrastination and the extent to which it is a problem is summed for each academic task (scores ranging from 2 to 10) and across the six academic areas (scores ranging from 12 to 60).

The second portion of the PASS describes the procrastination scenario of delay in writing a term paper and then suggests possible reasons for procrastination in the task including evaluation anxiety, perfectionism, difficulty making decisions, dependency, low frustration

tolerance, lack of self-confidence, laziness, lack of assertion, fear of success, poor time management, rebellion against control, risk taking, and peer pressure (Solomon & Rothblum, 1984). For each of these reasons, subjects are given two statements and are asked to rate each statement on a five-point Likert scale according to how much it reflects why they procrastinated the last time they delayed writing a paper (Solomon & Rothblum, 1984).

PASS coding and scoring. The first section of the PASS assessed frequency of procrastination in six academic areas: 1) writing a term paper, 2) studying for exams, 3) keeping up with weekly reading assignments, 4) academic administrative tasks: filling out forms, registering for classes, getting ID card, 5) attendance tasks: meeting with advisor or making an appointment with a professor, and 6) school activities in general. Each academic task is followed by two questions that utilize a 5-point Likert scale: a = never procrastinate, b = almost never, c = sometimes, d = nearly always, e = always procrastinate. There is also a third question for each academic task which asks to what extent participants want to decrease their tendency to procrastinate on that particular task, however the responses to this question are not utilized in obtaining the score for this section.

Section two of the PASS assessed reasons for academic procrastination and includes items 19-44. Solomon and Rothblum (1984) devised 13 possible reasons for procrastination: 1) perfectionism, 2) evaluation anxiety, 3) low self-esteem, 4) aversiveness of task, 5) laziness, 6) time management, 7) difficulty making decisions, 8) peer pressure, 9) dependency, 10) lack of assertion, 11) risk taking, 12) fear of success, and 13) rebellion against control. Two statements for each of these reasons are provided, for a total of 26 items. Respondents are then asked to respond to each statement by rating the reasons on a 5-point scale according to how much it reflects why they procrastinated at the time (a = Not at all reflects why I procrastinated;

e = Definitely reflects why I procrastinated). Scoring this section of the PASS is performed by assigning a numerical value to the 5-point Likert Scale for each question such that a = 1, b = 2, c = 3, d = 4, and e = 5. Frequencies and percentages may then be used to determine on which items students score highest. However, Solomon and Rothblum (1984) suggest that when using the PASS to assess reasons for procrastination, one should then determine the Fear of Failure subscale score using the mean of items 19, 24, 33, 39, and 42 as well as the Aversiveness of Task subscale score consisting of the mean for items 27, 34, and 35.

The third section of the PASS assesses participants' interest in changing their procrastination by attending a program if one were offered. Because no program will be offered that aims to provide interventions for decreasing academic procrastination in the current study, all items in section three were omitted.

Reliability and validity. The development of the PASS included a factor analysis on the reasons why college students procrastinate indicated two factors; fear of failure and task aversiveness (Solomon & Rothblum, 1984). Initial factor analysis of subjects' reasons for procrastination yielded two main factors. The first factor, fear of failure, is comprised of items relating to evaluation anxiety, perfectionism, and lack of self-confidence and accounted for 49.5% of variance (Solomon & Rothblum, 1984). The second factor, task aversiveness, accounted for 18% of the variance and included items related to lack of energy and task unpleasantness (Solomon & Rothblum, 1984). Initial test-retest reliability was conducted on a sample of 323 and retested on a smaller sample of 98 later in the semester, which yielded a Pearson product moment correlation of 0.57 (p <.005) on the total frequency score of the PASS (Solomon & Rothblum, 1984).

Additionally, Onwuegbuzie (2004) used the PASS in a sample of graduate students enrolled in a statistics course, and found the Cronbach's alpha score of the PASS measures to be .84 for the procrastination scale, .85 for the fear of failure factor, and .76 for the task aversiveness factor (Onwuegbuzie, 2004). Until this time, the PASS had not been utilized in nursing education research.

Cronbach's alpha for reliability of the PASS as well as the Fear of Failure and Task Aversiveness subscales using the current study's data set was performed. The total PASS displayed high reliability ($\alpha = .84$) as well as the PASS Fear of Failure subscale ($\alpha = .85$). However, Cronbach's alpha for the PASS Task Aversiveness subscale was identified as moderate ($\alpha = .64$).

Procedures

Institutional Review Board approval was obtained prior to data collection at all sites. Access to participants was obtained through contacting the deans, directors, or department chairpersons of diploma, associate degree, and baccalaureate degree nursing programs within closest geographic proximity to the researcher via email. The researcher then asked for contact information of course instructors who were assigned to teach nursing theory courses during the Fall 2015 semester. The researcher contacted the course instructors via email to establish data collection times, and requested a time period for data collection during the last 15 minutes of scheduled class time. To minimize bias in TAI scores, participants must not have been taking a nursing exam on the day of data collection. Thus, an appropriate time was arranged when the researcher could visit the course to recruit study participants to administer the survey.

During data collection course instructors were asked not to remain present. Students were then provided a verbal overview of the research project and invited to participate in the

study by the researcher. Students were informed that participating in the study was voluntary and had no impact on their course grade. Students were also informed that due to anonymity, once the survey was submitted they were unable to withdraw from this study. Each student received research study materials that included a cover letter, and a survey packet containing the demographic questionnaire, the TAI, the PASS, and a contact information sheet for the prize drawing. The cover letter explained the aim of the study, risks and benefits of participating in the study, contact information of the researcher, and directions for an alternative activity if the he or she chooses not to participate. Consent was implied if the student completed the survey.

The survey packet took participants approximately 15-20 minutes to complete. The researcher remained in the room during data collection to answer potential questions related to the research study. Participants brought the completed survey packets to the front of the room and remained present while the researcher separated the last page of the survey packet, the prize drawing contact information sheet, from the survey instruments. Then, the researcher placed the completed survey packet and the prize drawing contact information sheet into separate designated collection boxes to ensure anonymity of participant responses.

All data was collected via paper/pencil format, and all surveys were be numbered for tracking purposes after data had been collected. Paper/pencil data was stored in a locked file cabinet and electronic data were stored on a password protected computer owned by the researcher. Collected data was entered into the Statistical Package for the Social Sciences® (SPSS) version 22 software by the researcher.

Data Analysis

A code book was developed by the researcher for the coding of collected survey data. All coded data was entered into a database by the researcher. Collected data was analyzed with

SPSS® version 22 software. Prior to analysis, the data was screened for data entry errors and outliers. The following portion of this paper discusses statistical approaches for analyzing demographic data and each research question.

Demographic Data

Descriptive statistics were used to organize and summarize the demographic data. Frequencies and percentages were computed for gender, ethnicity, employment status, first-generation college student, and nursing education program type. Means, standard deviations, and ranges were computed for age, credits completed toward degree, and GPA.

Research Question One

Research question one sought to determine the relationship between test anxiety and academic procrastination among pre-licensure nursing students. Therefore, a statistical correlation analysis was used. Pearson *r* is designed for interval and higher level variables (Pallant, 2013). The total TAI and PASS scores are interval level data so the Pearson's *r* was computed. The level of significance for this statistical analysis was $p < .05$. The data was analyzed and found to have met the assumptions of normality, linearity, and homoscedasticity.

Research Questions Two and Three

Research question two and three aimed to explore the differences in test anxiety and academic procrastination among nursing program types and research. Due to the comparison of three separate groups (diploma, associate, and baccalaureate), a three-group one-way ANOVA was computed to answer both research questions. The statistical method of ANOVA was utilized for testing the mean differences among the groups by comparing variability between groups to variability within groups (Polit & Beck, 2012). Several assumptions are necessary for the conduction of ANOVA which include one categorical independent variable with three or

more distinct categories and one continuous dependent variable, random sampling, independence of observations, normal distribution, and homogeneity (Pallant, 2013). These assumptions were tested on the data. The dependent variables of test anxiety and academic procrastination were measured using a continuous scale. The study had the limitation of the use of convenience rather than random sampling, however random sampling is often not the case in real life research (Pallant, 2013).

Research Question Four

Research question four examined what demographic factors influence pre-licensure students' academic procrastination. The demographic variables of age, gender, ethnicity, employment, first generation college student, and GPA were entered into a standard multiple regression equation for this analysis. The level of statistical significance was specified at $p < .05$. Preliminary analysis of the data verified that the data met the assumptions of multiple regression, including multicollinearity, normality, linearity, homoscedasticity, and independence of residuals.

Research Question Five

Research question five determined the most frequent types of academic procrastination among pre-licensure nursing students. Descriptive statistics were used to assess the frequency of academic tasks in which nursing students often procrastinate. The mean scores and standard deviations were computed and interpreted.

Chapter Summary

The purpose of this study was to determine the relationship between test anxiety and academic procrastination among pre-licensure nursing students, identify differences in test anxiety and academic procrastination among pre-licensure nursing program types, identify

factors that may influence pre-licensure nursing students' incidence of academic procrastination, and determine the tasks most frequently procrastinated on by pre-licensure nursing students. This chapter presented the methodology for the study, as well as described the study setting, ethical considerations, and sampling plan. Study instruments including the TAI and PASS were also discussed. The chapter concluded with a description of the statistical analyses that were used to answer each research question. Chapter Four presents the results of this study.

CHAPTER FOUR

RESULTS

Chapter four presents the results of the statistical analysis of this study's data set. This chapter begins with a description of the sample, including descriptive statistics that summarize gender, ethnicity, employment status, family education level, nursing courses repeated, nursing education program type, age, and GPA. Data analysis pertaining to each research question is then described. Total TAI and PASS scores of the sample, the relationship between test anxiety and academic procrastination, and differences in test anxiety and academic procrastination scores among nursing education program type will be described.

Sample Description

The survey packet containing demographic questions, the TAI, and the PASS, was administered to students (N = 203) from diploma, associate, and baccalaureate nursing education programs, 202 surveys were returned for a response rate of 99.5%. None of the survey packets returned had significant amounts of missing data, and therefore all were able to be included in the analysis. Thus, sample size for this study was N = 202.

Demographic information and descriptive statistics regarding gender, age, ethnicity, and nursing education program type are presented in Table 1. Of the 202 participants, 83.2% were female and 16.8% were male. Participants ranged in age from 19-53 (M = 23.9, SD = 6.2) with most aged 19-20 years (38.1%). The majority of the sample identified themselves as Caucasian (95.5%). The sample included students from diploma (36.1%), associate degree (33.7%), and baccalaureate degree (30.2%) nursing education programs. The characteristics of the study's sample resembles national trends for gender, age, and ethnicity of pre-licensure nursing education programs as reported by the NLN (2015).

Table 1

Demographic Characteristics of the Sample (*N* = 202)

Variable	Category	n	%
Gender	Female	168	83.2
	Male	34	16.8
Age	>/=20	77	38.1
	21-25	74	36.6
	26-30	22	10.9
	31-35	14	6.9
	36-40	7	3.5
	41-45	5	2.6
	46-50	1	0.5
	>50	1	0.5
	Missing	1	0.5
Ethnicity	White	193	95.5
	Hispanic/Latino	3	1.5
	Black/African American	2	1.0
	Asian/Pacific Islander	2	1.0
	Prefer not to respond	1	0.5
	Missing	1	0.5
Nursing Program Type	Diploma	73	36.1
	Associate Degree	68	33.7
	Baccalaureate Degree	61	30.2

Note. Total percentages may not equal 100 due to rounding.

Additional demographic information presented in Table 2 includes employment status, family education level, first generation college student status, nursing courses previously or currently repeated, and self-reported GPA. The majority of the sample (66.3%) were employed on a part-time basis, with most (29.2%) generally working 11-20 hours per week. Of the sample,

38.1% of participants reported that their mother had obtained a college degree, 28.2% reported their father had obtained a college degree, 45% reported that their sibling(s) had obtained a college degree, and 31.2% reported that no family members had earned a college degree. Those who identified that neither parent had obtained a college degree (50.5%) were identified as first-generation college students for the purpose of this study. Of the study participants, 7.4% were repeating a nursing course in the current semester, and 27% identified having repeated a nursing course in a prior semester. The majority (57.9%) of participants reported a cumulative GPA of 3.5-3.9.

The demographics are consistent among the program types regarding gender and ethnicity, with the majority of the students in all program types being primarily female and Caucasian. The baccalaureate program had the highest percentage of students under 30 years of age while the associate degree program had the highest percentage of students over 30 years of age. Additionally, the diploma program had the highest percentage (44%) of first-generation college students while the baccalaureate program had the lowest percentage (20%) of first generation college students. While the diploma program had the highest percentage of first-generation college students, results indicated that no students were currently repeating a nursing course and only 3% of students had repeated a nursing course in a prior semester. This may be due to the academic progression policy of the diploma nursing education program.

Table 2

Additional Demographic Characteristics of the Sample (*N* = 202)

Variable	Category	n	%
Employment	Employed, full time	7	3.5
	Employed, part time	134	66.3
	Not employed	59	29.2
	Prefer not to respond	2	1.0
Hours generally worked per week	> 5	11	5.4
	5-10	40	19.8
	11-20	59	29.2
	< 20	33	16.3
Family member(s) with college degree	Mother	77	38.1
	Father	57	28.2
	Sibling	91	45
	None	63	31.2
First generation college student	Yes	100	49.5
	No	102	50.5
Nursing courses repeated	Current semester	15	7.5
	Prior semester	27	13.4
Self-reported cumulative GPA	1.5-1.9	0	0.0
	2.0-2.4	13	6.4
	2.5-3.0	63	31.2
	3.5-3.9	117	57.9
	4.0	6	3.0
	Prefer not to answer	1	0.5
	Missing	2	0.9

Participants were selected from each pre-licensure nursing education program type for comparison. The sample included one diploma program (*n* = 73), one associate degree program (*n* = 68), and one baccalaureate degree program (*n* = 61). Selected demographic data for each

nursing education program type are presented in Tables 3-5. Table 3 includes the demographic information of diploma program participants, Table 4 presents the demographic information of associate degree program participants, and Table 5 identifies the demographic information of the baccalaureate degree program participants.

Table 3

Selected Demographic Characteristics of the Diploma Program Sample (*n* = 73)

Variable	Category	n	%
Gender	Female	56	76.7
	Male	17	23.3
Age	>/= 20	24	37.0
	21-25	30	41.1
	26-30	9	12.3
	31-35	6	8.2
	36-40	3	4.1
	41-45	1	1.3
Ethnicity	White	71	97.3
	Asian/Pacific Islander	1	1.3
	Missing	1	1.3
First generation college student	Yes	44	60.3
	No	29	39.7
Nursing courses repeated	Prior semester	3	4.1

Table 4

Selected Demographic Characteristics of the Associate Degree Program Sample (*n* = 68)

Variable	Category	n	%
Gender	Female	59	86.8
	Male	9	13.2
Age	>/= 20	18	26.5
	21-25	22	32.4
	26-30	10	14.7
	31-35	8	11.8
	36-40	4	5.9
	41-45	5	7.4
	>50	1	1.5
Ethnicity	White	64	94.1
	Hispanic/Latino	2	2.9
	Black/African American	1	1.5
	Prefer not to respond	1	1.5
First generation college student	Yes	36	52.9
	No	32	47.1
Nursing courses repeated	Current semester	8	11.7
	Prior semester	11	16.2

Table 5

Selected Demographic Characteristics of the Baccalaureate Degree Program Sample (*n* = 61)

Variable	Category	n	%
Gender	Female	53	86.9
	Male	8	13.1
Age	>/= 20	35	57.4
	21-25	22	36.1
	26-30	3	4.9
	Missing	1	1.6
Ethnicity	White	58	95.1
	Hispanic/Latino	1	1.6
	Black/African American	1	1.6
	Asian/Pacific Islander	1	1.6
First generation college student	Yes	20	32.8
	No	41	67.2
Nursing courses repeated	Current semester	7	11.5
	Prior semester	13	21.3

Research Question One

Research question one sought to determine the relationship between test anxiety and academic procrastination among pre-licensure nursing students. The data met the assumptions of linearly and homoscedasticity, thus a Pearson product-moment correlation coefficient was computed for the Total TAI and Total PASS scores of all participants. Seven of the surveys had missing data for the TAI or PASS items and were therefore excluded from this analysis, resulting in a sample size of *N* = 195 for this correlation. Data from the correlations is presented in Table

6. Results indicated a small positive relationship between test anxiety and academic procrastination ($r = .23$) and the findings were statistically significant ($p = .002$).

Additionally, Pearson product-moment correlations for the subscales of both the TAI and the PASS were computed and compared to the total scores for each instrument. Results indicated a significant strong positive correlation of the TAI emotion subscale ($r = .95$, $p < .01$) and the TAI worry subscale ($r = .93$, $p < .01$) to the total TAI score, with findings being statistically significant. A significant strong positive correlation was noted for the PASS fear of failure subscale ($r = .40$, $p < .01$) while a significant small positive correlation task aversiveness subscale ($r = .20$, $p < .01$) to the total PASS score.

Pearson-product moment correlations between the Total TAI, TAI worry, and TAI emotionality subscales and Total PASS, PASS fear of failure, and task aversiveness subscales were also computed, indicating significant small to moderate significant correlations. Moderate significant correlations were noted between the Total TAI and PASS fear of failure subscale ($r = .40$, $p < .01$), and between the TAI worry and PASS fear of failure subscales ($r = .38$, $p < .01$), suggesting that students who are afraid of failure tended to worry more. These results are presented in Table 6.

Table 6

Correlations for Test Anxiety Inventory and Procrastination Assessment Scale for Students Scales and Subscales (*N* = 195)

Scale/Subscale	TAI Emotionality	TAI Worry	PASS (Total)	PASS Fear of Failure	PASS Task Aversiveness
TAI (Total)	.954**	.928**	.228**	.396**	.198**
TAI Emotionality		.794**	.168*	.367**	.208**
TAI Worry			.277**	.378**	.163**
PASS (Total)				.283**	.293**
PASS Fear of failure					.203**
PASS Task aversiveness					

Note. *r* = Pearson product-moment correlation; Strengths of correlations: small (.10-.29), medium (.30-.49), large (.50-1.0) (Cohen, 1988); *Correlation is significant at the .05 level (2-tailed); **Correlation is significant at the .01 level (2 tailed).

Research Questions Two and Three

Research questions two and three aimed to explore the differences in test anxiety and academic procrastination among nursing education program types (diploma, associate degree, baccalaureate degree). Results of the ANOVA tests are presented in Tables 7-8. Table 7 displays the mean Total TAI and Total PASS scores for each nursing education program type. Table 8 includes the one-way ANOVA statistics of test anxiety, as reflected by the Total TAI, among nursing education program types and also displays the one-way ANOVA results of academic procrastination, reflected by the Total PASS, among nursing education program types. Some participants were excluded due to missing data that did not allow for computation of their Total TAI or Total PASS score.

Table 7

Total TAI and Total PASS Mean Scores Among Program Type

Instrument	*n*	Program Type	Mean	SD
Test Anxiety Inventory Total Score	195	Diploma	44.6	13.1
		Associate	53.2	14.9
		Baccalaureate	49.6	13.1
PASS Total Score	198	Diploma	34.8	6.9
		Associate	33.1	6.6
		Baccalaureate	35.5	7.0

Note. Total TAI range from 20-80 with higher scores indicating higher test anxiety. Total PASS range from 12-60 with higher scores indicating higher academic procrastination.

Preliminary analyses were performed to ensure the data met the assumptions of normality, homoscedasticity, and homogeneity of variance. All assumptions were met. The sample was divided into three groups according to nursing education program type (diploma, associate, and baccalaureate). To answer research question two, a one-way between groups ANOVA was conducted to explore the differences in test anxiety among the three groups. Table 8 presents the results of this analysis. There was a significant difference in the Total TAI mean score between the groups F (2, 192) = 6.77, p <.01. A medium effect size of .066 (Cohen, 1988) was calculated for this statistic. Post-hoc comparisons using the Tukey HSD test indicated a significant difference at the $p < .05$ level in the mean scores of the diploma group (M = 44.64, SD = 13.1) and the associate degree group (M = 53.2, SD = 14.9).

A one-way between groups ANOVA was also conducted to answer research question three, which aimed to determine the differences in academic procrastination among the three

groups. No statistically significant results were found, F (2,195) = 1.96, p = .14. Table 8 reflects these results.

Table 8

One-way ANOVAS of Test Anxiety and Academic Procrastination among Program Type

Variable	*df*	*F*	Eta Squared	*p*
Test Anxiety Inventory Total Score	2	6.77	.066	.001*
PASS Total Score	2	1.96	.02	.143

Note. Effect sizes (.01 = small, .06 = moderate, .014 large) (Cohen, 1988).
*p <.05

Research Question Four

Research question four sought to identify which demographic factors influence pre-licensure nursing students' academic procrastination. To answer this question, the demographic variables of gender, age, ethnicity, employment, first generation college student, and GPA were entered into a standard multiple regression equation. Preliminary analysis indicated that the data met the assumptions of multicollinearity, normality, linearity, homoscedasticity, and independence of residuals. Table 9 summarizes the multiple regression analysis statistics. The results did not reveal a statistically significant regression model, F (6, 189) = 2.10, p = 0.55, R^2 = .06, indicating that only 6% of the variance in academic procrastination can be explained by gender, age, ethnicity, employment status, first generation college student status, and GPA. Self-reported GPA was the sole variable that had a significant negative influence (β = -.237, p <.01) on predicting pre-licensure nursing student's academic procrastination, predicting academic procrastination 23.7% of the time when controlling for the other variables in the equation.

Table 9

Summary of Multiple Regression Analysis for Predicting Academic Procrastination among Pre-licensure Nursing Students (*N* = 195)

Predictor variables	*Beta*	S.E.	p
Gender	.039	.087	. 595
Age	-.003	1.337	. 968
Ethnicity	-.079	.897	.328
Employment	.065	.955	.387
First generation college student	-.014	.989	.851
Self-reported GPA	-.237	.726	.001*

Note. Nagelkerke R^2 = .063, F (6, 189) = 2.10, p = 0.55.
*p <.01

Research Question Five

Research question five aimed to identify the most commonly occurring types of academic procrastination among pre-licensure nursing students. Participants ranked academic tasks on a scale of *1 = never procrastinate* to *5 = always procrastinate*. Descriptive statistics were used to assess the frequency of various academic tasks identified on the PASS in which students often procrastinate. The majority of this sample (71.2%) in this study always or nearly always procrastinated in keeping up with weekly reading assignments (*M* = 4.0, *SD* = .92), followed by 41.6% always or nearly always procrastinating when writing a term paper (*M* = 3.4, *SD* = .90) and 29.2% always or nearly always procrastinating when studying for exams (*M* = 3.1, *SD* = .98). Table 10 displays the results of these statistics.

Table 10

Descriptive Statistics for Commonly Occurring Types of Academic Procrastination among Pre-licensure Nursing Students (*N* = 202)

Academic Task	%	Mean	SD
Writing a term paper	44.6	3.4	.90
Studying for exams	29.2	3.1	.98
Keeping up with weekly reading assignments	71.2	4.0	.92
Academic administrative tasks (filling out forms, registering for classes, getting ID card)	12.8	2.4	1.1
Attendance tasks (meeting with advisor, making an appointment with a professor)	11.9	2.2	1.1
School activities in general	16.4	2.8	.83

Chapter Summary

This chapter presented the data and analyses for the study's demographic variables and research questions. A description of the demographic characteristics was provided using descriptive statistics. Correlations among the TAI and PASS scales and subscales were reported. The mean TAI and PASS scores for each nursing education program type were also reported, and comparisons were made among those scores using one-way ANOVAs. Last, academic tasks in which pre-licensure students report procrastinating in completing were identified. Chapter five will discuss the results, implications of this study's findings for nursing education, and suggestions for future research.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

This chapter offers a discussion about the data collected and analyzed for this research study. The purpose of this study was to describe the relationship among test anxiety and academic procrastination among pre-licensure nursing students as well as to determine the frequency of test anxiety and academic procrastination among undergraduate nursing program types. A cross-sectional, descriptive correlational quantitative design was used for this research. The results of each research question highlighted in Chapter Four are further explained and interpreted. These findings are also compared and contrasted to the literature, and are discussed within the context of the conceptual framework used for this study. In addition, limitations of this study are identified. Implications for nursing education are addressed. This chapter concludes with recommendations for future research.

Discussion

This section presents a discussion of this study's findings. The areas addressed include the demographic characteristics of the study's sample and the study's research questions. This section also describes the relationships between test anxiety and academic procrastination, test anxiety and nursing education program type, and academic procrastination and nursing education program type. Factors that influence nursing students' academic procrastination, as well as the most frequently procrastinated upon academic tasks by nursing students are also addressed.

Demographic Characteristics

The study included demographic variables of gender, ethnicity, age, employment status, first generation college student, nursing courses repeated, and self-reported cumulative GPA. The demographic variables of the sample were divided into nursing program types and compared

within the research study. Of the participants who completed the survey (N = 202), 83.2% were female and 16.8% were male. The diploma program reported the highest percentage (23.3%) of male students. When examining ethnicity, 95.5% of the participants reported being Caucasian. The ages of the participants ranged from 19 to 53 years (M = 24.0, SD = 6.2), with most aged 19-20 years (38.1%). The baccalaureate program had the highest percentage of students (98.3%) under 30 years of age while the associate degree program had the highest percentage (23.9%) of students over 30 years of age. Regarding employment, the majority of the sample (66.3%) was employed on a part-time basis, with most (29.2%) generally working 11-20 hours per week. Examining family college educational level, 38.1% reported that their mother had obtained a college degree, 28.2% reported their father had obtained a college degree, 45% reported that their sibling(s) had obtained a college degree, and 31.2% reported that no family members had earned a college degree. Those who identified that neither parent had obtained a college degree (50.5%) were identified as first-generation college students for the purpose of this study. The diploma program had the highest percentage (44%) of first-generation college students, while the baccalaureate program had the lowest percentage (20%) of first generation-college students. Of the study participants, 7.4% were repeating a nursing course in the current semester, and 27% identified having repeated a nursing course in a prior semester. Furthermore, results indicated that no students in the diploma program were currently repeating a nursing course and only 3% of diploma program students had repeated a nursing course in a prior semester. The majority (57.9%) of participants reported a cumulative GPA of 3.5-3.9 (M = 3.6, SD = .7).

As mentioned in Chapter Four, the characteristics of this study's sample resemble the national trends for gender, ethnicity, and age generally seen in the pre-licensure nursing student population. The demographics of this study's sample were compared to the demographics of

nursing students from the NLN (2015) survey of nursing students across program types for the academic year 2013-2014. Similar to this study's sample, the NLN (2015) reported a relatively low proportion (15%) of males and minorities (28%) enrolled in pre-licensure nursing programs. Comparable to the participants' ages noted in this study, the NLN (2015) also found that 42% of associate degree nursing students were over age 30 while 82% of baccalaureate nursing students were under 30 years of age.

Test Anxiety and Academic Procrastination

Research question one sought to determine the relationship between test anxiety and academic procrastination among pre-licensure nursing students. First, the Total TAI and Total PASS scores were computed for the sample population. The mean TAI score for the sample was 49.1 (*SD* = 14.1). Mean Total TAI scores were also computed for participants in each nursing program type and are reported as follows: diploma 44.7 (*SD* = 13.1), associate degree 53.2 (*SD* = 14.9) and baccalaureate degree 49.6 (*SD* = 13.1). According to Spielberger (1980), Total TAI scores may range from 20-80, with higher scores indicating higher anxiety. The pre-licensure nursing students in this research study reported higher mean Total TAI scores (*M* = 49.1) in comparison to those in Spielberger's (1980) normative sample of undergraduate college students (*M* = 38.5). Additionally, the mean Total PASS score for the sample in this research study was 34.4 (*SD* = 6.9). Mean Total PASS scores were also computed for participants in each nursing program type and are reported as follows: diploma 34.8 (*SD* = 6.9), associate degree 33.1 (*SD* = 6.6), and baccalaureate degree 35.5 (*SD* = 7.0). According to Solomon and Rothblum (1984), Total PASS scores may range from 12-60 with higher scores indicating higher academic procrastination. Participants in this research study reported similar

mean Total PASS scores (M = 34.4) in comparison to the sample in Solomon and Rothblum's initial research (M = 33.5).

Next, a Pearson product-moment correlation coefficient was computed for the Total TAI and Total PASS scores of all participants. Results indicated a small positive relationship between test anxiety and academic procrastination (r = .23) with the findings being statistically significant (p = .002). This finding suggests a positive correlation between test anxiety; however, at this time it remains unclear of the causal nature of this relationship.

Results of this study reflect findings similar to the research discussed in Chapter Two. Solomon and Rothblum (1984) found that academic procrastination, as evidenced by the Total PASS score, was significantly correlated with trait anxiety (r =.13, $p < .05$). Trait anxiety refers to general anxiety proneness across a variety of situations, including but not limited to test-taking; whereas state anxiety refers to temporary fear, nervousness, or discomfort induced by situations perceived as dangerous (Hembree, 1988; Spielberger, 1980). According to Spielberger, test anxiety is a form of trait anxiety. Thus, as Solomon and Rothblum (1984) operationalized anxiety as trait anxiety in their study, a weaker correlation may have been noted with academic procrastination than that of the current study in which test anxiety was operationalized using the TAI, a more accurate measure of test anxiety.

Additionally, a study by Haycock and colleagues (1998) found that procrastination was significantly correlated to state anxiety (r = .31, $p < .05$). However, Haycock's (1998) study utilized the STAI to assess anxiety and a modified version of the Procrastination Inventory (PI); in which of the 23 items, 20 items concerned procrastination regarding daily tasks (paying bills, returning phone calls) and only three items assessed procrastination on academic tasks. The instruments used to assess anxiety and procrastination vary from those used in the current

research study, therefore the results of Haycock's study cannot be compared to those of the current research study, as clinical anxiety and test anxiety remain different constructs.

Last, a study by Senecal and colleagues (1995) noted a small but significant correlation between anxiety and procrastination ($r = .22$, $p < .01$). The purpose of their study was to determine motivational factors, other than fear of failure, that contribute to academic procrastination. The aforementioned study utilized five items from the Clinical Anxiety Scale ($\alpha = .86$) which assessed frequency and intensity of anxious feelings on a daily basis, and a 10-item researcher developed academic procrastination scale ($\alpha = .88$). While this study demonstrates a correlation between clinical anxiety and procrastination, these results cannot be compared to those of the current research study, as clinical anxiety and test anxiety remain different constructs.

Further discussion about the relationship between test anxiety and academic procrastination is limited. The literature presented in Chapter Two identified minimal research on this topic; and of the available research, various instruments were utilized to assess test anxiety and procrastination. Additional research using the TAI and PASS is needed in this area to be able to draw more accurate conclusions regarding the relationship among the two variables.

For research question one, Pearson-product moment correlations between the Total TAI, TAI worry, and TAI emotionality subscales and Total PASS, PASS fear of failure, and PASS task aversiveness subscales were also computed. Several weak to moderate, yet significant correlations were noted. Correlations that were statistically significant were noted between the Total TAI and PASS fear of failure subscale ($r = .40$, $p < .01$), and between the TAI worry and PASS fear of failure subscales ($r = .38$, $p < .01$). These results suggest that pre-licensure nursing students who were afraid of failure tended to experience more worry.

As recalled in Chapter One, worry is the cognitive component of test anxiety that leads to debilitating thoughts that interfere with task-focused thinking (Bonaccio et al., 2012; Sarason, 1984). Individuals dealing with high levels of worry have thoughts that center on comparing one's performance to that of others, ruminating the consequences of failure, low levels of self-confidence, excessive worry over evaluation, and feeling unprepared for tests (Deffenbacher, 1978; Hembree, 1988; Morris et al., 1981). This finding has been well documented throughout the literature and is supported by the current research study. Additionally, the current research study supports Solomon and Rothblum's (1984) seminal work on academic procrastination that found the PASS fear of failure subscale to correlate significantly with anxiety as operationalized by the STAI ($r = .23$, $p < .0005$).

In a study by O'Carroll and Fisher (2013), test anxiety was significantly correlated ($r = .61$, $p < .001$) with worry among medical students in the United Kingdom. In the same study, worry was entered into a multiple regression equation and was found to predict test anxiety 38% of the time among both male and female medical students. However, in O'Carroll and Fisher's study, the anxiety and worry instruments were administered on the day of an examination, which may explain the strong correlation between worry and anxiety. In the current research study, the researcher took precautions to assure that the survey instruments were not administered on the day of an examination.

Nursing students report fear of failure as a source of increased stress (Kieffer & Reese, 2009; Waltman, 1997). Consequently, research has identified that individuals routinely engaged in cognitive avoidance, or procrastination, when a situation is perceived as anxiety-provoking or stressful (Borkovec et al., 2004; Poorman et al., 2011). Howell and Swanson (1989) found that test anxiety was significantly positively correlated with cognitive interference, or worry, ($r = .53$,

p <.05), which is supported by the correlation between overall test anxiety and the TAI worry subscale (r = .93, p <.01) in this research study.

Additionally, in a qualitative study by Edelman and Ficorelli (2005), the academic implications of test anxiety consisted of negative thoughts, and participants identified fears associated with failing written examinations and not completing the nursing program. One participant stated, "What if I fail this exam? I'm barely passing as it is; if I don't get a good grade on this exam, I may be out of the program…" (Edelman & Ficorelli, 2005, p. 57). Pre-licensure nursing education programs are often considered competitive, high-stakes academic programs by students. For example, some students may be dismissed from the program after failing one course or not meeting identified benchmarks on exit examinations. This is demonstrated in the current research study by the moderate significant correlation between the TAI worry and PASS fear of failure (r = .38, p <.01).

Cognitive Avoidance Theory of Worry

As research has demonstrated that worry is the anxiety component most consistently and most strongly inversely related to academic performance (Morris, Davis, & Hutchings, 1981) and that individuals with test anxiety tend to engage in avoidance behaviors (Poorman et al., 2011), the cognitive avoidance theory of worry was selected as the theoretical framework for this research study. The cognitive avoidance theory of worry posits that cognitive avoidance is a coping mechanism to perceived actions that may cause anxiety or fear. The correlations noted in research question one between the Total TAI and PASS fear of failure subscale (r = .40, p <.01) and the TAI worry subscale and PASS fear of failure subscale (r = .38, p <.01) substantiate this postulation.

As mentioned in Chapter Two, several assumptions are central to the cognitive avoidance theory; 1) worry disrupts fear exposure resulting in maintained threat appraisals, 2) worry is a self-perpetuating process that produces more worry, 3) worry is a cognitive attempt to generate ways to prevent bad events from happening and/or to prepare oneself for their occurrence and 4) worry is manifested by negative thoughts that present as words (i.e. talking to oneself) rather than images (mentally visualizing threatening situations) (Borkovec et al., 1983; Borkovec, Alciane, & Behar, 2004; Ruscio & Borkovec, 2004; Newman & Llera, 2011). In this study, the significant correlations at the $p < .01$ level between the Total TAI and PASS fear of failure scores ($r = .40$) as well as between the TAI worry and PASS fear of failure scores ($r = .38$) substantiate the third assumption proposed by this theory that worry is a cognitive attempt to generate ways to prevent bad events from happening and/or to prepare oneself for their occurrence. Initial research by Borkovec and colleagues (1983) indicated significant correlations at the $p < .05$ level between worry and failing tests ($r = .34$), which is corroborated by this research study when noting the correlation between the TAI worry and PASS fear of failure ($r = .38$, $p < .01$) scores of participants. This research study supported one of the four assumptions of the cognitive avoidance theory of worry. Further research regarding worry over time and its manifestations (i.e. by negative thoughts that present as words) and the impact upon pre-licensure nursing students' test anxiety is warranted to further test the assumptions of this theory.

In addition, Borkovec and colleagues (1983) developed and tested a 5-point Likert style questionnaire in an attempt to further describe worry in relationship to one's emotional state. Among the 14 emotional states experienced when worrying, anxious feelings were the most highly rated for the total group ($M = 4.20$, *SD* not reported), which is supported by a strong correlation that was statistically significant ($r = .93$, $p < .01$) between the Total TAI and the TAI

worry subscale in the current research study. This comparison study by Borkovec and colleagues (1983) also sought to determine the most frequent areas of worry among college students; not surprisingly, academic issues were the most frequently cited area of worry ($M = 3.64$). While Borkovec's research identified that test anxiety research provides the most conclusive link to worry, and this research study supports this notion, further research is needed to determine the relationship between cognitive avoidance and test anxiety.

Differences in Test Anxiety and Academic Procrastination among Nursing Program Type

Research questions two and three aimed to explore the differences in test anxiety and academic procrastination among nursing education program types (diploma, associate degree, baccalaureate degree). A one-way ANOVA was computed for research question two and found a statistically significant difference in the Total TAI score among the groups $F(2, 192) = 6.77$, $p < .01$. Post-hoc comparisons indicated a significant difference at the $p < .05$ level in the Total TAI scores of the diploma group ($M = 44.64$, $SD = 13.1$) and the associate degree group ($M = 53.2$, $SD = 14.9$). Thus, the associate degree group reported significantly higher levels of test anxiety than those in the diploma group, however no significant difference in test anxiety was found between the associate degree group and the baccalaureate group ($M = 49.6$, $SD = 13.1$). This significant difference in the Total TAI score among associate degree students can possibly be attributed to the program's grading and academic progression policy, in which students are dismissed from the nursing program if one 3-credit or higher nursing course is not successfully passed with a 79% average (Mount Aloysius College, 2015). One dissertation by Hight (1996) reported a significantly higher incidence $F(1, 686) = 96.12$, $p < .001$ of state anxiety among associate degree nursing students ($M = 48.59$. $SD = 12.77$). However, no empirical studies were found that examined test anxiety among nursing education program types.

Consequently, the rigorous grading scale and progression policy and higher incidence of test anxiety in the associate degree group in this research study supports previous research (Deffenbacher, 1978) that states that the nature of the evaluative experience may impact test anxiety; such that highly evaluative environments increase test anxiety whereas less-stressful testing environments decrease test anxiety.

For research question three, a one-way ANOVA was computed to assess for differences in the Total PASS score among the groups. No significant difference in the Total PASS score between the groups was noted F (2,195) = 1.96, p = .14. Although not statistically significant, the associate degree group had the lowest mean Total PASS score of all of the groups (M = 33.1, SD = 6.6). One would anticipate that the students in the associate degree group would have statistically significant Total PASS scores than students in the diploma and baccalaureate groups due to the correlation between test anxiety and procrastination that was discovered in research question one. However, prior research has demonstrated an inverse relationship with age and academic procrastination (Prohaska et al., 2000; Steel, 2007). Steel (2007) suggested that people procrastinate less as they age and learn. Thus, a possible explanation for the lack of statistically significant Total PASS scores among the associate degree students may be that the associate degree program had the highest percentage of students over 30 years of age, and although reporting higher test anxiety, participants were less likely to engage in academic procrastination.

Further discussion about these findings is limited. The literature presented in Chapter Two identified a paucity of research on test anxiety and academic procrastination in pre-licensure nursing students. The current research study identified that associate degree nursing students experienced higher levels of test anxiety than students enrolled in diploma and baccalaureate nursing education programs, and that there was no significant difference in the

amount of academic procrastination among the three groups. Additional research is needed in these areas to be able to draw more accurate conclusions.

Factors Predicting Pre-licensure Nursing Students' Academic Procrastination

Research question four sought to identify which demographic factors predict pre-licensure nursing students' academic procrastination. Standard multiple regression was used to assess the impact of gender, age, ethnicity, employment, first generation college student status, and self-reported cumulative GPA on pre-licensure nursing students' tendency to engage in academic procrastination. While the regression model approached significance, $F(6, 189) = 2.10$, $p = 0.55$, $R^2 = .06$, results indicated that only 6% of the variance in academic procrastination can be explained by gender, age, ethnicity, employment status, first generation college student status, and GPA among this study's participants. However, it should be noted that self-reported GPA was the sole variable that had a significant influence ($\beta = -.237$, $p < .01$) on predicting pre-licensure nursing student's academic procrastination. These results suggest that as GPA increases, academic procrastination decreases among the pre-licensure nursing student population. One possible explanation for this association may be that nursing students with higher GPAs might be more intrinsically motivated, self-efficacious, and have higher levels of self-esteem, and thus perhaps tend to procrastinate less on academic tasks.

Poor academic performance was cited in the literature as a consequence of academic procrastination (Rothblum et al., 1986; Senécal et al., 1995; Steel, 2007) in Chapter Two. Consequently, the results of this research study identified that self-reported GPA had a small, but significant impact on predicting pre-licensure nursing students' academic procrastination. This study's results are supported by previous research that identified small to moderate negative

correlations between self-reported GPA and academic procrastination (Klassen et al., 2008; Rothblum et al., 1986; Senecal et al., 1995; Steel 2007).

Types of Academic Procrastination among Pre-licensure Nursing Students

Research question five aimed to identify the most commonly occurring types of academic procrastination among pre-licensure nursing students. Participants ranked academic tasks on a scale of *1 = never procrastinate* to *5 = always procrastinate*. Descriptive statistics were used to assess the frequency of various academic tasks identified on the PASS in which students often procrastinate. The majority of this sample (71.2%) in this study always or nearly always procrastinated in keeping up with weekly reading assignments (M = 4.0, SD = .92), followed by 41.6% always or nearly always procrastinating when writing a term paper (M = 3.4, SD = .90) and 29.2% always or nearly always procrastinating when studying for exams (M = 3.1, SD = .98). Regarding the extent to which the study participants wanted to decrease their tendency to procrastinate upon academic tasks, 64.4% wanted or definitely wanted to decrease their procrastination on weekly reading assignments, 57.9% wanted to decrease their procrastination when writing a term paper, and 70.3% wanted to decrease their procrastination on studying for exams.

These results are similar to those reported by Onwuegbuzie (2004) in which 60% of students reported nearly always or always procrastinating on weekly reading assignments, but vary from those of Solomon & Rothblum (1984) in which only 30% of participants reported nearly always or always procrastinating on weekly reading assignments. One potential explanation for the higher percentage procrastinating on weekly readings in this study and in Onwuegbuzie's (2004) study may be the nature of the reading assignments. Nursing and statistics textbooks may prove more difficult to read than a general psychology textbook.

Additionally, students in Solomon and Rothblum's (1984) study were first-year students in a general psychology course, compared to the participants in this study who were either in their second or third year of higher education or those in Onwuegbuzie's study who were graduate students. First-year students may exhibit more willingness to complete weekly readings than more experienced students.

In this study, while only 29.2% of participants reported nearly always or always procrastinating on studying for exams, 70.3% wanted to decrease this habit. More importantly, 71.2% of study participants reported nearly always or always procrastinating in completing weekly reading assignments, and 64.4% wanted or definitely wanted to decrease this habit. These results are similar to those reported by Solomon & Rothblum (1984) in which 62% of students wanted to reduce procrastination when studying for exams and 55% wanted to reduce procrastination when doing weekly readings. This study's results are also similar to those of Onwuegbuzie (2004) who reported that 68% of students wanted to reduce procrastination when studying for examinations, and 72% wanted to reduce it when undertaking reading assignments (Onwuegbuzie, 2004). Additionally, these results support the qualitative findings by Grunschel and colleagues (2013) whose analysis revealed that students most frequently mentioned procrastinating when writing term papers and when studying for exams (Grunschel, Patrzek, & Fries, 2013).

While more nursing students reported procrastinating in completing weekly assignments (71.2%) than studying for exams (29.2%), a higher percentage reported wanting or definitely wanting to decrease procrastinating in studying for exams (70.3%) than completing weekly readings (64.4%). One potential explanation for this may be that the nursing students in this study did not view weekly reading as helping them study for exams. Another reason may be the

difficult nature of the weekly readings, an academic task that may be viewed by pre-licensure students as aversive, and thus these students may not want to decrease procrastination upon that task. Further research should attempt to gain further insight into potential reasons why pre-licensure nursing students avoid weekly reading assignments.

Additional Findings

Although not included in the study's research questions, literature has demonstrated associations between gender and incidence of test anxiety and academic procrastination. To assess the nature of the relationship between gender and incidence of test anxiety and academic procrastination, independent samples t-tests were performed. First, an independent samples t-test was conducted to compare the Total TAI scores for male and female pre-licensure nursing students. There was a significant difference in the scores between the male (M = 48.8, SD = 13.1) and female (M = 50.4, SD = 14.0) students, t (193) = -2.84, p = .005; however, the magnitude of the differences in means was small (eta squared = .04). This supports previous research that has identified that females exhibit more test anxiety than males (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988; Macher et al., 2012; O'Carroll & Fisher, 2013; Spielberger, 1980).

Next, an independent samples t-test was computed to compare the Total PASS scores for male and female participants. There was no significant difference in the scores between the male (M = 34.2, SD = 6.8) and female (M = 34.5, SD = 6.9) students, t (196) = -.23, p = .82. While associations have been noted between gender and academic procrastination, in which males were more likely to procrastinate (Prohaska et al., 2000; Reasinger & Brownlow, 1996; Senécal et al., 1995; Steel, 2007), these results contradict prior research that identified male students more routinely engaged in academic procrastination.

Prior research (Kurosawa & Harackiewicz, 1995) demonstrated that socioeconomic status and parent/guardian education level was thought to have a small, yet significant impact on test anxiety; however, the results of this study do not support this finding. An independent samples t-test indicated no significant difference, t (193) = .38, p = .70 in the total TAI score between first (M = 49.5, SD = 13.3) and second generation (M = 48.7, SD = 14.9) pre-licensure nursing students in this research study. The rigorous nature of the nursing major may act as one potential explanation for the lack of difference in test anxiety among first and second-generation pre-licensure students.

Last, previous research identified negative correlations between test anxiety and GPA (Cassady & Johnson, 2002; Chappell et al., 2005; Hembree, 1988; Howell & Swanson, 1989; Waltman, 1997). The majority (57.9%) of participants in this research study identified a cumulative self-reported GPA range of 3.5-3.9 while 31.2% of the participants identified their GPA as within the 2.5-3.0 range. Next, the mean GPA for each nursing education program type was calculated and a one-way ANOVA was computed to compare the mean GPAs of diploma, associate, and baccalaureate degree nursing students in this research study. The diploma program participants reported a mean GPA of 3.5 (SD = .69) and the associate degree participants reported a mean GPA of 3.4 (SD = .84). Baccalaureate degree participants reported statistically significantly higher GPAs (M = 3.8, SD = .46) than both the diploma (p = .016) and associate degree (p = .003) students), F(2, 197) = 6.18, p = .002. In this research study, the associate degree participants had the lowest self-reported GPA (M = 3.4) and the highest Total TAI score (M = 53.2), which corroborates prior research findings. However, it is important to note that the inflated GPA identified in this sample of pre-licensure nursing students raises interest. Several possible explanations for the relatively high self-reported GPAs identified in

this sample exist. For example, participants may have felt obliged to embellish their GPA or may not have known their true GPA. Furthermore, nursing students are often afraid of failure, and may therefore put in more academic effort than students in other disciplines, thus possibly earning higher grades.

Limitations

There were several limitations of this study. First, this study used a convenience sample of pre-licensure nursing students from three programs within Pennsylvania. This was due to the location of these nursing programs being in geographical proximity to the researcher. Although the study compared program types (diploma, associate, and baccalaureate), only one program of each type was included in the study. Future research should recruit from multiple sites within the programs types (diploma, associate, and baccalaureate), allowing for a more diverse population for comparison.

Next, use of self-reported surveys acts as another limitation of this study. Using self-reported surveys may increase possibility of exaggeration by the participants. Students may have structured their responses in a manner they felt was most acceptable to the researcher. This may have resulted in participants increasing or decreasing the actual amount of test anxiety or academic procrastination they experience, or possibly inflation of family educational level or self-reported GPA.

An additional limitation in this research study is the use of the PASS. The PASS addresses general academic tasks; such as keeping up with weekly readings, writing papers, and studying. In addition to the aforementioned academic tasks, pre-licensure nursing students also have additional academic tasks related specifically to the nursing profession, such as clinical preparation, simulation preparation, hands-on skills preparation, and care planning. Adding a

section for nursing-specific academic tasks to the PASS may provide a more detailed explanation of academic tasks that pre-licensure nursing students often procrastinate upon.

Implications

The findings of this research study provide nurse educators and administrators with information regarding test anxiety and academic procrastination among pre-licensure nursing students. These findings identify the correlations between test anxiety and academic procrastination as well as between worry and fear of failure, the differences in test anxiety and academic procrastination among nursing education program types, predictors of academic procrastination, and the most frequently procrastinated upon academic tasks by pre-licensure nursing students. The outcomes of this study should be used to assist nurse educators in the development and implementation of strategies to identify and decrease test anxiety and academic procrastination among pre-licensure nursing students.

Findings from this study identify a significant positive correlation between test anxiety and academic procrastination among pre-licensure nursing students. At this time, the nature of this relationship remains unknown, thus it may be anticipated that decreasing one of these phenomenon may ultimately decrease the occurrence of the other. The following sections will address strategies for decreasing test anxiety, worry, and academic procrastination among pre-licensure nursing students.

Test Anxiety

As mentioned previously, test anxiety is a form of performance anxiety that affects a student's ability to prepare for and take an examination (Poorman, et al., 2011; Waltman, 1997). Nurse administrators and educators should recognize that test anxiety does not only occur during an examination, but affects the preparatory period as well, and should consider employing

techniques to address test anxiety while nursing students are in the classroom. For example, nursing education administrators may wish to offer formal test-taking workshops to students early in the nursing education program. Offering test-taking workshops introduces novice nursing students to NCLEX-style questions, which may lessen test anxiety. Nurse administrators could also consider contacting their institution's office of counseling/disability to provide workshops on stress management techniques or study skills. Additionally, nursing education administrators may want to build peer mentoring or supplemental instruction services into their nursing curriculum.

Nurse educators can also employ strategies to decrease test anxiety. For example, nurse educators may want to assess their students' test anxiety at the beginning of a course by using a test anxiety instrument or inventory to gauge students' levels of test anxiety. Several free test anxiety assessments are commercially available and include the Westside Test Anxiety Scale (Driscoll, 2009) and the Cognitive Test Anxiety Scale (Cassady & Johnson, 2002), while the Spielberger Test Anxiety Inventory (TAI) can be purchased for a fee. Nurse educators should also become familiar with campus resources for students with test anxiety and refer students as appropriate.

Recall that the nature of the evaluative situation can impact test anxiety, such that highly evaluative situations provoke more anxiety than less evaluative situations. Nurse educators may consider having several evaluations, or examinations, during a nursing course rather than having only a midterm and final examination. More opportunities for evaluation may lessen the perception of the evaluation for students. Additionally, providing students with test maps and having review sessions before a test are simple ways that nurse educators may assist in decreasing nursing students' test anxiety. Furthermore, when nursing students have more than

one exam for which to prepare, they will often prioritize preparation to the exam they feel will be the most difficult or the class in which they are performing the poorest, often leaving little time to prepare for the other examination(s). Thus, nurse educators should consider collaborating with one another to assure that students will not have exams on the same day or possibly even during the same week. Collaborative testing, where each student takes an examination on his or her own, and then collaborates with peers, has been shown to decrease students' test anxiety, increase critical thinking skills and increase comprehension of course content (Mitchell & Melton, 2003).

Additional strategies that have been effective for decreasing test anxiety involve the use of alternative therapies such as guided imagery, biofeedback, aromatherapy, and guided reflection. While nurse educators are often not trained to provide detailed instruction or therapy in these areas, informing test-anxious students of these treatments and providing resources or contact information for students to utilize these therapies may prove beneficial.

Last, pre-licensure nursing students may voluntarily disclose a documented diagnosis of test anxiety from a licensed health care provider to a faculty member. These students should be referred to the institution's office of counseling or disability services to assure that the prescribed testing accommodations can be instituted.

Worry

Worry is the cognitive component of test anxiety that leads to debilitating thoughts that interfere with task-focused thinking (Bonaccio, Reeve, & Winford, 2012; Sarason, 1984). With regard to test anxiety, worry comprises individuals' cognitive reactions to evaluative situations in the times prior to, during, and after evaluative tasks; and involves negative self-talk or thoughts.

Worry is a cognitive, or conscious mental activity. Thus, nurse educators and nursing students should focus on cognitive restructuring strategies to address worry. For example, thought distraction techniques such as thought stopping, worry appointments, and worry breaks are considered cognitive restructuring techniques (Poorman et al., 2011). Thought stopping is a cognitive behavioral technique that involves replacing intrusive negative thoughts and worry with positive thoughts (Anrkom 2014; Poorman et al., 2011). Interrupting worry and negative thoughts with a command such as saying the word “stop” aloud or lightly snapping a rubber band worn on the wrist can be used to interrupt negative thoughts (Anrkom 2014; Poorman et al., 2011). Once the negative thought is interrupted by the command, a positive thought is substituted. This technique is most effective when practiced regularly, students should be instructed to practice thought stopping on a daily basis until they become proficient.

Another cognitive behavioral strategy to control worry is to set aside worry appointments. Worry appointments, or worry periods, are specifically scheduled times to engage in worry (Carbonell, 2015; Poorman et al., 2011). Worry appointments should be thoughtfully scheduled in advance, should occur twice per day, and should last no longer than 10-20 minutes. During the worry period, one simply worries, often repeatedly reciting "what if...?" questions about unpleasant possibilities (Carbonell, 2015). Thought stopping can be used in conjunction with worry periods; when one worries at times other than the scheduled worry appointment, thought stopping should be employed (Poorman et al., 2011).

Conversely, worry breaks are another thought distraction technique used to combat worry during studying (Poorman et al., 2011). For example, students often find negative intrusive thoughts starting to occur during a study session. During a worry break, students should write down their worries. Poorman and colleagues (2011) suggest writing down worries, then

continuing to study for about 10-15 minutes, then scheduling another worry break (Poorman et al., 2011, p. 50). At the end of the study session, the student should go back and review all of the worries that were written down. After continuing to practice worry breaks during studying, nursing students may begin to see how repetitious their worries can be, and these worries may even seem to become illogical and unwarranted.

Academic Procrastination

Academic procrastination is willfully delaying the start or completion of academic tasks (Rabin et al., 2011; Solomon & Rothblum, 1984). According to Poorman and colleagues (2011), students may engage in avoidance behaviors to decrease anxiety about studying; however, the results are only temporary because often the entire time the student is procrastinating, he or she is worrying about not studying. This section outlines faculty and student implications for decreasing academic procrastination among the pre-licensure nursing student population.

Faculty implications. There are several strategies that nurse educators can employ to discourage academic procrastination among their students. Pre-licensure nursing students in this study's sample reported keeping up with weekly reading assignments as the most frequently (71.2%) procrastinated upon academic task. To combat the lack of weekly reading done by pre-licensure nursing students, nurse educators may wish to employ strategies such as quizzes (announced, unannounced, online), assignments that require a written response to the reading, such as writing journals and identifying reactions to the reading, completion of questions on the reading, offering a variety of optional reading support materials such as journal articles, and calling on students to answer questions about the reading (Huang, 2015; Weimer, 2015). Nurse educators may also ask students to write down questions about the reading at the beginning of class, and see if anyone in the class is able to answer the questions.

Additionally, clear deadlines and high expectations from faculty have been noted in the literature to decrease procrastination among students (Schraw et al., 2007; Weimer 2009). Nurse educators should work to provide detailed syllabi, clear deadlines, regular evaluation, and ongoing detailed feedback to decrease academic procrastination among nursing students. For example, nurse educators should consider listing due dates not only in the syllabus, but also sending weekly reminders regarding due dates or examinations to students via email, mentioning them in class, using an online course management system, and social media options such as Twitter© or Instagram©. If the nurse educator does not wish to use social media, perhaps a student could be designated to send social media reminders regarding due dates and assignments to the rest of the class. Additionally, providing detailed assignment guidelines and rubrics at the beginning of a course, as well as chunking out large assignments into several smaller sections to be completed, are also strategies nurse educators can employ to decrease academic procrastination among students.

Student implications. Nurse educators can help pre-licensure nursing students learn to assume responsibility for their academic tasks by informing them of the following strategies. First, Poorman and colleagues suggested that students should keep procrastination behaviors to five minutes or less; and engage in the same behavior (i.e. checking social media or email) each time, so that it signals to the mind that it is time to engage in academic work (Poorman et al., 2011, p. 11).

In addition, nurse educators may offer several suggestions to assist students in overcoming academic procrastination. First, students should identify reasons why they procrastinate (Voge, 2007). Writing these reasons down on paper allows the student to carefully evaluate each reason, and then take steps to address these reasons in their daily lives. As

research has demonstrated, negative thoughts often prompt academic procrastination, thus students should also ask themselves what feelings and thoughts lead to procrastination. Identifying and addressing these feelings may help students decrease academic procrastination. Additionally, Voge (2007) and Weimer (2009) emphasized the importance of students becoming actively engaged in their courses. When students aim to understand the course material rather than "get through it" or "just pass," they become more engaged and are less likely to procrastinate.

Voge (2007) also suggested using the "Swiss cheese" approach, where large tasks are broken down into smaller ones. For example, instead of reading an entire chapter in one evening, the student may set a goal to read a few sections each evening and finish the chapter in one week. Setting achievable academic goals acts as another strategy to decrease academic procrastination (Voge, 2007), as students may sometimes have unrealistic expectations of themselves and their abilities (Winston, van der Vleuten, & Scherpbier, 2010). Nurse educators can assist students set realistic and achievable academic goals at the beginning of a nursing course; for example, instead of trying to get an A on every test, students may change their goal to getting an A on at least two exams in a course. Last, students should be reminded to choose their academic surroundings wisely. When doing school work, students should give careful consideration to where and with whom they are working; placing oneself in a situations such as cramming, studying in bed, or with friends, can actually be a type of procrastination (Voge, 2007).

Recommendations for Future Research

Limited nursing education research exists on test anxiety and academic procrastination. There are several areas in which further research is warranted to further understand the

relationship of test anxiety and academic procrastination and the impact of these phenomena on nursing students. The results of this study indicated a significant positive correlation between test anxiety and academic procrastination; however, it is not known at this time whether this relationship is causal. Therefore, comparing pre-licensure nursing students with diagnosed test anxiety and those not diagnosed with test anxiety and their tendency to engage in academic procrastination may prove beneficial.

Additionally, the cognitive avoidance theory of worry proposes that worry disrupts fear exposure resulting in maintained threat appraisals and that worry is a self-perpetuating process that produces more worry. Thus, it may prove beneficial to perform a longitudinal study of pre-licensure nursing students from all program types to assess whether the occurrence of test anxiety and academic procrastination changes as students progress through their nursing education programs.

This research study utilized pre-licensure nursing students from diploma, associate, and baccalaureate nursing education programs. Second-degree nursing education programs continue to rise in popularity and are an attractive option for individuals who wish to become registered nurses and already hold a baccalaureate degree in another field. Second-degree nursing students bring a variety of educational experience to the pre-licensure nursing student population, and replicating this study with students enrolled in second-degree nursing programs may provide valuable insight into the occurrence of test anxiety and academic procrastination among students with prior higher education experience.

As mentioned, pre-licensure nursing education programs are competitive, difficult, often high-stakes academic programs. The difficult nature of pre-licensure nursing education programs sets nursing education apart from traditional academic disciplines. Further research

may wish to compare data on test anxiety and academic procrastination between pre-licensure students and those from other academic disciplines.

As test anxiety is thought to be a type of trait anxiety, one may be interested to inquire if test anxiety affects staff nurses in the same respect as student nurses. Many healthcare facilities require staff nurses to demonstrate competency by taking examinations; such as yearly medication or dysthymia examinations, for example. Practicing registered nurses may also pursue certification in their areas of expertise as well, and must pass a certification examination to be credentialed. Research has demonstrated that test anxiety is more prevalent in nursing and higher education now than in previous decades (Brewer, 2002). Performing a longitudinal research study to examine if test-anxious nursing students carry this trait into professional practice may be worth exploring.

Additionally, further exploration of all nursing education program types (diploma, associate, baccalaureate, second-degree) using a multi-site study approach would assist in clarifying the nature of the relationships between test anxiety and academic procrastination among various nursing education program types.

Conclusions

This study sought to add to the body of knowledge on test anxiety and academic procrastination among pre-licensure nursing programs (diploma, associate, and baccalaureate) by examining the relationship of test anxiety and academic procrastination among pre-licensure nursing students, the differences in test anxiety and academic procrastination among nursing program types, and factors that may predict academic procrastination among pre-licensure nursing students. Results of this study identified a moderate correlation between test anxiety and academic procrastination among pre-licensure students and that associate degree nursing students

experienced significantly higher levels of test anxiety than those enrolled in diploma and baccalaureate nursing programs. Additionally, this study's results indicated that the majority of pre-licensure nursing students report procrastinating most on keeping up with weekly reading assignments, followed by writing term papers, and studying; however, nursing students with higher self-reported GPAs tended to procrastinate less on academic tasks. The study findings also supported the assumption of the cognitive avoidance theory of worry indicating that pre-licensure nursing students with test anxiety tend to worry and procrastinate more, although additional research using the cognitive avoidance theory of worry to explain test anxiety and academic procrastination is warranted.

This study provided fundamental knowledge regarding the relationship of test anxiety and academic procrastination among pre-licensure nursing students across nursing education program types. The implications of this study may be used to aid in the development and implementation of strategies to identify and decrease test anxiety and academic procrastination among pre-licensure nursing students. Findings from this study support the need for further research exploring additional internal and external factors that may further clarify the interrelationship between test anxiety and academic procrastination and the impact of these phenomena among pre-licensure nursing students across all nursing education program types.

References

American Association of Colleges of Nursing (AACN). (2014). Nursing shortage fact sheet. Retrieved from http://www.aacn.nche.edu/media-relations/NrsgShortageFS.pdf

Ankrom, S. (2014, December 16). *What is thought stopping and how does it work?* Retrieved from http://panicdisorder.about.com/od/livingwithpd/a/thoughtstopping.htm

Ascend Learning, LLC. (2012). Student attrition: Consequences, contributing factors, and remedies. Retrieved from http://www.atitesting.com/Libraries/pdf/Attrition_whitepaper_ATI_2.sflb.ashx

Afolayan, J. A., Donald, B., Onasoga, O., Babefemi, A., & Juan, A. (2013). Relationship between anxiety and academic performance of nursing students, Niger Delta University, Bayelsa State, Nigeria. *Advances in Applied Research*, *4*(5), 25-33.

Alpert, R., & Haber, R. (1960). Anxiety in academic achievement situations. *Journal of Abnormal and Social Psychology*, *61*, 207-215.

Beck, D. L., Hackett, M. B., Srivastava, R., McKim, E., & Rockwell, B. (1997). Perceived level and sources of stress in university professional schools. *Journal of Nursing Education*, *36*(4), 180-186.

Bennett, R. (2003). Determinants of undergraduate student drop-out rates in a university business studies department. *Journal of Further and Higher Education*, *27*(2), 123-141.

Bonaccio, S., Reeve, C. L., & Winford, E. C. (2012). Test anxiety on cognitive ability test can result in differential predictive validity of academic performance. *Personality and Individual Differences*, *52*, 497-502.

Borkovec, T. D., Robinson, E., Pruzinksy, T., & Depree, J. A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour and Research* Therapy, *21*, 9-16.

Borkovec, T. D., Alcaine, O., & Behar, E. (2004). Avoidance theory of worry and generalized anxiety disorder. In R. G. Heimberg, C. L. Turk, & D. S. Menin (Eds.). *Generalized anxiety disorder: Advances in research and practice* (pp.77-108). New York, NY: Guilford Press.

Brewer, T. (2002). Test-taking anxiety among nursing and general college students. *Journal of Psychosocial Nursing and Mental Health Services, 40*(11), 22-29.

Calabrese, R. L. (2006). *The elements of an effective dissertation and thesis: A step-by-step guide to getting it right the first time*. Lanham, MD: Rowman & Littlefield Education.

Cao, L. (2012). Differences in procrastination and motivation between undergraduate and graduate students. *Journal of the Scholarship of Teaching and Learning, 12*(2), 9-64.

Carbonell, D. (2015, December 8). *Overcoming worry with worry appointments*. Retrieved from http://www.anxietycoach.com/overcoming-worry.html

Carraway, C. T. (1987). Development of a questionnaire in order to identify test anxiety in nursing students. Retrieved from ERIC database. (ED284616).

Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. *Contemporary Educational Psychology*, 27, 270-295. doi: 10.1006/cps.2001.1094

Chapell, et al. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology, 97*(2), 268-274. doi: 10.1037/0022-0663.97.2.268

Cohen, J. W. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Day, V., Mensink, D., & O'Sullivan, M. (2000). Patterns of academic procrastination. *Journal of College Reading and Learning, 30,* 120–134

Deary, I. J., Watson, R., & Hogston, R. (2003). A longitudinal cohort study of burnout and attrition in nursing students. *Journal of advanced nursing, 43*(1), 71-81.

Deffenbacher, J. L. (1978). Worry, emotionality, and task-generated interference in test anxiety: An empirical test of attentional theory. *Journal of Educational Psychology*, *70*(2), 248-254.

Diekelmann, N. L. (1997). Learning as testing: a Heideggarian hermeneutical analysis of the lived experiences of students and teachers in nursing. *Advanced Nursing Science, 14*(3), 72-83.

Driscoll, R., Evans, G., Ramsey, G., & Wheeler, S. (2009). *High test anxiety among nursing students*. Retrieved from ERIC database. (ED506526).

Edelman, M., & Ficorelli, C. (2005). A measure of success: Nursing students and test anxiety. *Journal for Nurses in Staff Development*, *21*(2), 55-59.

Fee, R, L., & Tagney, J. P. (2000). Procrastination: A means of avoiding shame or guilt? *Current Issues and New Directions*, *15*(5), 167-184.

Ferrari, J. R. (1992). Procrastinators and perfect behavior: An exploratory factor analysis of self-presentation, self-awareness, and self-handicapping components. *Journal of Research in Personality*, *26*, 75–84.

Gibson, H. A. (2014). A conceptual view of test anxiety. *Nursing Forum*, 49(4), 267-277.

Goff, A. (2011). Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students. *International Journal of Nursing Education Scholarship*, *8*(1), 1-20. doi: 10.2202/1548-923X.2114

Grunschel, C., Patrzek, J., & Fries, S. (2013). Exploring reasons and consequences of academic procrastination: An interview study. *European Journal of Psychology Education*, 28, 841-861. doi: 10.1007/s10212-012-0143-4

Haycock, L. A., McCarthy, P., & Skay, C. L. (1998). Procrastination in college students: The role of self-efficacy and anxiety. *Journal of Counseling and Development*, *76*, 317-324.

Hembree, R. (1988). Correlates, causes, and treatment of test anxiety. *Review of Educational Research*, *58*, 47–77

Hen, M., & Goroshit, M. (2012). Academic procrastination, emotional intelligence, academic self-efficacy, and GPA: A comparison between students with and without learning disabilities. *Journal of Learning Disabilities*, *47*(2), 116-124. doi: 10.1177/0022219412439325

Higginson, R. (2006). Fears, worries, and experiences of first-year pre-registration nursing students: a qualitative study. *Nurse Researcher*, *13*(3), 32-49.

Howell, C. C., & Swanson, S. C. (1989). The relative influence of identified components of test anxiety in baccalaureate nursing students. *Journal of Nursing Education*, *28*(5), 215-220.

Howell, A. J., & Watson, D. C. (2007). Procrastination: associates with achievement goal orientation and learning strategies. *Personality and Individual Differences*, *4*, 167-178. doi: 10/1016/j.paid.2006.11.017

Howell, A. J., Watson, D. C., Powell, R. A., & Buro, K. (2006). Academic procrastination: The pattern and correlates of behavioral postponement. *Personality and Individual Differences*, *40*, 1519-1530. doi: 10.1016/j.paid.2005.11.023

Johnson, C. E. (2013). The effects of diffused aromatherapy on test anxiety among baccalaureate nursing students. Retrieved from ProQuest Digital Dissertations. (Accession No. 2012360889).

Kieffer, K. M., & Reese, R. J. (2009). Measurement of test and study worry and emotionality in college students: A psychometric evaluation of the test and study attitudes inventory. *Educational and Psychological Measurement*, *69*(2), 303-321. doi: 10.1177/0013164408323231

Klassen, R. M., Krawchuck, L. L., Rajani, S. (2008). Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination. *Contemporary Educational Psychology*, *33*, 915-931. doi: 10.1016/j.cedpsych.2007.07.001

Kurosawa, K., & Harackiewicz, J. M. (1995). Test anxiety, self-awareness, and cognitive interference: A process analysis. *Journal of Personality*, *63*(4), 931-943.

L Huang. (2015, September 25). Getting horses to drink: Three ways to promote student ownership of reading assignments. [Web log comment]. Retrieved from http://www.facultyfocus.com/articles/effective-teaching-strategies/three-ways-to-promote-student-ownership-of-reading-assignments/

Lay, C. H. (1986). At last, my research article on procrastination. *Journal of Research in Personality*, *20*, 474–495

Liebert, R. M., & Morris, L.W. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports*, *20*, 975-97.

M Weimer. (2009, May 7). Why students procrastinate and what you can do about it. [Web log comment]. Retrieved from http://www.facultyfocus.com/articles/instructional-design/why-students-procrastinate-and-what-you-can-do-about-it/

M Weimer. (2015, June 26). Getting students to do the reading. [Web log comment]. Retrieved from http://www.facultyfocus.com/articles/effective-teaching-strategies/getting-students-to-do-the-reading/

Macher, D., Paecheter, M., Papousekc, I., & Ruggeri, K. (2012). Statistics anxiety, trait anxiety, learning behavior, and academic performance. *European Journal of Psychology Education*, *27*, 483-498. doi: 10.1007/s10212-011-0090-5

Markman, U., Balik, C., Braunstein-Bercovitz, H., & Ehrenfeld, M. (2010). The effect of nursing students' health beliefs and their willingness to seek treatment for test anxiety. *Journal of Nursing Education*, *50*(5), 248-525.

Mastorovich, M. L., (1994). Test anxiety, performance expectancy, and actual performance on the professional licensure examination among diploma nursing graduates (Master's thesis). Available from ProQuest (UMI No. 1359350)

McDonald, M. E. (2014). *The nurse educator's guide to assessing learning outcomes* (3rd ed.). Boston, MA: Jones & Bartlett.

Mitchell, N., & Melton, S. (2003). Collaborative testing: An innovative approach to test taking. *Nurse Educator*, *28*(2), 5-97.

Morris, L., & Liebert, R. (1969). Effects of anxiety on timed and untimed intelligence tests. *Journal of Consulting and Clinical Psychology*, *52*, 201-206.

Morris, L. W., Davis, M. A., & Hutchings, C. H. (1981). Cognitive and emotional components of anxiety: Literature review and a revised worry-emotionality scale. *Journal of Educational Psychology*, *73*, 541–555

Mount Aloysius College. (2015). *Mount Aloysius College nursing student handbook.* Retrieved from http://www.mtaloy.edu/wp-content/uploads/2015/08/Nursing-student-policy-procedure.pdf

National League for Nursing. (2015). *Executive summary: Findings from the 2014 biennial survey of schools of nursing academic year 2013-2014.* New York, NY: Author.

Newman, M. G., & Llera, S. J. (2011). A novel theory of experiential avoidance in generalized anxiety disorder: A review and synthesis of research supporting a contrast avoidance model of worry. *Clinical Psychology Review, 31*, 371-382. doi: 10.1016/j.cpr.2011.01.008

O'Carroll, P. J., & Fisher, P. (2013). Metacognitions, worry, and attentional control in predicting OSCE performance test anxiety. *Medical Education*, 47, 562-568. doi: 10.1111/medu.1215

Onwuegbuzie, A. J. (2004). Academic procrastination and statistics anxiety. *Assessment and Evaluation in Higher Education*, *29*(1), 3-19.

Pallant, J. (2013). *SPSS Survival Manual: A step by step guide to data analysis using IBM SPSS* (5th ed.). England: McGraw-Hill.

Polit, D. F., & Beck. C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Wolters Kluwer Health.

Poorman, S., & Martin, J. (1991). The role of nonacademic variables in passing the National Council Licensure Examination. *Journal of Professional Nursing, 7*, 25-3

Poorman, S. G., Mastorovich, M. L., Molcan, K. L., & Liberto, T. L. (2011). *Good thinking: Test taking and study skills* (3rd ed.). Pittsburgh, PA: STAT Nursing Consultants.

Poorman, S. G., & Webb, C. A. (2000). Preparing to retake the NCLEX-RN: The experience of graduates who fail. *Nurse Educator, 25*(4), 175-180.

Prato, C. A., & Yucha, C. B. (2013). Biofeedback-assisted relaxation training to decrease test anxiety in nursing students. *Nursing Education Perspectives, 34*, 76-81.

Prohaska, V., Morril, P., Atiles, I, & Perez, A. (2007). Academic procrastination by non-traditional students. *Journal of Social Behavior and Personality, 15*, 125-134.

Rabin, L. A., Fogel, J., & Nutter-Upham, K. E. (2011). Academic procrastination in college students: The role of self-reported executive function. *Journal of Clinical and Experimental Neuropsychology, 33*(3), 344-357. doi: 10.1080/13803395.2010.518597

Reasinger, R. & Brownlow, S. (1996). Putting off until tomorrow what is better done today: Academic Procrastination as a Function of Motivation toward College Work. Poster presented at the Annual Meeting of the Southeastern Psychological Association (Norfolk, VA, March 1996). Retrieved from ERIC database (ED401811).

Rothblum, E. D., Solomon, L. J., & Murakami, J. (1986). Behavioral, affective, and cognitive differences between high and low procrastinators as an academic deadline approaches. Retrieved from ERIC database (ED267368).

Ruscio, A. M., & Borkovec, T. D. (2004). Experience and appraisal of worry among high worries with and without generalized anxiety disorder. *Behaviour and Research Therapy*, *42*, 1469-1482. doi:10.1016/j.brat.2003.10.007

Sansgiry, S. S., Bhosle, M., & Dutta, A. P. (2005). Predictors of test anxiety in doctor of pharmacy students: An empirical study. *Pharmacy Education, 5*(2), 121-129.

Sarason, I. G. (1978). The Test Anxiety Scale: Concept and research. In C. D. Spielberger and I. G. Sarason (Eds.), Stress and anxiety, Vol. 5. New York, NY: Wiley

Sarason, I. G. (1984). Stress, anxiety, and cognitive interference: Reactions to tests. *Journal of Personality and Social Psychology*, *46*, 929–938.

Sarason, S., & Mandler, G. (1952). Some correlates of test anxiety. *Journal of Abnormal Psychology, 47,* 810-817.

Saravanan, C., Kingston, R., & Gin, M. (2014). Is test anxiety a problem among medical students? A cross-sectional study on outcomes of test anxiety among medical students. *International Journal of Psychological Studies*, 6(3), 24-31. doi: 10.5539/ijps.v6n3p24

Schraw, G., Wadkins, T., & Olafson, L. (2007). Doing the things we do: A grounded theory of procrastination. *Journal of Educational Psychology*, *99*, 12-25. doi: 10.1037/0022-0663.99.1.12

Senecal, C., Koestner, R., & Vallerand, R. J. (1995). Self-regulation and academic procrastination. *Journal of Social Psychology*, *135*(5), 607-619.

Sibrava, N. J., & Borkovec, T. D. (2006). The cognitive avoidance theory of worry. In Davey, G. C. L., & Wells, A (Eds.). *Worry and its psychological disorders: Theory, assessment, and treatment* (pp. 239-256). Hoboken, NJ: Wiley.

Schneider, M. & Yin, L. (2011). The hidden costs of community colleges. American Institute for Research, available at www.air.org.

Sharif, F., & Armitage, P. (2004). The effect of psychological and educational counselling in reducing anxiety in nursing students. *Journal of Psychiatric and Mental Health Nursing 11*, 386–392.

Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology, 21*(4), 503-509.

Spielberger, C. D. (1972). Conceptual and methodological issues in anxiety research. In C. D. Spielberger (Ed.), *Anxiety: Current trends in theory and research. Vol. 2*. New York, NY: Academic Press

Spielberger, C. D. (1980). Test anxiety inventory. Palo Alto, CA: Consulting Psychologists Press

Stapinski, L. A., Abbot, M. J., & Rapee, R, M. (2010). Evaluating the cognitive avoidance model of generalised anxiety disorder: Impact of worry on threat appraisal, perceived control, and anxious arousal. *Behaviour Research and Therapy,* 48, 1032-1040. doi: 10.1016.j.brat.2010.07.005

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical view of quintessential self-regulatory failure. *Psychological Bulletin, 13*(1), 65-94.

Tobias, S. (1985). Test anxiety: Interference, defective skills, and cognitive capacity. *Educational Psychologist, 20*(3), 135-142.

Tuckman, B. W. (1991). The development and concurrent validity of the Procrastination Scale. *Educational and Psychological Measurement, 51*, 473–480

Voge, D. (2007). Classroom resources for addressing procrastination. *Research and Teaching in Developmental Education, 23*(2), 88-96.

Waltman, P. A. (1997). Comparison of traditional and non-traditional baccalaureate nursing students on selected components of Meichenbaum and Butler's model of test anxiety. *Journal of Nursing Education, 36*, 171-179.

Wedgeworth, M. G. (2013). *A cross-sectional analysis of state trait anxiety among pre, early, and late baccalaureate nursing students: Implications for nursing education* (Doctoral

dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3612162)

Wells, A. (2006). The metacognitive model of worry and generalised anxiety disorder. In G. C. L. Davey & A. Wells (Eds.), *Worry and it's psychological disorders: Theory, assessment, and treatment* (pp. 179-200). West Sussex, England: Wiley.

Winston, K. A., van der Vleuten, C, P., & Scherpbier, A. J. (2010). At-risk medical students: Implications of students' voice for theory and practice of remediation. Medical Education 2010, 44, 1038-1047. doi:10.1111/j.1365-2923.2010.03759.

Wohl, M. J. A., Pychyl, T. A., & Bennett, S. H. (2010). I forgive myself, now I can study. How self-forgiveness for procrastinating can reduce further procrastination. *Personality and Individual Differences*, 48, 803-808. doi: 10.1016/jpaid.2010.01.029

Young, J. S. (2012). Pet therapy: Dogs de-stress students. *Journal of Christian Nursing, 29*, 217-221.

Zeidner, M. (1998). *Test anxiety: The state of the art*. New York, NY: Plenum Press.

Zlomke, J. M. (2007). *Test anxiety in nursing students* (Master's thesis). Available from ProQuest (UMI No. 1443295)

Appendix A

IRB Approval From Indiana University of Pennsylvania

Indiana University of Pennsylvania
www.iup.edu

Institutional Review Board for the
Protection of Human Subjects
School of Graduate Studies and Research
Stright Hall, Room 113
210 South Tenth Street
Indiana, Pennsylvania 15705-1048

P 724-357-7730
F 724-357-2715
irb-research@iup.edu
www.iup.edu/irb

June 16, 2015

Nicole Custer
116 Maple Leaf Street
Johnstown, PA

Dear Ms. Custer:

Your proposed research project, "Test Anxiety and Academic Procrastination among Pre-licensure Nursing Students," (Log No. 15-155) has been reviewed by the IRB and is approved for data collection at IUP only. Please forward additional letters of research site approval as you receive them so they can be added to your IRB file. As you know, data can only be collected and analyzed from sites with office research site approval on file. You must send these approvals to the IRB office and receive a formal letter of IRB approval for each site before you initiate data collection. In accordance with 45CFR46.101 and IUP Policy, your project is exempt from continuing review.

You should read all of this letter, as it contains important information about conducting your study.

Now that your project has been approved by the IRB, there are elements of the Federal Regulations to which you must attend. IUP adheres to these regulations strictly:

1. You must conduct your study exactly as it was approved by the IRB.
2. Any additions or changes in procedures must be approved by the IRB before they are implemented.
3. You must notify the IRB promptly of any events that affect the safety or well-being of subjects.
4. You must notify the IRB promptly of any modifications of your study or other responses that are necessitated by any events reported in items 2 or 3.

The IRB may review or audit your project at random *or* for cause. In accordance with IUP Policy and Federal Regulation (45CFR46.113), the Board may suspend or terminate your project if your project has not been conducted as approved or if other difficulties are detected

Although your human subjects review process is complete, the School of Graduate Studies and Research requires submission and approval of a Research Topic Approval Form (RTAF) before you can begin your research. If you have not

yet submitted your RTAF, the form can be found at http://www.iup.edu/page.aspx?id=91683 .

While not under the purview of the IRB, researchers are responsible for adhering to US copyright law when using existing scales, survey items, or other works in the conduct of research. Information regarding copyright law and compliance at IUP, including links to sample permission request letters, can be found at http://www.iup.edu/page.aspx?id=165526.

I wish you success as you pursue this important endeavor.

Sincerely,

Jen Roberts

Jennifer Roberts, Ph.D.
Chairperson, Institutional Review Board for the Protection of Human Subjects
Professor of Criminology

JLR:jeb

Cc: Dr. Kristy Chunta, Dissertation Advisor
Ms. Brenda Boal, Secretary

Appendix B

IRB Approval From Diploma Program

Conemaugh
Memorial Medical Center

INSTITUTIONAL REVIEW BOARD
FWA #00001706

October 22, 2015
Study No.: 15-75
Minimal risk; Accrual goal: 70
Exempt Status

Principal Investigator: Nicole Custer, MS RN CCRN-K CSC; Doctoral Student; Indiana University of Pennsylvania

Title: 15-75 Text Anxiety and Academic Procrastination among Pre-licensure Nursing Students

Documents reviewed: IRB Review of Research Application Form; Protocol Version May 27, 2015 including Appendices A – E; Letter dated 06/16/15 from IUP IRB; Departmental Approvals, Email dated 10/21/15 indicating Human Resources approval.

Action: Based on the documents listed above, the IRB has determined this research to be exempt from further IRB review based on MMC IRB SOP II. C 4. (b). Research involving the use of .... survey procedures where information obtained is recorded in such a manner that the human subjects can not be identified, directly or through identifiers linked to the subjects.

This study has been granted the research tracking number 15-75. Please reference this number when communicating with the IRB regarding this study.

If you have any questions on this action, contact Conemaugh Memorial Medical Center IRB at 814-534-3610. IRB approval is not synonymous with institutional approval. Study enrollment should not begin until all institutional approvals have been obtained.

Luis S. Gonzalez, III, PharmD, IRB Chair
Memorial Medical Center IRB

The Memorial Medical Center IRB is organized and operates according to the ICH GCP and applicable laws and regulations. All MMC Investigators Must Comply With the Following:

1. Conduct the research as required by the protocol;
2. Use only the Consent Form bearing the Memorial Medical Center "Approved" stamp;
3. Obtain pre-approval from Memorial Medical Center IRB before any changes in research activity (except when necessary to protect human subjects; CFR 56.108(a)(3)); immediately report to Memorial Medical Center IRB any such emergency changes for the protection of human subjects;
4. Report to Memorial Medical Center IRB any new information that may adversely affect the safety of the subjects or the conduct of the trial;
5. Immediately report to Memorial Medical Center IRB the death, hospitalization, or serious illness of any study subject;
6. Provide reports to Memorial Medical Center IRB concerning the progress of the research when requested;
7. Obtain pre-approval of study advertisements from Memorial Medical Center IRB before use;
8. Conduct the informed consent process without coercion or undue influence, allow the potential subject sufficient opportunity to consider whether or not to participate, and provide a signed copy of the informed consent to the subject.

1086 Franklin Street
Johnstown, PA 15905-4398
814-534-9000
www.conemaugh.org

EXCELLENCE. EVERY PATIENT. EVERY TIME.

Appendix C

IRB Approval From Associate Degree Program

7373 Admiral Peary Highway
Cresson, PA 16630-1990
www.mtaloy.edu
Fax: (814)886-2978; Phone: (814) 886-6424

To: Nicole Custer, MS, RN, CCRN-CSC

From: Laura Lansing, Ph.D.
Associate Professor, Psychology
Chair, Institutional Review Board

Date: October 2, 2015

Subject: Text Anxiety and Academic Procrastination Among Pre-Licensure Nursing Students

Your protocol, Text Anxiety and Academic Procrastination Among Pre-Licensure Nursing Students (IRB # 029-2015), is approved by the Institutional Review Board at Mount Aloysius College. The approval for this project is valid until one year from this date. At that time, if you wish to continue the project, you will need to reapply for approval.

The one suggestion the committee has is that perhaps you should allow the students who do not wish to participate to read their textbook or do homework while the others are completing your survey. If they have decided not to participate because of their text anxiety, writing about the topic may trigger their anxiety, rather than reduce it.

We wish you every success in this research.

Sincerely,

Laura L. Lansing, Ph.D.

Appendix D

Participant Cover Letter/Consent

(IUP Letterhead)

You are invited to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a student enrolled in a pre-licensure nursing education program in Pennsylvania.

Study Purpose The purpose of this study is to examine the relationship between test anxiety and academic procrastination among nursing students. Participation in this study will require approximately 20 minutes of your time, as you will be asked to complete three brief questionnaires.

Compensation and Benefits Your participation in this study is voluntary and has no bearing on your nursing course grade. The results of this study may inform nurse educators on how to proactively assist students experiencing test anxiety and procrastination. Each participant, after completion of the survey, will be entered into a drawing to receive a $50.00 gift card to Amazon. You are free to decide not to participate in this study, however; since the survey is anonymous once you have submitted your survey you are unable to withdraw from the study.

Risks Unpleasant feelings may surface as the survey items ask questions regarding test anxiety and procrastination.

Confidentiality If you choose to participate in this study all information will be held in strict confidence. All data will be de-identified and none of your individual responses will be traced back to you. The information obtained in the study may be published in scholarly journals or presented to nursing education professionals, but your identity will be kept strictly confidential.
If you are willing to participate in this study, your consent will be implied by completing and submitting the attached questionnaires. Once you are finished, please remove the prize drawing contact information sheet, and place each item in the labeled collection boxes at the front of the classroom. Thank you for your time and participation.

If you choose not to participate, turn the survey over and write on the back of the packet any personal experiences with test anxiety and/or procrastination.

Project Director:
Nicole Custer
Doctoral Student
Department of Nursing & Allied Health
1010 Oakland Ave., Room 218
Indiana, PA 15705
Phone: 724-357-2557
N.R.Custer@iup.edu

Faculty Sponsor:
Dr. Kristy Chunta
Associate Professor and Dissertation Chair
Department of Nursing & Allied Health
1010 Oakland Ave., Room 233
Indiana, PA 15705
Phone: 724-357-2408
KChunta@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Appendix E

Prize Drawing Contact Information Sheet

Contact Information for Prize Drawing

Name: _____

Phone Number where best reached: _____

E-mail address: _____

Postal address: _____

Appendix F

Demographic Questions

Directions: Please circle the response that best represents you.

1. What is your gender?

    a. Male
    b. Female

2. What is your ethnicity (or race)?

    a. White
    b. Hispanic or Latino
    c. Black or African American
    d. Native American or American Indian
    e. Asian/Pacific Islander
    f. Other
    g. Prefer not to answer

3. Please identify your employment status

    a. Employed, full time
    b. Employed, part-time
    c. Not employed
    d. Prefer not to answer

4. If employed, please indicate the amount of hours you *generally* work per week

    a. Less than 5
    b. 5 - 10
    c. 11 - 20
    d. More than 20

5. Who in your immediate family has obtained a college degree? **Please select all that apply.**

    a. Mother
    b. Father
    c. Sibling
    d. Other
    e. None
    f. Prefer not to answer

6. What type of nursing program are you enrolled in?

    a. Diploma
    b. Associate degree
    c. Baccalaureate degree

7. Are you repeating any nursing courses this semester?

    a. Yes
    b. No

8. Have you repeated a nursing course in any prior semesters?

    a. Yes
    b. No

9. What is your current cumulative GPA?

    a. 1.5 – 1.9
    b. 2.0 – 2.4
    c. 2.5 – 3.0
    d. 3.0 -3.9
    e. 4.0
    f. Prefer not to answer

10. Which nursing course(s) have you most recently completed (in the previous semester)? **Please list the course number(s).**

    a. _____

    b. _____

    c. _____

11. Please list your age _____

Appendix G

Selected Items from the Test Anxiety Inventory

Please provide the following information:

Name_____ Date_____

Gender (*Please circle*): **Male Female** Score: T_____ W_____ E_____

Directions

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally* feel:

1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always.

There are no wrong or right answers. Do not spend too much time on one statement but give the answer which seems to describe how you generally feel. Please answer every statement.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel confident and relaxed while taking tests	1	2	3	4
2. While taking examinations I have an uneasy, upset feeling	1	2	3	4
3. Thinking about my grade in a course interferes with my work on tests	1	2	3	4
4. I freeze up on important exams	1	2	3	4
5. During exams I find myself thinking about whether I'll ever get through school	1	2	3	4

Appendix H

Procrastination Assessment Scale for Students

Areas of Procrastination

Directions:
For each of the following activities, please rate the degree to which you delay or procrastinate. Rate each item on an "a" to "e" scale according to how often you wait until the last minute to do the activity. Then indicate on an "a" to "e" scale the degree to which you feel procrastination on that task is a problem. Finally, indicate on an "a" to "e" scale the degree to which you would like to decrease your tendency to procrastinate on each task.

I. WRITING A TERM PAPER

1. To what degree do you procrastinate on this task?

Never Procrastinate	Almost Never	Sometimes	Nearly Always	Always Procrastinate
a	b	c	d	e

2. To what degree is procrastination on this task a problem for you?

Not At All a Problem	Almost Never	Sometimes	Nearly Always	Always a Problem
a	b	c	d	e

3. To what extent do you want to decrease your tendency to procrastinate on this task?

Do Not Want to Decrease		Somewhat		Definitely Want to Decrease
a	b	c	d	e

II. STUDYING FOR EXAMS

4. To what degree do you procrastinate on this task?

Never Procrastinate	Almost Never	Sometimes	Nearly Always	Always Procrastinate
a	b	c	d	e

5. To what degree is procrastination on this task a problem for you?

Not At All a Problem	Almost Never	Sometimes	Nearly Always	Always a Problem
a	b	c	d	e

6. To what extent do you want to decrease your tendency to procrastinate on this task?

Do Not Want to Decrease		Somewhat		Definitely Want to Decrease
a	b	c	d	e

III. KEEPING UP WITH WEEKLY READING ASSIGNMENTS

7. To what degree do you procrastinate on this task?

Never Procrastinate	Almost Never	Sometimes	Nearly Always	Always Procrastinate
a	b	c	d	e

8. To what degree is procrastination on this task a problem for you?

Not At All a Problem	Almost Never	Sometimes	Nearly Always	Always a Problem
a	b	c	d	e

9. To what extent do you want to decrease your tendency to procrastinate on this task?

Do Not Want to Decrease		Somewhat		Definitely Want to Decrease
a	b	c	d	e

IV. ACADEMIC ADMINISTRATIVE TASKS: FILLING OUT FORMS, REGISTERING FOR CLASSES, GETTING ID CARD

10. To what degree do you procrastinate on this task?

Never Procrastinate	Almost Never	Sometimes	Nearly Always	Always Procrastinate
a	b	c	d	e

11. To what degree is procrastination on this task a problem for you?

Not At All a Problem	Almost Never	Sometimes	Nearly Always	Always a Problem
a	b	c	d	e

12. To what extent do you want to decrease your tendency to procrastinate on this task?

Do Not Want to Decrease		Somewhat		Definitely Want to Decrease
a	b	c	d	e

V. ATTENDANCE TASKS: MEETING WITH YOUR ADVISOR, MAKING AN APPOINTMENT WITH A PROFESSOR

13. To what degree do you procrastinate on this task?

Never Procrastinate	Almost Never	Sometimes	Nearly Always	Always Procrastinate
a	b	c	d	e

14. To what degree is procrastination on this task a problem for you?

Not At All a Problem	Almost Never	Sometimes	Nearly Always	Always a Problem
a	b	c	d	e

15. To what extent do you want to decrease your tendency to procrastinate on this task?

Do Not Want to Decrease		Somewhat		Definitely Want to Decrease
a	b	c	d	e

VI. SCHOOL ACTIVITIES IN GENERAL

16. To what degree do you procrastinate on this task?

Never Procrastinate	Almost Never	Sometimes	Nearly Always	Always Procrastinate
a	b	c	d	e

17. To what degree is procrastination on this task a problem for you?

Not At All a Problem	Almost Never	Sometimes	Nearly Always	Always a Problem
a	b	c	d	e

18. To what extent do you want to decrease your tendency to procrastinate on this task?

Do Not Want to Decrease		Somewhat		Definitely Want to Decrease
a	b	c	d	e

Reasons for Procrastination

Directions: Think of the last time the following situation occurred: It's near the end of the semester. The term paper you were assigned at the beginning of the semester is due very soon. You have not begun work on this paper. There are reasons why you have been procrastinating on this task.

Rate each of the following reasons on a 5-point scale according to how much it reflects why you procrastinated at the time. Mark your answers on your answer sheet.

Use the scale:

Not At All Reflects Why I Procrastinated		**Somewhat Reflects**		**Definitely Reflects Why I Procrastinated**
a	**b**	**c**	**d**	**e**

19. You were concerned the professor wouldn't like your work.

a b c d e

20. You waited until a classmate did his or hers, so that he/she could give you some advice.

a b c d e

21. You had a hard time knowing what to include and what not to include in your paper.

a b c d e

22. You had too many other things to do.

a b c d e

23. There's some information you needed to ask the professor, but you felt uncomfortable approaching him/her.

a b c d e

24. You were worried you would get a bad grade.

a b c d e

Not At All Reflects Why I Procrastinated		Somewhat Reflects		Definitely Reflects Why I Procrastinated
a	**b**	**c**	**d**	**e**

25. You resented having to do things assigned by others.

a b c d e

26. You didn't think you knew enough to write the paper.

a b c d e

27. You really disliked writing term papers.

a b c d e

28. You felt overwhelmed by the task.

a b c d e

29. You had difficulty requesting information from other people.

a b c d e

30. You looked forward to the excitement of doing this task at the last minute.

a b c d e

31. You couldn't choose among all the topics.

a b c d e

32. You were concerned that if you did well, your classmates would resent you.

a b c d e

33. You didn't trust yourself to do a good job.

a b c d e

Not At All Reflects Why I Procrastinated		Somewhat Reflects		Definitely Reflects Why I Procrastinated
a	**b**	**c**	**d**	**e**

34. You didn't have enough energy to begin the task.

a b c d e

35. You felt it just takes too long to write a term paper.

a b c d e

36. You liked the challenge of waiting until the deadline.

a b c d e

37. You knew that your classmates hadn't started the paper either.

a b c d e

38. You resented people setting deadlines for you.

a b c d e

39. You were concerned you wouldn't meet your own expectations.

a b c d e

40. You were concerned that if you got a good grade, people would have higher expectations of you in the future.

a b c d e

41. You waited to see if the professor would give you some more information about the paper.

a b c d e

42. You set very high standards for yourself and you worried that you wouldn't be able to meet those standards.

a b c d e

Not At All Reflects Why I Procrastinated		**Somewhat Reflects**		**Definitely Reflects Why I Procrastinated**
a	**b**	**c**	**d**	**e**

43. You just felt too lazy to write a term paper.

a b c d e

44. Your friends were pressuring you to do other things.

a b c d e

Appendix I

Test Anxiety Inventory License to Reproduce

Test Anxiety Inventory

by Charles D. Spielberger, Ph.D.

Distributed by Mind Garden, Inc.

info@mindgarden.com
www.mindgarden.com

mind garden

www.mindgarden.com

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

Instrument: ***Test Anxiety Inventory***

Author: ***Charles D. Spielberger, Ph.D.***

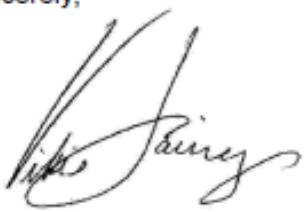
Copyright: ***1980 Consulting Psychologists Press, Inc.***

for his/her thesis research.

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,



Vicki Jaimez
Mind Garden, Inc.
www.mindgarden.com

Appendix J

Test Anxiety Inventory Manual and Scoring Guide

Test Anxiety Inventory

Sampler Set

Manual, Instrument, Scoring Guide

"Test Attitude Inventory"

by Charles D. Spielberger, Ph.D.
in collaboration with
H.P. Gonzalez, C.J. Taylor, E.D. Anton,
B. Algaze, G.R. Ross, and L.G. Westberry

Published by Mind Garden, Inc.

info@mindgarden.com
www.mindgarden.com