

A CROSS-SECTIONAL ANALYSIS OF STATE TRAIT ANXIETY AMONG
PRE, EARLY, AND LATE BACCALAUREATE NURSING STUDENTS:
IMPLICATIONS FOR NURSING EDUCATION

by

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ABSTRACT

The purpose of this study was to determine if nursing students' state and trait anxiety increased over time spent in a baccalaureate nursing program at a public university located in the South. This study was conducted, in part, due to the high levels of college student anxiety and specifically nursing student anxiety found in the literature. High levels of anxiety among nursing students has been shown to have detrimental mental effects, physical effects, and can negatively affect academic performance, clinical performance, and patient care outcomes. Identification of both the time students are experiencing anxiety as well as the type of anxiety they are experiencing can assist nurse educators and administrators to evaluate program requirements and develop interventions to assist nursing students cope with anxiety utilizing healthy coping mechanisms.

This cross-sectional study consisted of a convenience sample of 116 nursing students. It was conducted during the spring 2013 semester and examined two research questions. Is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students and is there a difference between pre-nursing, early nursing, and late nursing student trait anxiety among baccalaureate nursing students. The study was conducted utilizing the State Trait Anxiety Inventory (STAI). It also ranked the main sources of anxiety as academic, clinical, or personal.

This study found that there was a difference in both state and trait anxiety among the pre-nursing, early nursing, and late nursing students. The students with the highest state and trait anxiety were early nursing students. The students in the late nursing group had significantly

lower state and trait anxiety than both the pre-nursing and early nursing students. The main source of anxiety identified by all levels of baccalaureate students in the sample was academic in nature and was the highest among pre-nursing and early nursing students. The pre-nursing and early nursing students in this sample scored well above the normed population of college students for the STAI.

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CHAPTER I:
THE RESEARCH OBJECTIVE

Introduction

Adjustment to collegiate life, the rigors of progressing through an intense academic program, and beginning a new career are life changes that often lead to a certain amount of anxiety in many individuals. According to the fall 2011 American College Health Association National College Health Assessment (ACHA-NCHA II), 49.9% of participating college students reported feeling overwhelming anxiety within the last 12 months. Longitudinal studies have shown that untreated anxiety symptoms in college students are associated with negative behavioral, mental, and physical consequences such as drug abuse (Mehrabian, 2001), nicotine addiction (Goodwin, Zvolensky, & Keyes, 2008; Lenz, 2004), alcohol abuse (Kassel, Jackson, & Unrod, 2000; Mehrabian, 2001; Murphy, McDevitt-Murphy, & Barnett, 2005), depression (Boydston, Hsiao, & Varley, 2012), suicide (Engin, Gurkan, Dulgerler, & Arabaci, 2009; Gollust, Eisenberg, & Goldstein, 2008), and the propensity for physical illness (Adams, Wharton, Quilter, & Hirsch, 2008; Rawson, Bloomer, & Kendall, 1994).

Nursing students, compared to students with other majors, experience situations that can cause increased anxiety during their education as well as beginning professional practice (Beck, Srivastava, & Rockwell, 1997). Competition for entrance into nursing programs (AACN, 2012), course structure, exams, hours of challenging clinical experiences working with sick persons, and lack of support from faculty and nurses on the unit are reported by nursing students as anxiety producing stressors that are unique to nursing (Gibbons, Dempster, & Moutray, 2011; Melo, Williams, & Ross, 2010). Additionally, the anxiety experienced in nursing school may

continue through the role transition into professional practice and can produce significant anxiety in new graduates (Duchscher, 2009). The overall negative outcome of poor role transition in new graduates may be burnout, poor job performance, or the nurse leaving the profession of nursing (Duchscher, 2009; Lacschinger, Finegan, & Wilk, 2009; Rella, Winwood, & Lushington, 2008; Unruh & Nooney, 2011).

High levels of anxiety can affect how students comprehend information and translate it to clinical practice (Cheung & Au, 2011; Cook, 2005; Melo et al., 2010; Melincavage, 2011; Sharif & Armitage, 2004). Anxiety in students can have negative consequences in their clinical performance (Cheung & Au, 2011; Duchscher, 2009; Melo et al., 2010) and can negatively affect patient care outcomes (Cheung & Au, 2011). State and trait anxiety are two different experiences of anxiety. State anxiety is the feeling that results from a situation, where trait anxiety is how anxious the person is as a personality trait (Spielberger, Gorusch, Lushene, Vagg, & Jacobs, 1983). Therefore, an understanding of the place in the nursing program where state anxiety is occurring as well as the overall effect of nursing school on trait anxiety can aid faculty and facilities in developing interventions or programs that facilitate a positive transition to professional practice.

Justification for Study

Nursing education is at a crossroads in time where programs of nursing are turning away thousands of qualified candidates (AACN, 2012) yet a nursing shortage persists (AACN, 2012). Candidates who do progress through the academic and clinical performance expectations of nursing school are then tasked with translating that knowledge into practice as an independent practitioner. Studies have indicated that high levels of anxiety can have a negative impact on how students are able to perform on the clinical unit (Cheung & Au, 2011; Cook, 2005;

Melincavage, 2011; Melo et al., 2010; Sharif & Armitage, 2004). Additionally, students are faced with providing complex patient care that is laden with high anxiety and workload demands (Duchscher, 2009; Reddish & Kaplan, 2007) with the potential to cause burnout that may persist post-graduation (Duchscher, 2009; Lacschinger, Finegan, & Wilk, 2009; Rella, Winwood, & Lushington, 2008; Unruh & Nooney, 2011). Therefore, it is essential to the profession of nursing that programs are able to recruit, retain, and graduate emotionally stable, competent practitioners. Additionally, nurse educators and administrators must understand both the short term and long term impacts related to anxiety on the emotional well being of current students and future new graduate nurses.

Numerous studies have examined anxiety among college students (Keiffer & Reese, 2009; Markman, Balik, Braunstein-Bercovitz, & Ehrenfeld, 2011; Sizoo, Malhotra, & Shapero, 2008) as well as anxiety specifically among nursing students (Beck et al., 1997; Dzuree, Allchin, & Engler, 2007; Gibbons et al., 2011; Goff, 2011). However there has been very limited research conducted that examines if a baccalaureate nursing students will have higher levels of trait anxiety, particularly if trait anxiety is higher in late nursing students. Furthermore, research is limited that cross-examines baccalaureate nursing student state and trait anxiety at various points in the program. It is imperative that nurse educators go beyond teaching content to a process that nurtures and builds resilience in future practitioners. To accomplish this, nurse educators and nurse managers must become aware of where and what types of anxiety are occurring in students which may carry over into new graduates. For example, is the student experiencing anxiety due to a particular stressor (state anxiety) or is the student anxious by nature (trait anxiety)? By gaining the understanding of the mental health impacts of nurse

education on students and the potential effects on the adjustment of new graduates, they can implement interventions that best support the individuals in their learning environments.

Statement of the Problem

The main tasks of nurse educators are to assist students in becoming successful and competent practitioners in various healthcare settings. The levels of anxiety among college students are high (ACHA-NCHA II, 2011), and literature reveals that anxiety among nursing majors is higher than that of the overall collegiate population (Beck et al., 1997; Dzuree et al., 2007; Gibbons et al., 2011). Excessive anxiety can negatively impact nursing students' and new graduate nurses' cognitive abilities, physical health, and overall ability to effectively and safely provide care to patients (Cheung & Au, 2010; Cook, 2005; Melincavage, 2011; Melo et al., 2010, Sharif & Armitage, 2004).

Identification of the points in a baccalaureate nursing program that are the most state anxiety producing can provide educators with a better understanding of when students are at the highest risk for potential negative anxiety-related consequences. Additionally, the identification and comparison of trait anxiety among pre-nursing students, early nursing students, and late nursing students can provide both nurse educators and the nurse managers of new graduates an overall understanding of how the anxiety experienced in nursing school may impact nursing students as they transition through school and into professional practice settings.

Statement of the Purpose

The purpose of this study was to examine and identify the level of three sample points of baccalaureate nursing students' (pre-nursing, early nursing, and late nursing) state and trait anxiety. This cross-sectional examination occurred at one point in time and examined a total of three points during the educational process of becoming a registered nurse. Utilizing the State

Trait Anxiety Inventory (STAI) (Spielberger, 1983), the researcher determined at what point state and trait anxiety was the highest in this sample at different points in nurse education. Data from this study was utilized to describe the correlation between state and trait anxiety and students' progress through a program of nursing. The overarching question, does state and trait anxiety in baccalaureate nursing students increase as the students' progress through the program?

Research Questions

(1) Is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students?

(2) Is there a difference between pre-nursing, early nursing, and late nursing student trait anxiety among baccalaureate nursing students?

Hypothesis

(1) There will be a difference between the pre-nursing, early nursing, and late nursing student state anxiety among the baccalaureate nursing students. The students with the highest state anxiety among the three groups will be the late nursing students.

(2) There will be a difference between the pre-nursing, early nursing, and late nursing students trait anxiety. The students with the highest trait anxiety among the three groups will be the late nursing students.

Significance of the Study

The prevalence of anxiety in the college student population has increased over the last decade. According to the ACHA-NCHA Fall 2000 Executive Summary, 9 % of students reported feeling anxiety, compared with 13% in the Fall 2006 Executive Summary, and 49.9% in the Fall 2011 Executive Summary. Alarmingly these numbers remain steady despite studies documenting theory-based anxiety reducing interventions among nursing students (Hensel &

Stoelting-Gettelfinger, 2011). Additionally, the Fall 2011 ACHA-NCHA II Executive Summary reported academics as the most traumatic or anxiety producing issue that students faced within the last 12 months. These statistics and studies demonstrate the need for additional investigation into the psychological prevalence of the types of anxiety among the college student population, and for this study, baccalaureate nursing students in particular. Anxiety among nursing students and new graduates has negative implications not only for nursing students and graduates, but for the populations of patients in their care (Cheung & Au, 2011).

Definitions

State Anxiety: Conceptual definition: The unpleasant emotion or condition that results from the experience of anxiety. Defined as, “an emotional reaction that consists of subjective feelings of tension, apprehension, nervousness, and worry” (Spielberger, 1979, p. 17).

Operational definition: The STAI scoring manual does not assign a state anxiety score as anxious or not anxious, but rather recommends that the researcher identifies respondents as more or less anxious as the norm for the group studied. For the purpose of this study, state anxiety will be defined as high for a score that is considered in the top 25% of the norm for the sample. The study sample state anxiety scores will also be compared to the norm tables to evaluate the overall levels of state anxiety as compared to similar subject of college students, which are provided in the STAI manual (Spielberger, 1983, p.19-22)

Trait Anxiety: The description of the differences in individuals’ anxiety as a personality trait. Defined as, “the tendency to see the world as dangerous” (Spielberger, 1979, p. 60).

Operational definition: The STAI scoring manual does not assign a trait anxiety score as anxious or not anxious, but rather recommends that the researcher identifies respondents as more or less anxious as the norm for the group studied. For the purpose of this study, trait anxiety will be

defined as high for a score that is considered in the top 25% of the norm for the sample. The study sample trait anxiety scores will also be compared to the norm tables to evaluate the overall perspective of trait anxiety as compared to similar subject of college students that are provided in the STAI manual (Spielberger, 1983, p.19-22)

Nursing Educational Process: The process by which a nursing student progresses from a pre-nursing student to a senior nursing student. The three defined points of the baccalaureate nursing educational process for this study, in order of progression, are:

- (1) Pre-Nursing: Conceptual definition: A student who is completing the prerequisites for admission to the baccalaureate nursing program. This student is typically a freshman or sophomore in status depending on the individual progression of the prerequisite coursework. Operational definition: For the purpose of this study, students were recruited in the spring semester of the school year. Students were recruited from a chemistry course, which is typically completed during the second semester of their freshman year. To obtain adequate sample size additional pre-nursing students were also recruited in an educational statistics course, which is typically completed during the second semester of the sophomore year.
- (2) Early Nursing: Conceptual definition: A student who is in the first two semesters of coursework following admission/progression into the baccalaureate nursing program. Operational definition: For the purposes of this study, early nursing students were recruited only from semester two courses. These students were recruited from their fundamentals of nursing and pharmacology courses. All of the early nursing, semester two students are enrolled in courses that contain both theory and clinical components.

(3) Late Nursing: Conceptual definition: A student who is in the last semester of coursework in the baccalaureate nursing program. Operational definition: For the purpose of this study, late nursing students were all recruited from their final semester in the baccalaureate nursing program. At the time of recruitment, they had all completed the clinical portion of their baccalaureate coursework, and were nearing completion of the theory portion of their baccalaureate coursework.

CHAPTER II:
REVIEW OF LITERATURE

Introduction

Anxiety is a pervasive phenomenon that permeates Western populations and is prevalent in psychological theory and practice. A review of the literature shows that the concepts and definitions of anxiety are often ambiguous, with many researchers placing the measurement of anxiety on a continuum from low to severe levels (Endler & Kocovski, 2001). In some circumstances, anxiety that is classified as low can be considered motivational and therefore viewed as positive. On the opposite end of the continuum severe anxiety can cause disruptions in daily functioning and is considered to be maladaptive and harmful (Endler & Kocovski, 2001).

This review of literature demonstrates the alarmingly high prevalence of moderate to severe anxiety in both college students overall and particularly in nursing students. The levels of anxiety among college students are very high (ACHA-NCHA II, 2011), and the literature shows that anxiety among nursing majors is higher than that of the overall collegiate population (Beck, et al., 1997; Dzuree et al., 2007; Gibbons et al., 2011). This is of concern because the presence of excessive anxiety can negatively impact college students' and nursing students' cognitive abilities, physical health, and overall ability to effectively and safely provide care to patients (Cheung & Au, 2010; Cook, 2005; Melincavage, 2011; Melo et al., 2010; Sharif & Armitage, 2004). Another concern for nurse educators is that the literature indicates that anxiety levels increase as students progress through the nursing programs, with the highest levels of anxiety existing in the most experienced students (Deary, Watson, & Hogston, 2003; Rella, Winwood, & Lushington, 2008; Timmons, Corroon, Byrne, & Mooney, 2011).

The literature review also reveals that high levels of anxiety continue even after nursing students have graduated school and begun the transition into practice. Studies have shown that up to 66% of new nurse graduates were experiencing severe levels of burnout and emotional exhaustion (Cho, Laschinger, & Wong, 2006). Despite the studies that report anxiety in nursing students and anxiety experienced by new nursing graduates, there is limited research examining a possible link between trait anxiety and the nursing education process.

Prevalence

The ongoing study of mental illness among college students is well documented. The American College Health Association's (ACHA) National College Health Assessment-II (NCHA-II) is a 58 item tool utilized to assess health among college students (www.acha-ncha.org). It is administered voluntarily by institutions of higher learning to assess health risks and needs. Aggregate data is published online, and items assessed include questions related to demographics, work, sexual activity, drug and alcohol use, and specific illnesses or conditions including mental health and illness. Alarming, data from the 2011 Reference Group Executive Summary shows that overwhelming numbers of students reported experiencing negative mental health symptoms within the last 12 months. Data from this report shows that 50.6% of college students reported feeling overwhelming anxiety (ACHA, 2011).

Nurse educators face a particular concern as the literature alarmingly reveals that anxiety among nursing majors is higher than that of the overall collegiate population (Beck et al., 1997; Dzuree et al., 2007; Gibbons et al., 2011). Nursing students are faced with additional challenges such as grade competition to enter the academic setting, learning detailed theoretical content in the classroom, translating theoretical content in the clinical setting, high acuity patients, and

making the transition from student to professional nurse in a healthcare practice environment that is continually evolving (Dzuree et al., 2007; Gibbons et al., 2011).

Theoretical Framework

The time period between high school, college, and career attainment contains multiple developmental tasks and changes. This transitional stage between adolescence and young adulthood, traditionally between the ages of 18-25, is the time that many young persons will pursue training and education that provides the foundation for their future adult careers (Arnett, 2000). This preparation for an adult career is a key developmental task that is incorporated into a person's identity, and completion of this task is a critical component to successful adjustment during this time (Stringer, Kerpelman, & Skorikov, 2012).

Erik Erikson's (1968) theory of psychosocial development placed the transitional group between high school and career into two separate developmental stages. During early and late adolescence, the person is said to be in the stage of "identity versus role confusion", with the major developmental task being the development of "self." During the stage of "young adulthood" the major developmental task is "intimacy versus isolation" in relationships. The developmental stage in which individuals would make their career commitments would fall into late adolescence, and failure to accomplish this task can cause problems with emotional adjustment (Stringer et al., 2012).

Jeffrey Arnett (2000) proposed a new conception of development for persons in the age range of 18-25 based upon "demographic shifts that have taken place in the past half century that have made the late teens and early twenties not simply a brief period of transition into adult roles but a distinct period of the life course" (p. 469). This new stage of development is based upon delays in marriage and parenthood that are common in industrialized societies, in which the

years between the ages of 18-25 are characterized by “frequent change and exploration” (p. 469). Emerging adults do not see themselves as adolescents or as adults, but rather as a distinct group (p. 471). During this time, Arnett (2000) elaborated that emerging adults try out various educational paths in preparation for future work (p. 474) and may engage in risky behaviors such as substance abuse (p. 475). This exploration and change gradually leads them to more enduring choices in work, relationships, and in their worldviews (p. 479).

Additionally, Lee and Gramotnev (2007) suggested that there is a transitional stage between adolescence and full adulthood. The transitions of young adulthood can place individuals at risk for poor mental health, which may have effects on the emotional well-being of the individual throughout the lifespan (p. 877). Additionally, according to the National Center for Education Statistics (2012), “Between 2000 and 2010, the 18- to 24-year-old population rose from approximately 27.3 million to approximately 30.7 million. The percentage of 18- to 24-year-olds enrolled in college also was higher in 2010 (41.2 percent) than in 2000 (35.5 percent).” The anticipated age range of nursing students for this study falls within the emerging adulthood or young adulthood developmental levels. This is relevant that in this study the nursing students will mainly fall into in the transitional stage by their level of experience and the nursing educational process.

Anxiety in College Students

College students face many pressures, and when dealing with mental illness they face the additional pressure of lack of knowledge and stigmatization (Becker, Martin, Wajeer, Ward, & Shern, 2002). Many researchers suggest that additional educational programs and research need to be done to accommodate students who have mental health issues. In a study conducted by Weiner and Weiner (1997), researchers looked at the process involved when eight students with

mental illness decided to withdraw from school. Yet even when provided accommodations and support, the students had difficulty functioning consistently and effectively in the student role once their illness became acute. This led to the students missing classes and falling behind in school work, which contributed to their decision to withdraw. Studies conducted by Stanley and Manthorpe (2001), Finkelstein, Brownstein, Scott, and Lan (2007), and Cukrowicz, Smith, Hohmeister, and Joiner (2009) all pointed to early intervention programs focused on anxiety and depression among college students that are somewhat effective but need multiple sessions. They pointed out that further research is needed for early intervention programs to be effective in students with variables such as insomnia; and that universities need to become aware of community mental health services that can be easily accessed by students and faculty.

The idea that certain types of classes can produce more anxiety, such as math or science-based courses (including nursing courses), because of their rigors, is well known among college students (Goff, 2011; Sizoo, Malhotra, & Shapero, 2008; Tully, 2004). In 2008, Sizoo, Malhotra, and Shapero, conducted an exploratory study to examine “finance anxiety” and its relation to self-efficacy. The idea is that the performance anxiety related to the perceived difficulty of the course is causing students to perform poorly rather than those who think that they will succeed. The results showed that the only significance was for the undergraduate, under-25 subgroup where feelings of low self-efficacy were more of an impediment to success than high finance anxiety. The findings were opposite for the undergraduate, over-25 subgroup, showing that adult learners may return to school with math anxiety due to lack of recent use of quantitative skills.

Frankenberger et al. (2004) sought to examine the impact of pharmaceutical advertisements on college students’ perceptions of depression and treatment with medications.

The sample included participants who were randomly assigned to groups that read advertisements or scientific information about depression and its treatment. After reading the information about depression (advertisement or scientific) the participants completed the Beck Depression Inventory as well as ten questions the researchers added to assess the participants' views about depression and its treatment. Results revealed 40% of the women in the advertisement group rated themselves as having depression and 1% of women in the scientific group rated as having depression. Women in the advertisement group were more likely to believe that depression is a condition that requires treatment with medication and were more willing than women in the scientific group to recommend medication treatment to others. This study has implications relevant to students that are in the "helping majors" and have coursework relating to mental illness, increasing their propensity to seek treatment.

Study and Test Anxiety in Higher Education

In institutions of higher education, academic achievement is often measured via various forms of testing, ranging from quizzes to high stakes course examinations to general admissions tests. Therefore, students often feel a great amount of pressure to perform well in order to achieve their career goals (Brewer, 2002; Kieffer & Reese, 2009; Markman et al., 2011). Test anxiety reaches its peak in higher education and can begin as early as the preparatory period, producing negative effects on academic performance (Markman et al., 2011). Keiffer and Reese (2009) found, in their study of 512 college students, that students experienced high levels of state anxiety during the exam preparatory process. However the researchers also noted that they found limited research in this area of test anxiety, remarking that this area of anxiety in students requires further inquiry.

Studies in the literature have commonly linked high levels of test anxiety to poor academic performance (Brewer, 2002; Chappell, Blanding, Silverstein, Takahashi, Newman, 2005; Markman et al., 2011). Vitasari, Wahab, Othman, and Awang (2010) noted that during an interventional program relating anxiety to academic performance, students in the control (no intervention group) had decreased academic performance and decreased coping anxiety levels as compared to the experimental group. Research also suggests that high levels of test anxiety can have negative consequences that are similar to that of generalized anxiety. The resultant test anxiety caused by grade competition can cause students to commit academic misconduct (Jensen, Arnett, & Feldman, 2002). High levels of test and study anxiety have also been linked to poor physical health consequences (Matthews, 2005) and the increased use of alcohol (Kieffer, Cronin, & Gawet, 2006) in college students.

Physical Factors Associated with Anxiety in College Students

Stress, anxiety, depression, and their relationship to physical illness have shown significant correlational relationships (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005; Rawson et al., 1994). When stress, anxiety, and depression were examined by gender and school year there were no significant differences between males and females, however women did report more incidences of physical illness (Rawson et al., 1994). Adams et al. (2008) utilized data from the American College Health Association-National College Health Assessment to determine the presence of clinical depression, self-reported depression, and anxiety, and five indicators of negative affect. The study showed that depression, anxiety, and exhaustion were all associated with acute infectious illness across all dependent measures of four acute infectious illnesses: bronchitis, ear infection, sinus infection, and strep throat. Fatigue, a common complaint among college students, is also a factor in the development of mental illness. High

fatigue scores were most predicted by psychomotor agitation, pain, and cognitive or emotional arousal, which may lead to a depletion of physical resources (Bitsika, Sharpley, & Bell, 2009).

Self-Injury and Suicide

Self-injury, suicidal ideation, and thoughts of suicide are all associated with increased incidences of anxiety and depression. Engin et al. (2009) found that 2.4% of freshman students had suicidal thoughts and 11.2% of the students had previously attempted suicide, with risk factors including issues of gender, school, family, anger expression, somatization, hostility, psychotic symptoms, phobias, anxiety, and interpersonal issues. Up to 7% of students at a large Midwestern university reported self-injury over the last four weeks and of those students 26% received mental health therapy or medication in the previous year. Students who reported smoking, depression, anxiety, low socioeconomic status, and having eating disorders had higher incidence of self-injury (Gollust et al., 2008). Garlow et al. (2008) examined the relationship between the severity of symptoms in depression and suicidal ideation as well as other intense emotional states that may be associated with suicidal ideation over a three-year period at Emory University. The results showed that 11.1% of the students stated that they had current (within the last four weeks) suicidal ideation and 16.5% had a lifetime suicide attempt or self-injury episode. Suicidal ideation was associated with desperation. Eighty-four percent of students with moderate to severe depression or current suicidal ideation were not receiving treatment from a mental health professional.

Protective and Contributing Factors related to Anxiety

Factors have been found to both be protective against the development of mental illness in general as well as anxiety specifically. Protective factors such as a feeling of optimism and

generally valuing health have been shown to be correlated with greater psychological well-being and lower distress among students (Burris, Brechting, Salsman, & Carlton, 2009).

Contributing factors such as issues with spirituality and high numbers of sexual partners (Burris et al., 2009) and financial and relationship issues (Andrews & Wilding, 2004) caused significantly higher levels of psychological distress, high risk behaviors, anxiety, and depression as well as lower average mid-course exam scores. Other significant predictors of stress among college students included: chronic illness, depression, anxiety, seasonal affective disorder, mononucleosis, sleep issues, alcohol use, and interpersonal conflicts with roommates, faculty, or staff (Dusselier et al., 2005).

The use of alcohol has specifically been the subject of studies related to college student mental health. Students who partake in moderate to excessive amounts of alcohol and experience alcohol related problems have consistently been shown to have increased rates of stress, depression, anxiety, and lower scores on life satisfaction (Kassel et al., 2000; Mehrabian, 2001; Murphy, McDevitt-Murphy et al., 2005).

Anxiety Specific to Nursing Students

The profession of nursing is one that is inherently anxiety laden. As care has moved more into the community, patients in hospitals are requiring more intensive services (Duchscher, 2009; Reddish & Kaplan, 2007). Nurses are reporting that they are faced daily with emotionally and physically demanding work (Leiter & Laschinger, 2006). Nursing students are faced with grade competition to enter the academic setting (AACN, 2012), learning detailed content in the classroom, translating the content in the clinical setting with high acuity patients, and making the transition from student to professional nurse in a healthcare environment that is continually evolving (Dzuree et al., 2007; Gibbons et al., 2010).

The types of stressors students experience was the focus of a study conducted by Jiminez, Martinez, Nava-Osorio, and Diaz (2009). They found that nursing students experience three types of stressors: clinical, academic, and external. Their research concluded that nursing students, no matter their year of study, perceived that clinical stressors were the most intense and had the biggest impact on their psychological well-being. From their review of literature they found that historically clinical stressors are the main cause of stress for nursing students during clinical practice. Clinical stressor, according to the researchers, included skills, patient illness/suffering, clinical emergencies, and interactions with staff on the clinical unit.

A recent study conducted by Goff (2011) found that baccalaureate nursing students experience high levels of both personal and academic stressors. The stressors most frequently reported by the convenience sample were deadlines, an overload of things to accomplish, competition for grades, test anxiety, procrastination, and perfectionism. The nursing students reported that their most frequent emotional reactions were fear, anxiety, and worry. Their behavioral responses were reported as crying, irritability, and their psychological responses were exhaustion and sweating. The purpose of the study was to correlate the students' stressors to academic performance and learned resourcefulness. Although there were various stressors and stress responses, and the stress levels reported by the students were high, they were not predictors of academic performance in this sample.

Nursing students were shown to have higher levels of anxiety and higher levels of physiological and psychological symptoms than students in other health related disciplines in a study conducted by Beck et al. (1997). The health related disciplines that were compared to nursing included medicine, pharmacy, and social work. The researchers found that the greatest source of anxiety was the clinical experiences and client interactions that are unique to nursing

education. The baccalaureate nursing students also reported higher levels of anxiety, regardless of year in the program, than the other health related disciplines.

Clinical performance anxiety is frequently reported in the nursing literature. In a study conducted with first year nursing students in the United Kingdom, students reported role strain and inadequate classroom preparation for sensitive clinical encounters as their main stressors (Higginson, 2006). Melo et al. (2010) reported that students experienced high levels of anxiety during clinical practice to the point of interfering with learning and impacting mental health. Melincavage (2011) found in a qualitative, phenomenological study, that the main theme that emerged related to student nurses' clinical anxiety was related to the clinical behaviors of the faculty, staff nurses, and physicians on the units. Finally, a study of how mood affects clinical performance in China found that students' skills in performing a new procedure were significantly affected by anxiety, linking anxiety to poor performance of nursing procedures (Cheung & Au, 2011).

In studies examining anxiety related to level of experience or academic class in institutions, students in their sophomore year were shown to report the highest level of anxiety (Rawson et al., 1994). While causality was not determined, the researchers pointed to other studies indicating that social support is high in freshmen (special programs, advising, and counselors) and that older students have developed effective coping mechanisms and relationships. A few research studies have specifically reported nursing students' anxiety and depression by the variable of level of experience. A look at the reasons for first year nursing students' accounts for depression included in order of frequency: feelings of overload or overwhelmed, loneliness or isolation, sense of inadequacy, incidental events, transition to college, stressors, concerns over future outcomes, and grades (Dzuree et al., 2007). The most

experienced students found academics to be more stressful than novice students. Second-year students were the most likely to experience signs and symptoms of anxiety (Jimenez et al., 2009). Similarly, Deary, Watson, and Hogston (2003), and Rella, Winwood, and Lushington (2008) found that nursing students' stress increased over the time spent in the program. In a study of psychiatric nursing students in Ireland, all nursing students experienced high levels of distress. However, first-year students reported the most distress related to academics and second year students reported the most distress related to clinical issues (Tully, 2004). Timmons, Corroon, Byrne, and Mooney (2011) found that in a study conducted on nursing students in Ireland, students enrolled in their final year were the most likely to rate their mental health at poor.

Test Anxiety and Nursing Students

A few studies have evaluated test anxiety specifically related to nursing students. Brewer (2002) evaluated the level of anxiety in nursing students as compared to students in the general university population. Participants consisted of three groups, senior undergraduate nursing students, non-nursing students from a freshman course titled "Human Motivation," and students recruited from university students in general on campus. The sample consisted of 129 non-nursing and 94 nursing students comparing levels of anxiety using Alpert and Haber's Achievement Anxiety Test (AAT). The AAT, established by the authors in the 1960s, has established normative values to which the sample was also compared. The findings of the study indicated that all students had high levels of test anxiety, with nursing students experiencing slightly higher values though not considered significant to the researcher. Interestingly, debilitating test anxiety values were found by the researcher in the overall sample and were significantly increased as compared to the established normative values of the AAT.

Treatment barriers for nursing students experiencing test anxiety were examined by Markman et al. (2010). Of 246 nursing students who completed the initial questionnaire, 87 students (35.3%) were scored in the group as having high levels of test anxiety. Of the 87 students, 79% were women and 21% were men. Treatment barriers reported by the group of test anxiety students were physical obstacles (cost, place, time) and mental obstacles (beliefs towards treatment). Physical obstacles accounted for 57% of the reasons given for not obtaining treatment for test anxiety.

Anxiety, Burnout, and Attrition

Students and new graduate nurses are faced with providing complex patient care that is laden with high stress and workload demands (Duchscher, 2009; Reddish & Kaplan, 2007) with the potential to cause burnout (Duchscher, 2009; Lacschinger, Finegan, & Wilk, 2009; Rella, Winwood, & Lushington, 2008; Unruh & Nooney, 2011). Burnout has been studied among new graduate and practicing nurses as well as in nursing students. Rella et al. (2008) examined a group of 1261 baccalaureate nursing students across three levels of their training program in Australia. The aim of the study was to investigate where in the program chronic maladaptive fatigue was affecting the students. They found that maladaptive fatigue and stress increased over time spent in the program, and that by graduation up to 20% of nursing students were reporting serious levels of chronic maladaptive fatigue. Similarly, Deary et al. (2008) found that as nursing students progressed through their academic program, levels of stress, psychological morbidity, and the use of negative coping mechanisms increased. These studies indicated that trait anxiety may be increasing among nursing students throughout their educational training and burnout needs to be addressed by both schools of nursing and nursing administration.

The role transition that nursing students face when moving from the familiarity of their educational setting to the unfamiliar and autonomous practice setting will inevitably produce various levels of anxiety in new practitioners. The term “burnout” has been utilized to describe nurses who are experiencing extreme levels of “exhaustion, cynicism, and inefficacy” in response to “chronic job stressors” (Leiter & Laschinger, 2006). Disturbingly, studies have shown that up to 66% of new nurse graduates were experiencing severe levels of burnout and emotional exhaustion (Cho, Laschinger, & Wong, 2006).

Duchscher (2009) provided a theoretical paper based upon ten years of research conducted on the transition of new graduate nurses into the professional practice. She presented the theory of “transition shock” to describe the adjustment of new practitioners’ feelings of anxiety as well as insecurity, inadequacy, and instability. The previous research studies conducted in the development of the transition shock theory described new graduates levels of anxiety as “debilitating,” “traumatic,” and that they felt they were “drowning” (p. 1106).

In a study conducted by Washington (2012), performance anxiety on the clinical unit was found to be a limiting form of anxiety experienced by new graduate nurses. This form of anxiety is defined as a “state” of anxiety that is brought out only in certain situations or a stimulus in which the person is uncomfortable. Similarly, in a study by Hinds and Harley (2001), performance anxiety was one of the reasons new graduate nurses do not experience successful transitions into their professional roles. Beercroft, Dorey, and Wenten (2008) also noted that the stress of “reality shock” was a contributing factor to turnover intention in new graduate nurses.

One consequence of excessive stress or anxiety for nursing students and new graduates can be attrition from nursing schools (Galbraith & Brown, 2011; Rella et al., 2008; Rouse & Rooda, 2010) and increased turnover in new graduates (Beercroft et al., 2008; Hensel &

Stoelting-Gettelfinger, 2011; Hinds & Harley, 2001; Rella et al., 2008). Hensel, et al. (2011) reported in a pilot study of nursing student wellness that 92% of students at the beginning of the semester reported that anxiety was negatively affecting their lives. This percentage only decreased to 88% by the end of the semester, indicating that the students experienced consistently high levels of anxiety at all times during the semester. Rouse and Rooda (2010) found that a factor for attrition from an accelerated program of nursing was anxiety due to the workload and time demands of nursing school. Rella et al. (2008) noted that in Australia, half of nurses leave the profession of nursing prematurely and state anxiety and fatigue as the primary factors. However, Deary et al. (2003) noted that attrition was related to personality type and not anxiety or burnout.

Theoretical Background of the STAI

There have been different methods of assessing anxiety, for example social anxiety or child/adolescent anxiety, but only a few that measure general anxiety in adults. One method that measures general anxiety is the commonly utilized State Trait Anxiety Inventory (STAI). According to Spielberger et al. (1983), the concepts of state and trait anxiety, as currently defined, were first introduced by Cattell (1966). Prior to Cattell, the concepts of anxiety were vaguely defined and poorly researched, with a lack of appropriate measuring instruments (Spielberger, 1983, p. 4). The ambiguity of a concrete conceptualization of anxiety is related to anxiety being historically defined in many different aspects, such as a trait, state, stimulus, response, drive, or a motive (Endler & Kocovski, 2001). Most early concepts of anxiety related anxiety to fear or anger (Endler & Kocovski, 2001). In fact, the first documentation by a researcher who proposed that anxiety had a role in personality theory was noted to be Sigmund Freud (Endler & Kocovski, 2001; Reiss, 1997; Spielberger et al., 1983). According to Reiss

(1997), Freud defined a subtype of anxiety as “neurotic anxiety,” or a “signal that unconscious material is threatening to enter consciousness,” thus introducing the early concept of trait anxiety as a theoretical construct.

The general concept of an anxiety state as described by Spielberger et al. (1983) is “subjective feelings of tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system” (p. 4). Furthermore, Spielberger et al. differentiated “emotional states” as transitory and varying intensity from personality states as “enduring over time” and containing “residues of past experience” (p. 5). The concept of anxiety as a trait was further developed by Spielberger et al. into the trait anxiety (T-Anxiety) definition as it currently exists. T-Anxiety is the “relatively stable individual differences in anxiety proneness” or “the differences between people in the tendency to perceive stressful situations as dangerous or threatening” (p. 5).

According to Spielberger et al., the levels of state anxiety (S-Anxiety) are more intense in individuals who experience higher levels of T-Anxiety, “the stronger the anxiety trait, the more probable that the individual will experience more intense elevations in S-Anxiety in a threatening situation” (p. 5). However the level of S-Anxiety experienced by individuals can vary according to perceptions of the situation as threatening and past experiences. Overall, Spielberger et al., states that individuals with high levels of T-Anxiety tend to exhibit more S-Anxiety elevations and have more intense S-Anxiety reactions as they tend to perceive a wider range of situations as threatening (p. 6).

Measurement of Anxiety Using the STAI

The STAI contains two, 20-item, self-report subscales for measuring state and trait anxiety. The S-Anxiety subscale (Form Y-1) measures how participants feel “right now,”

including feelings of apprehension, worry, and nervousness. Levels of state anxiety fluctuate and are high in persons that are experiencing circumstances perceived to be threatening, and levels should be lower in non-stressful situations (Barnes et al., 2002; Spielberger et al., 1983). The T-Anxiety subscale (Form Y-2) assesses how the participant “generally feels,” and measures anxiety as a personality trait. Persons who have high trait anxiety scores view more experiences as threatening. Persons with higher trait anxiety scores generally have higher state anxiety scores (Barnes et al., 2002; Spielberger et al., 1983). Each item on the STAI utilizes a weighted score ranging from 1 to 4.

Scoring of the STAI is weighted, meaning that for each item ranging from 1-4, a rating of 4 indicates either the highest level of anxiety or the absence of anxiety depending on the particular item. To obtain a total score for the STAI, the weighted items are added for the twenty items that make up each scale, with the researcher taking into account that the scores are reversed for the anxiety absent items. The scores for both the S-Anxiety and T-Anxiety STAI scales vary from 20-80. If respondents fail to answer up to two items on a particular scale, the score of the STAI can be prorated, however if more than two items are omitted then the validity of the scale is questionable (Spielberger et al., 1983, p. 12).

According to the STAI Manual and Sample (Form Y), raw scores should be utilized. Derived T-scores can be utilized by making a comparison to the appropriate normative group located within Table 3 of the manual, with the recommendation of then utilizing a spreadsheet tool such as MS Excel to organize and calculate averages (Spielberger et al., 1983, p. 77). The STAI Manual encourages the researcher to take context into account when analyzing data, for example, females generally have more anxiety than males. The STAI manual also recommends

the scoring of anxiety should be compared to the norm tables in the manual to gain a perspective on the respondent population (Spielberger et al., 1983, p. 78).

Summary

This review of literature has demonstrated the alarmingly high prevalence of anxiety among college students (ACHA-NCHAA II, 2011; Keiffer & Reese, 2009; Markman et al., 2011; Sizoo et al., 2008), and more specifically the high prevalence of anxiety among nursing students (Dzuree et al., 2007; Gibbons et al., 2011). Anxiety is an emotional state that is common among all persons and can be either motivating or debilitating (Endler & Kocovski, 2001). The literature review showed that high levels of anxiety can cause negative outcomes, such as physical illness (Adams et al., 2008; Bitsika et al., 2009; Dusslier et al., 2005; Matthews, 2005; Rawson et al., 1994), comorbid risk taking behaviors (including alcohol and drug abuse) (Kassel et al., 2000; Kieffer et al., 2006; Mehrabian, 2001; Murphy et al., 2005), poor academic performance (Brewer, 2002; Chappell et al., 2011; Vitasari, 2010), poor clinical performance and clinical decision making (Cheung & Au, 2011; Freeburn & Sinclair, 2009), burnout (Duchscher, 2009; Laschinger et al., 2009; Rella et al., 2008; Unruh & Nooney, 2011), attrition (Galbraith & Brown, 2011; Rella et al., 2008; Rouse & Rooda, 2010), and increased turnover in new graduates (Beercroft et al., 2008; Hensel & Stoelting-Gettelfinger, 2011; Hinds & Harley, 2001; Rella et al., 2008). Additionally, the literature points toward a trend for nursing students to report increasing anxiety over time spent in a nursing program (Deary et al., 2003; Dzuree et al., 2007; Jimenez et al., 2009; Rella et al., 2008; Timmons et al., 2011; Tully, 2004). These previously discussed studies highlight the need for nurse educators, administrators, and researchers to closely examine the anxiety that is experienced by nursing students and new graduates.

The STAI is a commonly utilized tool, (Barnes et al., 2002; Spielberger et al., 1983), that will help the researcher examine anxiety at three predetermined points (pre-nursing, early nursing, and late nursing). An important aspect of the STAI as a data collection tool is that it will examine the type of anxiety experienced (Barnes et al., 2002; Endler & Kocovoski, 2001; Spielberger et al., 1983) by the nursing students. The distinction between state and trait anxiety is critical to this study. The review of literature revealed that overall anxiety levels among nursing students and new graduates is generally reported as moderate to high (Dzuree et al., 2007; Gibbons et al., 2011). However there is little research that has been conducted examining how nursing education is related to the type of anxiety nursing students experience over time. The information obtained from this study can be used to develop interventions that will meet the needs of the nursing students as they progress through the educational process of becoming a registered nurse.

CHAPTER III:
METHODOLOGY

Purpose

The purpose of this study was to examine three cross-sectional sample points of baccalaureate nursing students' state and trait anxiety. Through this study, the researcher measured at what point state anxiety is the highest in this sample and if late nursing students have increased trait anxiety. This chapter will discuss the methodology of the study.

The review of literature revealed that levels of anxiety among college students are high, and studies have shown that anxiety remains high despite attempts at anxiety-reducing interventions (Hensel et al., 2011). Based upon previous research, anxiety among nursing students is also very high (Dzuree et al., 2007; Gibbons et al., 2010) and can produce negative outcomes for health and educational/clinical performance (Adams et al., 2008; Bitsika et al., 2009; Cheung & Au, 2011; Dusslier et al., 2005; Freeburn & Sinclair, 2009; Matthews, 2005; Rawson et al., 1994). Additionally, high levels of anxiety may continue once students graduate and begin professional practice (Beercroft et al., 2008; Hensel & Stoelting-Gettelfinger, 2011; Hinds & Harley, 2001; Rella et al., 2008). Similarly to nursing students, anxiety in new graduate registered nurses can negatively affect patient care outcomes (Cheung & Au, 2011), personal physical and mental health (Adams et al., 2008; Bitsika et al., 2009; Dusselier et al, 2005; Rawson et al., 1994), and job burnout/retention of nurses in the hospital units (Deary et al., 2008; Rella et al., 2008).

There is a need for nurse educators and administrators to gain a clear understanding of anxiety in their students. Understanding the time in the program anxiety is occurring is crucial to

identifying high risk points in the nursing educational process. Additionally, identifying the type of anxiety, state or trait, can aid schools of nursing in developing interventional programs that specifically target the emotional distress experienced by students. By understanding the anxiety of future nurse graduates, schools of nursing can implement preparation for practice education and facilities can consider programs to ease the transition to professional practice.

Description of the Study

This study was a descriptive, cross-sectional design that involved undergraduate baccalaureate nursing students from a single public university located in the south. Basic demographic data was collected including level in the program, age, gender, and race (see Appendix C). State and trait anxiety data was collected via the State-Trait Anxiety Inventory (STAI), an instrument that quantifies adult anxiety (see Appendix C). This study examined three points of state and trait anxiety among baccalaureate nursing students. The research questions were 1) is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students; and 2) is there a difference between pre-nursing, early nursing, and late nursing student trait anxiety among baccalaureate nursing students? Additionally, students were asked to rank the main source of their anxiety (academic, clinical, or personal), on a scale of 1-3, beginning with number 1 being the most anxiety producing for them.

Subjects

The sample consisted of a randomly selected convenience sample of baccalaureate nursing students from three pre-determined points in the nursing program at a large public research based university in the Southern United States. The sample points were determined according to their progress throughout the nursing program and were categorized as pre-nursing, early nursing, and late nursing students.

Pre-nursing students are completing coursework that is heavily focused on the sciences, as well as math and liberal arts. They also face the pressures of grade competition for entry into the upper levels of the nursing program. For the purpose of this study, students were recruited in the spring semester of the school year. Students were recruited from a chemistry course, which is usually completed during the second semester of their freshman year. To obtain adequate sample size additional pre-nursing students were also recruited in an educational statistics course, which is usually completed during the second semester of the sophomore year prior to admittance into the upper levels of the nursing program.

Early nursing students were chosen as a sample point to continue the examination of trait anxiety and state anxiety at their point in the program. Early nursing students have been admitted to the upper levels of the nursing program and are completing courses that are heavily science based. They also face the additional pressure of beginning clinical courses that have new difficult content and increased time requirements. For the purposes of this study, early nursing students were recruited only from semester two courses. These students were recruited from their fundamentals of nursing and pharmacology courses. All of the semester two students are enrolled in courses that contain both theory and clinical components.

Late nursing students were chosen as a sample point to both continue the examination of trait anxiety as well as to examine their state anxiety as they prepare to make the transition to professional practicing nurse. Late nursing students have completed many of their clinical courses and are preparing to complete exit examinations, the national board examination for licensure, as well as preparing for employment. For the purpose of this study, late nursing students were all recruited from their final semester in the baccalaureate nursing program. At the time of recruitment, they had all completed the clinical portion of their baccalaureate

coursework, and were nearing completion of the theory portion of their baccalaureate coursework.

To achieve statistical power, each study group, pre-nursing, early nursing, and late nursing contained at least 30 students. Sample size was calculated utilizing SPSS Sample Power 3.0. It was found that 30 participants per group yielded a power of .96 with a large effect size, .40. According to Spielberger et al., (1983), the standard deviation for S-Anxiety is 10.02-11.95 and T-Anxiety 9.18-10.15 (males to females).

Procedures

Before the study began, Institutional Review Board approval was obtained from The University of Alabama (see Appendix A). Following approval, the researcher identified courses and instructors at the University of Alabama in which the pre-nursing, early nursing, and late nursing students were enrolled. The researcher sent an email message to the instructors of the identified courses for the potential participants notifying them of the purpose of the study, contact information of the researcher and dissertation chair, and a request to meet with students either before or after a scheduled class period. None of the identified courses included courses in which the researcher was currently teaching.

The identified pre-nursing courses included two sections of the freshman chemistry course and two sections of a statistics course that is typically taken in the sophomore year according to the nursing plan of study. Of 198 surveys distributed, 43 pre-nursing students participated in this study for a survey response rate of 21.7%. The identified early nursing course included two sections of the pharmacology course, taken during the second semester of the upper division of the baccalaureate nursing program. Of 90 surveys distributed, 43 early nursing students participated in this study for a survey response rate of 47.7%. The identified late

nursing course was the leadership in nursing course taken the last (fifth) semester before graduation from the nursing program. Of the 86 surveys distributed, 33 late nursing students participated in this study for a survey response rate of 38.3%. A brief time period was scheduled with the instructors of the identified courses for the researcher to come to the classroom to discuss the study with the potential participants.

Over a period of two weeks the researcher visited the classrooms in the identified courses at the time that was deemed as most appropriate to the instructor of the course. The researcher visited the classroom of the late nursing students a total of three class periods as they were divided into smaller groups during the data collection period. The researcher discussed the research study verbally based upon the script approved by the institution's IRB (see Appendix A). The potential participants received a hard copy of the informed consent, which included a link to the online survey at the end of the document (see Appendix A).

The research participants completed the survey at their convenience over a time period of two weeks from initial contact with the researcher. The majority of the research participants completed the survey within 48 hours of receiving the study information. Confidentiality was maintained as the researcher had no knowledge that students participated in the survey and had no contact with the participants following the initial study recruitment period. The data was collected utilizing the online survey system, Qualtrics.

Anonymity was ensured as no identifying information, including IP address, was collected during the survey process while utilizing Qualtrics. Demographic data included academic level of the participant, age, gender, and race. The demographic information and survey results were viewed only by the researcher and the dissertation committee members. Data from the study is stored in a secure database accessible only by the researcher. Data

collection was completed upon obtaining sufficient response to meet the statistical power requirements (data collection was stopped by closing the Qualtrics survey from further data collection). Participants completed the survey online during the spring semester, 2013.

Instrumentation

The decision to use the web-based questionnaire format was based upon convenience. By utilizing a web-based format there is little interruption to classroom time for participants and it is cost effective to the researcher. Students were able to complete the survey in a location and time of their choosing according to what was convenient to them. Participants were provided a link to the survey at the end of the hard copy of the informed consent document.

Mindgarden.com offers the State Trait Anxiety Inventory (STAI) instrument online to researchers for a fee. The instrument was converted to upload to Qualtrics with permission from Mindgarden.com. The researcher also purchased the right to distribute the survey. The instrument was loaded into the Qualtrics survey software by the researcher. It was then reviewed by the dissertation chair and the University of Alabama IRB.

The completed Qualtrics survey consisted of two parts. The demographic portion of the questionnaire was used to obtain information on the samples' characteristics such as academic level, age, gender, and race. The data collection instrument consisted of the State-Trait Anxiety Inventory (STAI-Form Y).

The STAI was chosen because it has been utilized extensively in research and clinical practice. It was originally developed to be used with high school students, college students, and adults, which matches the anticipated age groups of the potential participants (Spielberger et al., 1983). In a study exploring the reliability generalization of the STAI by Barnes, Harp, and Jung (2002), the researchers found that "internal consistency reliability estimates obtained from STAI

state and trait scores, although somewhat variable, are generally satisfactory for a broad range of studies involving various populations” (p. 612).

The STAI contains two 20 item self-report subscales for measuring state and trait anxiety. The S-Anxiety subscale (Form Y-1) measures how participants feel “right now”, including feelings of apprehension, worry, and nervousness. Levels of state anxiety fluctuate and are high in persons that are experiencing circumstances perceived to be threatening, and levels should be lower in non-stressful situations (Barnes et al., 2002; Spielberger et al., 1983). The T-Anxiety subscale (Form Y-2) assesses how the participant “generally feels,” and measures anxiety as a personality trait. Persons who have high trait anxiety scores view more experiences as threatening. Persons with higher trait anxiety scores generally have higher state anxiety scores (Barnes et al., 2002; Spielberger et al., 1983).

Each item on the STAI utilizes a weighted score ranging from 1 to 4. Each form of the STAI questionnaire was to take college student participants approximately six minutes to complete for a total time of 12 minutes for this portion of data collection (Spielberger et al., 1983). According to Spielberger et al. (1983), when both forms are utilized the participant should begin with the S-Anxiety inventory first because “the S-Anxiety scale was designed to be sensitive to the conditions under which the test is administered, scores on this scale can be influenced by the emotional climate that may be created if the T-Anxiety scale is given first” (p. 11).

The S-Anxiety (Form Y-1) contains 20 questions with four responses that range from not at all, somewhat, moderately so, and very much so. It measures the intensity of the individuals’ feelings. The T-Anxiety (Form Y-2) contains 20 questions with four responses that range from almost never, sometimes, often, and almost always. It examines how individuals generally feel

and rates the frequency of their feelings (Spielberger, 1983). The total scores are calculated by adding the 20 weighted items for a scoring range from 20 to 80. Each form of the STAI consists of both anxiety present items and anxiety absent items.

Psychometric Properties of the STAI

The STAI has been adapted in more than thirty languages and used extensively in research and clinical practice, including over 3,300 studies and reviews (Spielberger, 1983, p. 8).

According to Spielberger (1983),

Research with the STAI has been stimulated by a growing consensus among clinicians and behavioral and medical scientists regarding the critical need to distinguish between the concepts of stress and anxiety, and to differentiate between anxiety as a transitory emotional state and individual differences in anxiety-proneness as a relatively stable personality trait. (p. 46)

The STAI has been used mainly with high school students, college students, the military, mental health patients, and medical patients.

Spielberger (1983) reported the Form Y S-Anxiety coefficients ranged from .91-.93 and T-anxiety coefficients ranged from .88 to .92. The test-retest coefficients ranged from .16 to .62 for S-Anxiety and .73-.86 for T-Anxiety. Alpha reliability coefficients for large samples of college students for the Form-Y S-Anxiety and T-Anxiety scales were .86 and .90, when computed by KR-20 as modified by Cronbach (Spielberger, 1983).

Spielberger (1983) reported the correlations between S-Anxiety and T-Anxiety scales were .59-.75. When given under situations that pose a threat to self-esteem, correlations between the S-Anxiety and T-Anxiety scales are generally higher. In contrast, correlations between S-Anxiety and T-Anxiety scores are lower in situations that pose a threat of physical danger. State-trait anxiety correlations are also higher when both the STAI scales are given one immediately after the other (Spielberger, 1983).

A systematic literature review of the PsycINFO database conducted by Barnes, Harp, and Jung (2002) yielded a total of 816 articles utilizing Form-Y of the STAI in adults between the years 1990-2000. The authors stressed that “sources of variability in the reliability of scores from a single instrument could include factors such as age, motivation, socioeconomic status, gender, and education” (Barnes et al., 2002, p. 604) and that researchers should assess reliability for their own particular data. The findings from the systematic review suggested that the internal consistency and test-retest reliability from the STAI state and trait scores were variable but satisfactory among a broad range of studies and populations. They also found that score variability of the STAI can differ between studies due to the participants age, the research design, and the form of the STAI (Y or X).

Data Collection

Nursing students from the three points in the program (pre-nursing, early nursing, and late nursing) were given the opportunity to participate in the study. Each student who participated in the study did so voluntarily. All participants were given a hard copy of the informed consent containing the purpose of the study, contact information of the researcher and dissertation chair, confidentiality and data storage procedures, potential risks and whom to contact in cases of emotional distress, the right to stop or not participate, contact information for the UA Research Compliance Officer and IRB Outreach Website, and a link to the survey (see Appendix A). The information on the informed consent was also contained on the first page in the instructions of the online survey.

Completion of the survey provided informed consent to participate. Data collection remained open for a period of two weeks. Should participation have been insufficient to meet the needs of the study; the researcher would have actively recruited potential participants via the

students' classrooms and opened data collection for another three weeks. However, a sufficient number of participants to meet the statistical power of the study was achieved within a two-week time period.

Research Questions-Data Analysis

(1) Is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students?

Data analysis was conducted utilizing a one-way multivariate analysis of variance (MANOVA) to evaluate the level of state anxiety of pre-nursing, early nursing, and late nursing students.

(2) Is there a difference between pre-nursing, early nursing, and late nursing student trait anxiety among baccalaureate nursing students?

Data Analysis was conducted utilizing a one-way multivariate analysis of variance (MANOVA) to evaluate the level of trait anxiety of pre-nursing, early nursing, and late nursing students.

Data obtained from this study was used to describe the correlation between state and trait anxiety and students' progress through a baccalaureate program of nursing. Three groups of nursing students were evaluated, pre-nursing, early nursing, and late nursing students. The data were analyzed based upon their levels of state and trait anxiety scores. A one-way multivariate analysis of variance was performed to determine the levels of state and trait anxiety on the three groups of nursing students. Post-hoc analysis was conducted utilizing Tukey post-hoc tests to determine the effect of group (pre-nursing, early nursing, and late nursing) on state and trait anxiety levels.

Variables

The following chapter represents the data analysis of this study. The independent or control variables for this study were the nursing students at the three predetermined points in the educational process, pre-nursing, early nursing, and late nursing students. The dependent variables for this study were the levels of state and trait anxiety reported by the nursing students.

CHAPTER IV:

RESULTS

Introduction

This chapter of results presents information related to data collection, demographic data of the participants and the statistical analysis of the research data utilized in this study. The overall purpose of this study was to examine and identify the level of three sample points of baccalaureate nursing students' (pre-nursing, early nursing, late nursing) state and trait anxiety during the educational process of becoming a registered nurse. By utilizing the State Trait Anxiety Inventory (STAI) (Spielberger, 1983), the researcher determined whether there were differences in state and trait between the three points. The demographic data of the subjects are examined and presented by providing descriptive information regarding the subjects in the study. The statistical analyses are conducted and results are based upon the research questions presented within this study. The research questions specifically asked within this study included the following:

- (1) Is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students; and
- (2) Is there a difference between pre-nursing, early nursing, and late nursing trait anxiety among baccalaureate nursing students?

In order to examine the research questions presented in this study, the results of the STAI were downloaded from the Qualtrics survey and entered into the Statistical Package for Social Sciences (SPSS). The demographic data and level in the nursing program was coded within SPSS. The STAI results were scored and totaled utilizing an Excel spreadsheet and re-entered

into SPSS for evaluation. The mean scores and standard deviation for each group were calculated. The data were then evaluated within SPSS utilizing multivariate analysis of variance (MANOVA). Levene's test of equality of error variances was also performed and will be reported in this chapter. Tukey post-hoc analysis was also performed. Reliability statistics were also performed and evaluated for all items on the STAI. The additional questions of ranking anxiety by group and source were cross-tabulated and downloaded utilizing Qualtrics Survey Software.

Demographics of the Study Participants

There were a total of 119 participants who began the online Qualtrics survey. The link to the STAI was provided to the three levels of subjects over a total time period of two weeks during the end of their spring semester of study. The study sample consisted of three levels of nursing students progressing through a baccalaureate nursing program at a large research based university in the south. The three levels of students were coded 1, 2, and 3 (Table 1). Level 1 consisted of pre-nursing students and contained 43 participants (36.1%). Level 2 consisted of early nursing students and contained 43 participants (36.1%). Level 3 consisted of late nursing students and had 33 participants (27.7%).

Table 1

Participant Level in the Nursing Program of Study

Group	Frequency	Percent
Pre-nursing	43	36.1
Early Nursing	43	36.1
Late Nursing	33	27.7

N=119

Study participants were asked to complete demographic data in order to understand and evaluate the characteristics of the sample. Tables 2 - 4 represent the demographic data of the sample, which were generally female (92.4%), white (95%), and ages 19-22 (84%).

Gender was coded (1) for males and (2) for females. There were 110 females and 9 males that participated in the study. Table 2 illustrates that females accounted for 92.4% of the sample and males accounted for 7.6% of the sample.

Table 2

Gender of the Study Participants

Gender	Frequency	Percent
Male	9	7.6
Female	110	92.4

N=119

There were five categories that were coded for the race of the participants. The codes included (1) American Indian/Alaskan Indian, (2) Asian, (3) Black or African American, (4) Native Hawaiian or Pacific Islander, and (5) White or Caucasian. 113 participants identified their race as White, 5 as Black, and 1 as Asian. Table 3 illustrates that White participants

accounted for 95% of the sample, Black participants accounted for 4.2% of the sample, and Asian participants accounted for .8% of the study sample.

Table 3

Race of the Study Participants

Race	Frequency	Percent
Asian	1	.8
Black	5	4.2
White	113	95

N=119

The age of the participants was included in the demographics and was reported as a fill in the blank question within the survey. Four participants did not complete the fill in the blank for age therefore the response rate was 115. The participants ranged in age from 18-31 years. Table 4 illustrates the ages of the study participants. It shows that the majority of students were the ages of 19 (22.7%), 20 (10.1%), 21 (36.1%), and 22 (15.1%).

Table 4

Ages of the Study Participants

Age	Frequency	Percent
18	7	5.9
19	27	22.7
20	12	10.1
21	43	36.1
22	18	15.1
23	5	4.2
24	1	.8
31	2	1.7

N=115 *4 participants did not fill in the age blank

STAI Descriptive Statistics

Following the completion of the demographic data, the participants completed the State-Trait Anxiety Inventory (STAI-Form Y). The STAI was taken by the participants in a location of their choosing over a two week time period following the initial recruitment. The STAI contains two 20 item self-report subscales for measuring state and trait anxiety. The S-Anxiety subscale (Form Y-1) measures how participants feel “right now”, the T-Anxiety subscale (Form Y-2) assesses how the participant “generally feels”, and measures anxiety as a personality trait. The total scores are calculated by adding the 20 weighted items for a scoring range from 20 to 80.

Statistical analysis of the STAI included only those participants who completed both the STAI forms Y-1 and Y-2. Three participants did not complete at least one of the forms and were excluded from the statistical analysis. Table 5 illustrates the number of participants in each group who completed both form Y-1 (S-Anxiety subscale) and form Y-2 (T-Anxiety subscale) of

the STAI. A total of 116 participants are included in the statistical analysis as having completed both forms.

Table 5

Participants Who Completed STAI Forms Y-1 and Y-2

Group	N
(1) Prenursing	41
(2) Early Nursing	42
(3) Late Nursing	33

N=116 *3 participants did not complete both forms of the STAI

The mean and standard deviation of the participants who completed both forms of the STAI are presented in Table 6 and Table 7. The mean for all participants of the S-Anxiety subscale was 46.6162 (SD=13.94509). The mean scores for the S-Anxiety subscale for prenursing students was 49.5854 (SD=12.80230), for early nursing students was 51.1667 (SD=14.05723), and for late nursing students was 37.1212 (SD=10.45753). The mean for all participants of the T-Anxiety subscale was 44.0517 (SD=11.40926). The mean scores for the T-Anxiety subscale for prenursing students was 45.8293 (SD=10.18308), for early nursing students was 48.8095 (SD=11.03705), and for late nursing students was 35.7879 (SD=8.82736).

Table 6

Form Y-1 STAI State Anxiety Scores by Group

Group	Mean	Std. Deviation	N
(1) Prenursing	49.5854	12.80230	41
(2) Early Nursing	51.1667	14.05723	42
(3) Late Nursing	37.1212	10.45753	33
All Groups	46.6121	13.94509	116

Table 7

Form Y-2 STAI Trait Anxiety Scores by Group

Group	Mean	Std. Deviation	N
(1) Prenursing	45.8293	10.18308	41
(2) Early Nursing	48.8095	11.03705	42
(3) Late Nursing	35.7879	8.82736	33
All Groups	44.0517	11.40926	116

Homogeneity of Variance

Levene's Tests of Equality of Error Variances are listed in Table 8. For the variable of state anxiety, $F=1.408$ (2, 113), $p=.207$. There is not a significant variance difference between the study groups' state anxiety. For the variable of trait anxiety, $F=1.173$ (2, 113), $p=.303$. There is not a significant variance difference between the study groups' trait anxiety. There was homogeneity of variances as determined by Levene's Test of Homogeneity of Variance ($p > .05$).

Table 8

Levene's Test of Equality of Error Variances

Group	F	df1	df2	Sig.
State Total	1.408	2	113	.249
Trait Total	1.173	2	113	.313

p > .05

Between Subject Effects

The results of the MANOVA analysis are listed in Table 9-STAI Tests of Between Subjects. There was a statistically significant difference between the pre-nursing, early nursing, and late nursing state anxiety levels, $F=13.089 (2, 113), p=.000$. There was a statistically significant difference between the pre-nursing, early nursing, and late nursing trait anxiety levels, $F=16.188 (2, 113), p=.000$.

Table 9

STAI Tests of Between Subjects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig
Group	State total	4206.243	2	2103.122	13.089	.000
	Trait total	3333.893	2	1666.947	16.188	.000
Error	State total	18157.300	113	160.684		
	Trait total	11635.796	113	102.972		
Total	State total	274395.000	116			
	Trait total	240074.000	116			

Post-Hoc Analysis

Tukey post-hoc analysis was conducted to determine the effect of group (pre-nursing, early nursing, and late nursing) on state and trait anxiety levels. The grouping of students were pre-nursing (group 1), early nursing (group 2), and late nursing (group 3).

State anxiety levels between the groups are shown on Table 10. Tukey post-hoc tests showed that for state anxiety scores, students in the late nursing group (group 3, mean=37.1212) had statistically significantly lower mean state anxiety scores than the students from either pre-nursing (group 1, mean=49.5854, $p < .0005$) or early nursing (group 2, mean=51.1667, $p < .0005$), but not between pre-nursing (group 1, mean=49.5854, $p = .837$) and early nursing (group 2, mean=51.1667, $p = .837$).

Table 10

Post-Hoc Multiple Comparisons State Anxiety

Dependent Variable	(I) Group	(J) Group	Mean Difference	Std. Error	Sig
State Total	1.00	2.00	-1.5813	2.78297	.837
		3.00	12.4642	2.96451	.000
State Total	2.00	1.00	1.5813	2.78297	.837
		3.00	14.0455	2.94873	.000
State Total	3.00	1.00	-12.4642	2.96451	.000
		2.00	-14.0455	2.94873	.000

Trait anxiety levels between the groups are shown on Table 11. Tukey post-hoc tests showed that for trait anxiety scores, students in the late nursing group (group 3, mean=45.8293) had statistically significantly lower mean trait anxiety scores than the students from either pre-nursing (group 1, mean=48.8095, $p < .0005$) or early nursing (group 2, mean=48.8095, $p < .0005$), but not between pre-nursing (group 1, mean= 45.8293, $p = .377$) and early nursing (group 2, mean=48.8095, $p = .377$).

Table 11

Post-Hoc Multiple Comparisons Trait Anxiety

Dependent Variable	(I) Group	(J) Group	Mean Difference	Std. Error	Sig
Trait Total	1.00	2.00	-2.9803	2.22783	.377
		3.00	10.0414	2.37315	.000
Trait Total	2.00	1.00	2.9803	2.22783	.377
		3.00	13.0216	2.36052	.000
Trait Total	3.00	1.00	-10.0414	2.37315	.000

Analysis of the Data Compared to the Research Questions and Hypothesis

Research question (1): Is there a difference between pre-nursing, early nursing, and late nursing students' state anxiety among baccalaureate nursing students? According to Table 10, there is a difference between the three points in the educational process and state anxiety among baccalaureate nursing students. Hypothesis (1): There will be a difference between the pre-nursing, early nursing, and late nursing student state anxiety among the baccalaureate nursing students. The students with the highest state anxiety among the three groups will be the late nursing students. According to Table 10, there was a difference in the levels of state anxiety, however they did not increase as students progressed through the educational process among the three defined educational points. The nursing students with the highest levels of state anxiety were in the early nursing group.

Research question (2): Is there a difference between pre-nursing, early nursing, and late nursing trait anxiety among baccalaureate nursing students? According to Table 11, there is a difference between the three points in the educational process and trait anxiety among baccalaureate nursing students. Hypothesis (2): There will be a difference between the pre-nursing, early nursing, and late nursing students trait anxiety. The students with the highest trait anxiety among the three groups will be the late nursing students. According to Table 11, there was a difference in the levels of trait anxiety, however they did not increase as students' progressed through the educational process among the three defined educational points. The nursing students with the highest levels of trait anxiety were in the early nursing group.

Reliability Statistics of the STAI

The STAI form Y-1 measured students' state anxiety and consisted of 20 questions. The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.956. Similarly, the STAI form y-1 measured students' trait anxiety and consisted of 20 questions. The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.932.

Student Ranking of Anxiety Source

Pre-nursing, early nursing, and late nursing students were asked to rate their anxiety at the end of the survey by source, academic, clinical, and personal. A ranking of 1 indicated the highest source of anxiety, a ranking of 2 indicated the second highest source of anxiety, and a ranking of 3 indicated the lowest source of anxiety of the three choices provided. For the ranking portion of the survey, thirty-five pre-nursing students, thirty one early nursing students, and thirty late nursing students completed the ranking.

Figure 1 provided the information, by group, of the main source of nursing student anxiety, or rank number 1. Pre-nursing students ranked academics as the main source of anxiety at a rate of 30/35 or 86%. Early nursing students ranked academics as the main source of anxiety at a rate of 26/31 or 84%. Late nursing students ranked academics as the main source of anxiety at a lower rate of 19/30 or 63%.

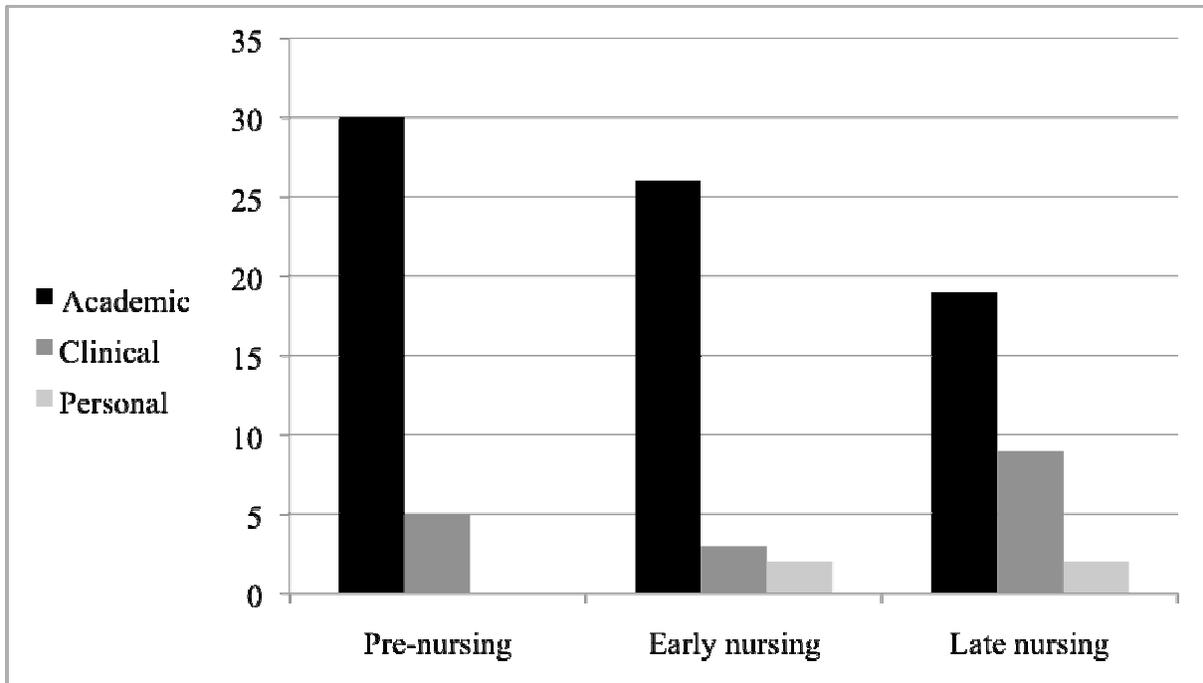


Figure 1. Rank 1-Main Source of Anxiety by Group

Figure 2 provided the information, by group, of the secondary source of nursing student anxiety, or rank number 2. Pre-nursing students ranked personal as the secondary source of anxiety at a rate of 33/35 or 94%. Early nursing students ranked clinical as the secondary source of anxiety at a rate of 20/31 or 65%. Late nursing students ranked clinical as the secondary source of anxiety at rate of 15/30 or 50%, which was very close to personal at a slightly lower 12/30 or 40%.

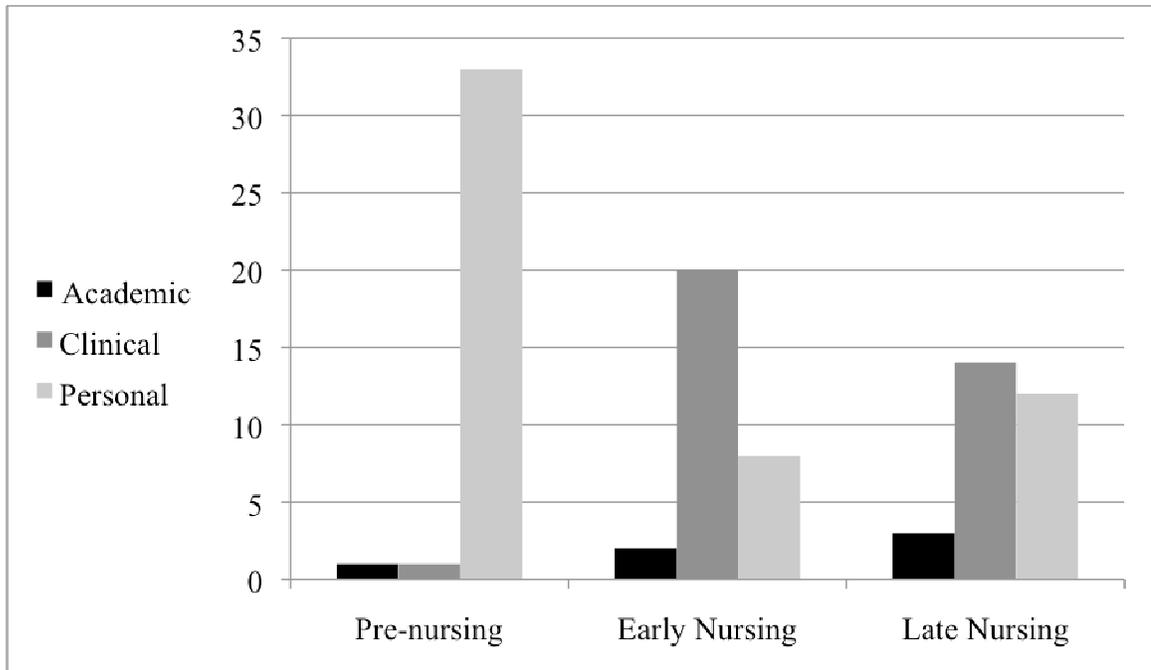


Figure 2. Rank 2-Secondary Source of Anxiety by Group

Figure 3 provided the information, by group, of the least listed source of nursing student anxiety, or rank number 3. Pre-nursing students ranked clinical as the least source of anxiety at a rate of 29/35 or 83%. Early nursing students ranked personal as the least source of anxiety at a rate of 21/31 or 68%. Late nursing students ranked personal as the least source of anxiety at rate of 16/30 or 53%, which was very close to personal at a slightly lower 12/30 or 40%.

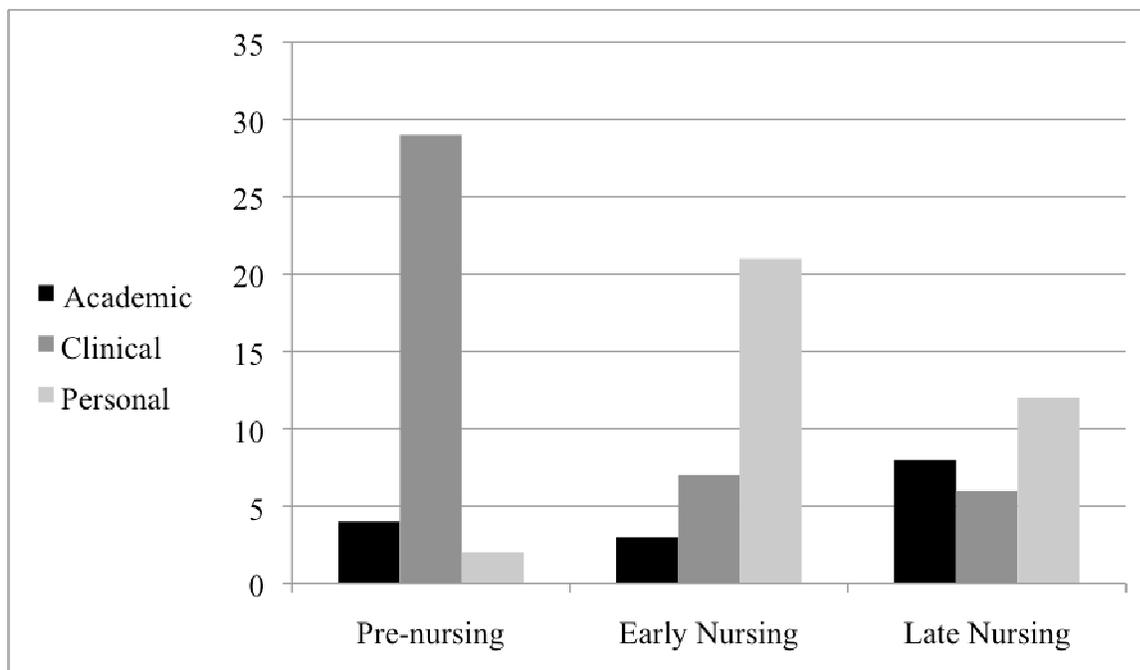


Figure 3. Rank 3-Least Source of Anxiety by Group

STAI Nursing Student Scores Compared to Normed Population

The scoring guidelines for the STAI (Spielberger, 1983) provide norm tables for college students (see Table 6). The recommendation within the scoring guide is not to label one respondent or group as “anxious” or “not anxious”, but rather to compare the raw state or trait anxiety score to that of the norm table within the STAI manual (p. 78). The higher the raw state or trait anxiety score indicates higher state and trait anxiety. For example, among pre-nursing students, the mean state anxiety score in this study was 49.5854 (see Table 6) and the mean trait anxiety score was 45.8293 (see Table 7).

According to the STAI scoring manual (Spielberger, 1983, p. 22-23), the state anxiety score for pre-nursing students is 59% (see Table 12). Therefore 41% of college students scored higher than the pre-nursing students’ state anxiety and 59% of college students scored lower than the pre-nursing students’ state anxiety. Early nursing students scored above the normed population of college students as well, 60% for state anxiety and 58% for trait anxiety. The late

nursing students scored slightly below average as compared to the normed population of college students, 49% for state anxiety and 46% for trait anxiety.

Table 12

Nursing Students' STAI Scores Compared to STAI Norm for College Students

Group	Mean	STAI Norm
(1) Pre-nursing-State	49.5854	59
(1) Pre-nursing-Trait	45.8293	56
(2) Early nursing-State	51.1667	60
(2) Early nursing-Trait	48.8095	58
(3) Late nursing-State	37.1212	49
(3) Late nursing-Trait	35.7879	46
All Groups-State	46.6121	57
All Groups-Trait	44.0517	54

The pre-nursing students who scored in the top 25% for state anxiety had a weighted average state anxiety score of 59.5. The highest five state anxiety scores for the pre-nursing students were 72, 71, 70, 68, and 68. The pre-nursing students who scored in the top 25% for trait anxiety had a weighted trait anxiety score of 54.0. The highest five trait anxiety scores for the pre-nursing students were 68, 65, 64, 61, and 58. The early nursing students who scored in the top 25% for state anxiety had a weighted average state anxiety score of 68. The highest five state anxiety scores for the early nursing students were 77, 75, 75, 73, and 70. The early nursing students who scored in the top 25% for trait anxiety had a weighted trait anxiety score of 58. The highest five trait anxiety scores for the early nursing students were 71, 70, 67, 65, and 64. The late nursing students who scored in the in the top 25% for state anxiety had a weighted average state anxiety score 48.5. The highest five state anxiety scores for the late nursing students were 59, 58, 54, and 51. The late nursing students who scored in the top 25% for trait

anxiety had a weighted trait anxiety score of 45. The highest five trait anxiety scores for the late nursing students were 59, 52, 47, 47, and 45.

STAI Responses

A review of the responses within the data collection instrument (see Appendix C), distributed by group, consistently showed that the pre-nursing and early nursing students exhibited the most state anxiety. The anxiety absent question, “I feel calm” identified that 63% of pre-nursing and 60% of early nursing students selected “not at all” or “somewhat” as compared to only 12% of late nursing students who selected that option. Similar results were identified for responses to other anxiety absent questions such as “I feel comfortable” (59%, 62%, 24%) and “I am relaxed” (83%, 66%, 36%). Anxiety present state anxiety questions identified the same pattern of responses. The question, “I am presently worrying over possible misfortunes” showed that 59% of pre-nursing and 57% of early nursing selected “moderately so” or “very much so” as compared to 21% of late nursing students. Similar responses were identified for other anxiety present questions such as “I feel nervous” (68%, 55%, 27%) and “I am worried” (68%, 57%, 24%).

A review of the responses within the data collection instrument (see Appendix C), distributed by group, also consistently showed that the pre-nursing and early nursing students exhibited the most trait anxiety. The anxiety absent question, “I feel rested” identified that 61% of pre-nursing students and 90% of early nursing students selected “almost never” or “sometimes” as compared to 45% of late nursing students. Similar results were identified for responses to other anxiety absent questions such as “I make decisions easily” (56%, 69%, 18%) and “I am calm, cool, and collected” (61%, 71%, 21%). Anxiety present trait anxiety questions identified the same pattern of responses. The question, “I worry too much over something that

really doesn't matter" showed that 61% of pre-nursing and 71% of early nursing students selected "often" and "almost always" as compared to 21% of late nursing students. Similar results were identified for responses to other anxiety present questions such as "I get in a state of turmoil as I think of my recent concerns and interests" (54%, 50%, 15%) and "I feel difficulties are piling up so that I cannot overcome them" (42%, 43%, 10%).

Conclusion

For research question 1, the levels of state anxiety did not increase as the baccalaureate nursing students progressed through the program of study. The students with the highest state anxiety were early nursing students. The students in the late nursing group had statistically significantly lower state anxiety than the pre-nursing and early nursing groups. Similarly, for research question 2, trait anxiety did not increase as the baccalaureate nursing students progressed through the program of study. The students with the highest trait anxiety were also the early nursing students. The students in the late nursing group also had statistically significantly lower trait anxiety than the pre-nursing and early nursing groups. The main source of anxiety identified by all levels of the baccalaureate nursing students was academic in nature and highest among the pre-nursing and early nursing students. For the late nursing student group clinical anxiety was also a significant source of anxiety. The STAI scores of the pre-nursing and early nursing groups were above the normed population for college students.

CHAPTER V:
DISCUSSION AND RECOMMENDATIONS

Introduction

The purpose of this study was to examine and identify the level of three sample points of baccalaureate nursing students' (pre-nursing, early nursing, late nursing) state and trait anxiety. This study was conducted due to the high prevalence of anxiety among college students (Keiffer & Reese, 2009; Markman, Balik, Braunstein-Bercovitz, & Ehrenfeld, 2011; Sizoo, Malhotra, & Shapero, 2008) as well as anxiety specific to nursing students (Beck et al. 1997; Dzuree, Allchin, & Engler, 2007; Gibbons et al., 2011; Goff, 2011). The literature showed that anxiety among nursing majors is higher than that of the overall collegiate population (Beck et al., 1997; Dzuree, et al., 2007; Gibbons et al., 2011) and high levels of anxiety can negatively impact nursing students' cognitive abilities, physical health, and overall ability to effectively and safely provide care to patients (Cheung & Au, 2010; Cook, 2005; Melincavage, 2011; Melo et al., 2010; Sharif & Armitage, 2004).

This study examined two research questions: 1) is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students; and 2) is there a difference between pre-nursing, early nursing, and late nursing student trait anxiety among baccalaureate nursing students? It also ranked the main sources of anxiety for students among the three levels as academic, clinical, or personal. This chapter will discuss the conclusions based upon the results of the study, the relationship of the study findings to the

literature, the limitations of the study, the implications for nursing education, and finally suggest areas for future research.

Discussion of Results

A convenience sample of 116 baccalaureate nursing students from a large public research based university in the Southern United States completed this research study. The sample consisted of mainly white (95%) female (92.4%) students who mainly were in the 19-22 (84%) age range. The sample included groups in three levels of the program of study, pre-nursing (N=41), early nursing (N=42), and late nursing (N=33). Each study participant completed the survey during the end of the spring semester, 2013. The survey consisted of demographic data, the STAI, and a ranking of the main source of anxiety based upon three sources, academic, clinical, or personal.

In this research study, there was a difference in both state and trait anxiety among the pre-nursing, early nursing, and late nursing students. The students with the highest state and trait anxiety were early nursing students. The students in the late nursing group had statistically significantly lower state and trait anxiety than the pre-nursing and early nursing groups. The main source of anxiety identified by all levels of the baccalaureate nursing students was academic in nature and highest among the pre-nursing and early nursing students.

The results of this study answered the two research questions: (1) is there a difference between pre-nursing, early nursing, and late nursing student state anxiety among baccalaureate nursing students; and (2) is there a difference between pre-nursing, early nursing, and late nursing student trait anxiety among baccalaureate nursing students? There were differences between the three sample groups of nursing students' state and trait anxiety. The results of this research study, however, did not confirm the research hypothesis that state and trait anxiety will

be the highest in the late nursing group. The group with the highest state and trait anxiety were the early nursing sample group. The late nursing students had significantly lower state and trait anxiety as compared to both the pre-nursing and early nursing sample groups. Overall, students in the late nursing student group of a baccalaureate program of nursing did not have the highest levels of state and trait anxiety among this sample of nursing students. All groups reported that academics were their main source of anxiety, although the late nursing student sample reported clinical anxiety higher than any other group.

Relationship to Literature

The literature review revealed that anxiety among nursing students is higher than the average college student population (Beck et al., 1997, Dzuree et al., 2007; Gibbons et al., 2011), which is similar to the results of this study. The two of the study groups, the pre-nursing and early nursing groups, were experiencing anxiety at levels higher than the normed population of college students for the STAI (Table 12). Additionally, the types of stressors that nursing students experience was examined by Jiminez et al. (2009) to be three main types of stressors: clinical, academic, and external. The researchers, both in their review of literature and the study, found that no matter the year of study the nursing students perceived clinical stressors to be the most intense and have the biggest impact on their psychological well-being. Goff (2011) found that baccalaureate nursing students experienced high levels of both personal and academic stressors and cited grade competition and test anxiety as frequently experienced stressors. Tully (2004) found that first year nursing students reported the most distress related to academics and second year students reported clinical issues as the most distressing. The results of this study showed that for all three sample groups, pre-nursing, early nursing, and late nursing, academics were the main source of anxiety. Clinical anxiety was the highest in the late nursing group.

The hypothesis of this study, that state and trait anxiety would increase as nursing students progressed through the program of study, was consistent with several studies found in the review of literature. In studies conducted by Deary et al. (2003), Rella et al. (2008), and Timmons et al. (2011), nursing students' stress and anxiety were all increased over time spent in the nursing program and were highest in the final year of study. However two studies, Jimenez et al. (2009) and Rawson et al. (1994), found that, similar to this study, students in the second or third year of the program of study were most likely to experience the highest anxiety. While causality was not established, the researchers pointed to other studies indicating that social support is high in freshman and that more experienced nursing students have developed effective coping mechanisms and relationships. Unlike the findings established in the majority of the review of literature, the late nursing students in this study had the lowest levels of both state and trait anxiety as compared to the pre-nursing and early nursing students.

Recent studies published after the review of literature for this study was conducted confirmed that nursing students are experiencing stress and anxiety at very high levels. A mixed method study of baccalaureate nursing students in traditional and second degree programs found that, similar to this study, nursing students are experiencing high levels of stress (Reeve, Shumaker, Yearwood, Crowell, & Riley, 2013). The researchers found that in their study sample, 95% of students reported feeling anxiety in stressful situations, 87.8% ranked worry extremely high, and 42.1% reported feelings of depression when under stress. Few of the students reported that they were able to come to faculty when they were feeling stressed or upset, instead relying on maladaptive coping mechanisms as stress relief.

Another recent cross-sectional study measured and compared the stress and stressors of fourth year nursing students to newly qualified nurses (Suresh, Matthews, & Coyne, 2012). The

researchers found that while levels of perceived stress were high in both groups, the fourth year students scored higher in stress related to workload, inadequate preparation, and conflict with other nurses. These results are similar to the results of the current research study in which anxiety levels were reported as high overall for nursing students and academic and clinical stressors were rated as higher than personal stressors for the population of students. However in this study the late nursing students had statistically significantly lower levels of both state and trait anxiety as compared to the pre-nursing and early nursing students.

An additional recent study of nursing student stress and anxiety was conducted related to preparation for the baccalaureate students' first clinical experience (Dearmon, Graves, Hayden, Mulekar, Lawrence, Jones, Smith, & Farmer, 2013). In this study the researchers developed a simulation based orientation to decrease nursing student stress prior to beginning their clinical experiences. Similar to the current research study, the students were in their first semester of clinical (early nursing) and completed, among other instruments, the STAI pre and post intervention. The results showed that the intervention of an orientation simulation decreased state anxiety in the post test, and decreased state anxiety the most in students with lower pre-test trait anxiety than those students with high pre-test trait anxiety.

The theoretical background for this study, that students' progress through developmental stages (Erikson, 1968), is consistent with the results of this study. The majority of students were in the age range of 18-22 years old, which, according to Arnett (2000), is the time that many young people pursue training and education in order to become successful adults. Completion of this task is critical to successful adjustment and failure to accomplish this task can lead to difficulties with emotional adjustment (Stringer, et al., 2012). Additionally, the stress of the transition between adolescence and adulthood can place individuals at risk for poor mental health

which can have effects on the emotional well-being of the individual throughout the lifespan (Lee & Gramotnev, 2007). The anxiety that nursing students are experiencing during their education may persist post-graduation (Duchscher, 2009, Lacschinger, Finegan, & Wilk, 2009, Rella, Winwood, & Lushington, 2008, Unruh & Nooney, 2011). Nursing students in the pre-nursing and early nursing sample groups were at the highest levels of both state and trait anxiety among the overall study sample. Pre-nursing students are completing the coursework for entrance into the upper levels of the nursing program and are faced with grade competition for upper level promotion. Early nursing students are beginning the clinical portion of their nursing education. Failure to progress at these levels can drastically alter their future career plans, causing them to either change their major or select another institution in which to pursue nursing study. The early nursing students experiencing high levels of state and trait anxiety can also have impaired clinical performance (Cheung & Au, 2011, Duchscher, 2009, Melo, et al., 2010) that may lead to failure to progress in the nursing program.

Limitations

There are several identified limitations that may have affected validity associated with this study. First, selection bias could possibly have affected the validity of this study. The study participants were selected through a convenience sample of baccalaureate nursing students from three pre-determined points in the nursing program at a large research based public university in the south. Therefore, the findings may not be consistent with other college students from private institutions and/or from colleges outside of the South. The participants may have had personal reasons that were not disclosed for choosing to participate in this study. Another identified threat to the validity of this study is the lack of diversity within the study sample. The study participants were mainly white (95%) female (92.4%) students primarily aged 19-22 (84%).

Therefore the homogeneity of the study sample may cause the results to not be generalized to diverse populations of students.

The STAI is a self-report assessment of anxiety by the individual that was completed in various settings. The data obtained from the survey may have been affected by transitory anxiety producing situations or stressful environments. Spielberger et al. (1983) has suggested that subjects take the survey in controlled and similar environments. To address this limitation, instructions were given to the participants suggesting they complete the survey in a secure and comfortable location of their choosing. However the researcher had no control over the recent episodes of anxiety, either transient or chronic, experienced by the individual participants. Students may have been experiencing discontent with an instructor, course, or other outside influences which may have affected their responses to the instrument. The researcher also had no control over the location in which the participant completed the study.

The data collection was conducted during the final weeks of the spring 2013 semester, and the timing of data collection may have affected the validity of the results. Many of the pre-nursing and early nursing participants were preparing to take their final semester examinations for their courses during the last few weeks of the semester. This may have contributed to higher reported levels of anxiety as compared to other times during the semester. The late nursing students had completed their coursework at the time of data collection and were preparing for graduation from the program, which may have contributed to decreased reported levels of anxiety as compared to earlier in the semester. In the future, data collection could be done at various points during the semester, and then compared for variability in scores based upon time of the semester.

Implications for Nursing Education

Despite the identified limitations, the results of this study showed that state and trait anxiety among the sample groups of baccalaureate nursing students was higher than the normed population of college students. The review of literature revealed that high levels of anxiety can impact how students learn information and translate it into practice (Cheung & Au, 2011; Cook, 2005; Melo et al., 2010; Melincavage, 2011; Sharif & Armitage, 2004) have negative consequences on clinical performance (Cheung & Au, 2011; Duchscher, 2009; Melo et al., 2010), and can negatively affect patient care outcomes (Cheung & Au, 2011). Additionally, nursing students are faced with providing complex patient care and difficult workload demands (Duchscher, 2009; Reddish & Kaplan, 2007). The anxiety that nursing students experience has the potential to cause burnout that may persist post-graduation (Duchscher, 2009; Lacschinger, Finegan, & Wilk, 2009; Rella, Winwood, & Lushington, 2008; Unruh & Nooney, 2011).

Of particular importance, this study revealed results that are in contrast to the literature findings, the levels of state and trait anxiety were statistically significantly lower in the late nursing students as compared to the pre-nursing and early nursing students. The pre-nursing and early nursing students also had significantly higher state and trait anxiety scores on the STAI as compared to the normed population of college students. Interestingly, the late nursing students were found to be average as compared to the normed population of college students, which is also in contrast to the literature that suggests that anxiety increases as students' progress through their program of study. The results of this study showed that across all groups of nursing students academics were listed as the most anxiety producing stressor that students experienced.

In order to retain and graduate emotionally stable nurses, programs of nursing must assess and evaluate anxiety in their students. Faculty members working closely with students at

all academic levels should be encouraged to remain vigilant to outward signs of student anxiety and to periodically debrief students by discussing anxiety in a non-threatening manner. By identifying the points in the program where anxiety is occurring and the types of anxiety students are experiencing administrators and faculty can evaluate curriculum and/or develop interventions to assist students to decrease anxiety. University wide resources that are convenient and accessible to students should be identified to assist students dealing with excessive anxiety. Current coping mechanisms being utilized by students should be evaluated within each point of the program. Interventions should be evidence based and specific to the predominant developmental level of the student. For example, Arnett (2000) proposed that for the predominant age range of students in this study, the age group of 18-25 is in the emerging adult stage. Individuals in the emerging adult stage may be at higher risk for engaging in risky behaviors to cope with anxiety such as substance abuse. Therefore, example interventional strategies could include healthy methods of coping with anxiety. Evaluation of the point in the curriculum the most anxiety is occurring can also cause administrators and faculty to evaluate the mental and physical rigor of their particular program. The early nursing sample group in this study exhibited the highest levels of state and trait anxiety. It is important to evaluate the potential sources contributing to the high anxiety levels and implement course or semester specific strategies to reduce anxiety in those groups of students.

Several strategies have been identified in the literature as successful in decreasing stress and anxiety in nursing students. Humor, when used appropriately, was identified as a teaching strategy to make learning fun, relieve student anxiety, and to strengthen relationships between beginning nursing students and faculty (Hayden-Miles, 2002; Uloth, 2002). The use of mentors, either faculty or peers, has been found to decrease anxiety among all levels of nursing students

(Becker & Neuwirth, 2002; Sprengel & Job, 2004). Guided reflection has also been recommended to reduce test anxiety among all levels of nursing students (Beggs, Shields, & Gooding, 2011). Promotion of physical activity in nursing students was shown to decrease anxiety and depression and increase self-esteem and satisfaction with life (Hawker, 2012). Additionally, studies on the use of high fidelity simulation and nursing students has been found to be successful in reducing clinical anxiety as well as increasing nursing student confidence in performing skills on the clinical unit (Megel, Black, Clark, Corsteng, Jenkins et al., 2012; Szpack & Kameg, 2013).

Additionally, evaluation of specific item responses within the STAI revealed important information related to the overall mental health of the sample of nursing students. For example, the anxiety absent question, “I feel rested” identified that 61% of pre-nursing students and 90% of early nursing students selected “almost never” or “sometimes” as compared to 45% of late nursing students. The responses to this question indicate that an intervention is needed for students in all levels of the program and particularly in the early nursing group related to rest and how to obtain or feel more rested as a contribution to anxiety reduction in these students.

Recommendations for Future Research

College students are experiencing anxiety frequently and anxiety among college students is increasing (ACHA-NCHA II, 2011). There is limited research that compares the state and trait anxiety experienced by baccalaureate nursing student to baccalaureate students of other majors. In particular, there is limited research that compares baccalaureate nursing students to students in majors with similar rigor in the sciences or clinical components such as medicine or social work. Additionally, this study did not differentiate if a student was second degree or include graduate nursing students. Further research comparing baccalaureate nursing programs to similar majors

would give greater insight into nursing student anxiety and college student anxiety overall. It would also provide university administration with valuable information into the student populations for whom interventional programs should be targeted.

There is limited research that compares anxiety, particularly state and trait anxiety, in associate degree nursing programs to baccalaureate degree programs. Associate degree programs typically have a more diverse population of students as many students are returning to school after being in the workforce, second degree students, or are head of their family. Additionally, associate degree programs often do not have the same rigorous science and admission requirements of baccalaureate programs. However, programs of clinical study are similar to those of baccalaureate programs and the RN licensure examination is the same. Research comparing baccalaureate nursing student state and trait anxiety to associate degree student state and trait anxiety at comparable times in the program of study could yield valuable information regarding the source and type of anxiety experienced within programs of nursing. Additionally, replicating this study on diverse populations may provide greater insight into nursing student anxiety overall.

The results of this study demonstrate the need for programs of nursing to evaluate points in their program of study students are experiencing high levels of anxiety, the type of anxiety students are experiencing, the sources of anxiety, and the coping mechanisms being utilized by students. The students in this study, particularly the early nursing students, were experiencing state and trait anxiety at levels well above the normed population of college students and higher than the two other sample groups. The literature review demonstrated that high levels of anxiety in college students and nursing students has detrimental effects on the students' mental and physical well-being as well as clinical performance. Future research relating anxiety to

outcomes such as physical well-being, course grades, or clinical evaluations could provide further insight into the effects of anxiety on nursing students. Additionally, longitudinal research could be conducted to focus on both the levels and sources of anxiety experienced by one group and how they change during progression throughout the program of study.

Future research investigating anxiety by discipline, comparing nursing to other majors in the healthcare field could yield significant information regarding anxiety that is potentially produced by similar programs. Fields such as medicine, pharmacy, and therapy have similar student stressors such as competition for admission, high grade point average requirements, intensive science course requirements, and clinical practice components.

Interventions should be researched at the program level that address the specific needs of the student. For example, the early nursing students in this study are faced with increased academic pressures and the pressures of beginning clinical experiences. Interventional programs need to be developed that focus on the early nursing students', such as positive coping mechanisms (Beggs, Shields, & Gooding, 2011; Hawker, 2012), study skills, time management, and introduction to clinical settings in a non-threatening manner, such as simulation, to help target the specific needs of the early nursing sample group's anxiety (Dearmon et al., 2013; Megel et al., 2012; Szpack & Kameg, 2013). Teaching strategies shown to reduce anxiety can be implemented by faculty in the early nursing student courses, such as the use of humor (Hayden-Miles, 2002; Uloth, 2002), peer mentoring (Sprengel & Job, 2004), and guided reflection (Beggs, Shields, & Gooding, 2011). Additionally, further research should be conducted to evaluate anxiety reducing interventions to program related outcomes such as course grades, exit exam scores, course and clinical evaluations, or licensure exam results.

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APPENDIX A

INFORMED CONSENT

UNIVERSITY OF ALABAMA HUMAN RESEARCH PROTECTION PROGRAM

Informed Consent for a Non-Medical Study

Study title: A Cross Sectional Analysis of State Trait Anxiety Among Pre, Early, And Late Nursing Students: Implications for Nursing Education
Investigator's Name, Position, Faculty or Student Status: Monika Gragg Wedgeworth, MSN, RN, Instructor, doctoral candidate.

You are being asked to take part in a research study.

This study is called: A Cross Sectional Analysis of State Trait Anxiety Among Pre, Early, And Late Nursing Students: Implications for Nursing Education. The study is being done by instructor and doctoral candidate Ms. Wedgeworth and is being supervised by Dr. Rick Houser, Department Head and Professor, Department of Educational Studies in Psychology, Research Methodology, and Counseling at the University of Alabama.

Is the researcher being paid for this study? No.

Is this research developing a product that will be sold, and if so, will the investigator profit from it? No.

Does the investigator have any conflict of interest in this study? The investigator is a faculty member in the college where this research study is taking place. Some of the participants may know the researcher as a faculty member. The researcher will not know which students have participated in the study.

What is this study about? What is the investigator trying to learn?

You are being asked to participate in a dissertation research project to investigate anxiety in nursing students. This research is being conducted by the completion of a Web based questionnaire. The survey is online and accessible via the URL link at the end of this document. This survey should take 15 minutes or less to complete.

Why is this study important or useful?

This research will be used to inform nurse educators and administrators where in the educational process students are experiencing anxiety as well as the type of anxiety that is experienced. The information obtained from this study can be utilized develop strategies to decrease nursing student anxiety.

Why have I been asked to be in this study?

You have been selected to participate in this study because you are a nursing student that is taking a course that has been identified as a study group for this research.

How many people will be in this study?

Approximately 150 participants will be included in this study.

What will I be asked to do in this study?

You will complete the survey found in the URL link at the end of this document.

How much time will I spend being this study?

The estimated time needed to complete the survey is less than 15 minutes.

Will being in this study cost me anything?

The only cost to you is the time required to complete the survey.

Will I be compensated for being in this study?

You will not be compensated for your participation in this study.

Can the investigator take me out of this study?

No. You may choose not participate by exiting the survey or by not submitting the survey.

What are the risks (dangers or harms) to me if I am in this study?

This survey asks you to rate your levels of anxiety. You can choose not to participate in this study or not complete the survey at any time. If you experience emotional distress while taking this survey you can choose not to complete it and contact the UA counseling center at 205-348-3863 or The University Medical Center Psychiatry Clinic at 205-348-1265. If you experience emotional distress following the completion of the survey you are urged to contact the UA counseling center or The University Medical Center Psychiatry Clinic at the numbers found above.

What are the benefits (good things) that may happen if I am in this study?

There are no direct benefits to you for participating in this study. You may feel some benefit by knowing you have helped to identify high anxiety areas in the nursing program of study. Your benefit in participation in this study is by knowing that you may have helped nursing students in the future.

What are the benefits to science or society?

This study will help nurse educators and nurse administrators identify high anxiety areas in the educational process of becoming a registered nurse. By identifying these areas, nurse educators can develop strategies to decrease anxiety in these groups.

How will my privacy be protected?

You can complete this online survey in the location of your choice. It is recommended that you choose a location that is private and utilize a secure Internet browser. At any time during the survey, you can choose to end your participation by exiting the survey if you feel your privacy has been compromised.

How will my confidentiality be protected?

You will not be asked to enter identifying data as a part of this study. Your identity or IP address as a participant will not be available to anyone, including the researcher, and will never be available in the data, in the dissertation, or published in any way. All information gathered from this study will remain anonymous. Data will be kept on a secure, password protected hard drive located in a locked office that is accessible only to the researcher.

What are the alternatives to being in this study? Do I have other choices?

The alternative to being in this study is not to participate.

What are my rights as a participant in this study?

Taking part in this study is voluntary. It is your free choice. You can refuse to be in it at all. If you start the study, you can stop at any time. There will be no effect on your relations with the Capstone College of Nursing, the University of Alabama, or the researcher.

The University of Alabama Institutional Review Board (“the IRB”) is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems?

If you have any questions about the study right now, please ask them. If you have questions later, please contact the researcher, Ms. Monika Wedgeworth, at 205-331-6120 or Dr. Rick Houser at 348-0283. If you have question, concerns, or complaints about your rights as a person in a research study, call Ms. Tanta Myles, the Research Compliance Officer of the University, at 205-348-8461 or toll-free at 1-877-820-3066.

You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu.

After you participate, you are encouraged to complete the survey for research participants. This participant survey is available online at the participant outreach website which is participantoutreach@bama.ua.edu. You may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

I have read this consent form. I have had a chance to ask questions. By entering the URL link to the survey in a secure browser and submitting it upon completion I agree to take part in this research study. I have been encouraged to sign and keep this informed consent document in a secure location.

https://qtrial.qualtrics.com/SE/?SID=SV_009aF5wsBAUmEst

Password: UACCN

Signature of Research Participant

Date

Monika Gragg Wedgeworth
Signature of Investigator

Date

APPENDIX B

RECRUITMENT SCRIPT

“My name is Monika Wedgeworth, a graduate student and nursing instructor from the Capstone College of Nursing at the University of Alabama. I would like to invite you to participate in a dissertation research project to investigate anxiety in nursing students. This research will be used to inform nurse educators and administrators where in the educational process students are experiencing anxiety as well as the type of anxiety that is experienced.

This research is being conducted by the completion of a Web based questionnaire. This survey should take 15 minutes or less to complete. There will be no identifying information or IP addresses collected in this survey, your responses are completely anonymous and your identity will never be available to the researcher. You will not be penalized in any way if you choose not to participate in this research. To increase your privacy, the researcher does recommend you complete the survey in a private location using a secure Internet connection. At any time if you feel your privacy has been compromised you can exit out of the survey and choose not to participate.

You will not be compensated and there are no direct benefits to you for participating in this research study. You may feel some benefit by knowing you have helped to identify high anxiety areas in the nursing program of study. Your benefit in participation in this study is by knowing that you may have helped nursing students in the future as the information obtained from this study can be utilized develop strategies to decrease nursing student anxiety.

This survey asks you to rate your levels of anxiety. If you experience emotional distress while taking this survey you can choose not to complete it and contact the UA counseling center or The University Medical Center Psychiatry Clinic. Additionally, if you experience emotional distress following the completion of the survey you are urged to contact the UA counseling center or The University Medical Center Psychiatry Clinic. The contact numbers for the counseling center and the clinic are located on your informed consent document. Remember, you can choose not to participate in this study or not complete the survey at any time.

If you would like to participate in this research study, the survey is online and accessible via the URL link located on your consent form. By entering the link into your browser and completing the survey you are consenting to participation in this research study.

You are encouraged to sign and keep your informed consent document. If you have any questions now please ask them. If you have questions later, please contact me or Dr. Houser at the contact numbers listed on your informed consent document.”

APPENDIX C

DATA COLLECTION INSTRUMENT-STAI-TOTAL NUMBER OF RESPONSES AND
RESPONSES BY GROUP (1, 2, 3)

STAI Form Y-1

#	Question	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1	I feel calm	14 (4, 10, 0)	41 (22, 15, 4)	45 (12, 14, 19)	16 (5, 3, 8)
2	I feel secure	8 (3, 5, 0)	39 (19, 12, 8)	42 (13, 16, 13)	27 (8, 9, 10)
3	I am tense	21 (11, 4, 6)	43 (13, 12, 18)	25 (12, 8, 5)	27 (7, 18, 2)
4	I feel strained	30 (9, 5, 16)	27 (13, 8, 6)	36 (12, 18, 6)	23 (9, 11, 3)
5	I feel at ease	26 (9, 17, 0)	48 (21, 16, 11)	31 (10, 6, 15)	11 (3, 3, 5)
6	I feel upset	64 (20, 20, 24)	31 (15, 12, 4)	18 (6, 9, 3)	3 (2, 1, 0)
7	I am presently worrying over possible misfortunes	27 (5, 7, 15)	34 (14, 11, 9)	27 (11, 11, 5)	28 (13, 13, 2)
8	I feel satisfied	12 (7, 5, 0)	47 (22, 20, 5)	38 (11, 13, 14)	19 (3, 4, 12)
9	I feel frightened	58 (18, 19, 21)	28 (11, 10, 7)	21 (10, 8, 3)	9 (4, 5, 0)
10	I feel comfortable	13 (5, 8, 0)	45 (19, 18, 8)	40 (14, 13, 13)	18 (5, 3, 10)
11	I feel self-confident	12 (4, 8, 0)	44 (19, 14, 11)	39 (12, 16, 11)	21 (8, 4, 9)
12	I feel nervous	21 (5, 6, 10)	35 (10, 13, 12)	34 (16, 10, 8)	26 (12, 13, 1)
13	I am jittery	57 (18, 16, 23)	26 (14, 8, 4)	21 (5, 13, 3)	12 (6, 5, 1)
14	I feel indecisive	35 (16, 9, 10)	54 (19, 20, 15)	16 (6, 6, 4)	10 (1, 7, 2)
15	I am relaxed	29 (11, 16, 2)	45 (23, 12, 10)	25 (3, 9, 13)	17 (6, 5, 6)
16	I feel content	16 (6, 10, 0)	44 (21, 12, 11)	34 (8, 16, 10)	22 (8, 4, 10)
17	I am worried	15 (2, 3, 10)	40 (12, 15, 13)	32 (16, 10, 6)	28 (12, 14, 2)
18	I feel confused	59 (21, 18, 20)	34 (13, 14, 7)	19 (7, 8, 4)	4 (2, 2, 0)
19	I feel steady	11 (4, 7, 0)	55 (25, 20, 10)	33 (10, 13, 10)	16 (3, 2, 11)
20	I feel pleasant	13(7, 6, 0)	43 (21, 15, 7)	38 (11, 18, 9)	22 (4, 3, 15)

N=116

STAI Form Y-2

#	Question	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1	I feel pleasant	5 (1, 4, 0)	33 (12, 18, 3)	46 (19, 13, 14)	32 (11, 7, 14)
2	I feel nervous and restless	11 (5, 1, 5)	52 (14, 16, 22)	43 (21, 19, 3)	10 (3, 6, 1)
3	I feel satisfied with myself	7 (2, 5, 0)	44 (19, 21, 4)	43 (14, 13, 16)	22 (8, 3, 11)
4	I wish I could be as happy as others seem to be	34 (12, 7, 15)	42 (16, 15, 11)	25 (10, 11, 4)	15 (5, 9, 1)
5	I feel like a failure	64 (22, 16, 26)	38 (16, 17, 5)	12 (4, 8, 0)	2 (1, 1, 0)
6	I feel rested	31 (6, 21, 4)	47 (19, 17, 11)	29 (15, 3, 11)	9 (3, 1, 5)
7	I am "calm, cool, and collected"	16 (5, 10, 1)	46 (20, 20, 6)	34 (10, 10, 14)	20 (8, 2, 10)
8	I feel that difficulties are piling up so that I cannot overcome them	31 (11, 3, 17)	47 (15, 21, 11)	30 (14, 14, 2)	8 (3, 4, 1)
9	I worry too much over something that really doesn't matter	16 (4, 4, 8)	40 (14, 13, 13)	40 (16, 15, 9)	20 (9, 10, 1)
10	I am happy	3 (1, 2, 0)	21 (7, 11, 3)	51 (18, 22, 11)	41 (17, 7, 17)
11	I have disturbing thoughts	80 (27, 31, 22)	25 (9, 8, 8)	8 (4, 3, 1)	3 (3, 0, 0)
12	I lack self confidence	30 (11, 8, 11)	56 (19, 21, 16)	23 (10, 10, 3)	7 (3, 3, 1)
13	I feel secure	5 (2, 3, 0)	44 (17, 21, 6)	43 (16, 12, 15)	24 (8, 6, 10)
14	I make decisions easily	14 (6, 8, 0)	64 (27, 23, 14)	26 (6, 10, 10)	12 (4, 1, 7)
15	I feel inadequate	42 (14, 12, 16)	55 (22, 19, 14)	15 (5, 9, 1)	4 (2, 2, 0)
16	I am content	2 (0, 2, 0)	46 (21, 21, 4)	39 (12, 12, 15)	29 (10, 7, 12)
17	Some unimportant thoughts run through my mind and bothers me	24 (8, 9, 7)	51 (21, 15, 15)	33 (10, 14, 9)	8 (4, 4, 0)
18	I take disappointments so keenly that I can't put them out of my mind	25 (4, 12, 9)	42 (14, 13, 15)	32 (16, 9, 7)	17 (9, 8, 0)
19	I am a steady person	2 (0, 2, 0)	42 (19, 20, 3)	41 (6, 12, 13)	31 (8, 8, 15)
20	I get in a state of turmoil as I think of my recent concerns and interests	19 (6, 6, 7)	49 (15, 15, 19)	29 (12, 13, 4)	19 (10, 8, 1)

N=116

APPENDIX D

IRB APPROVAL LETTER

Office for Research
Institutional Review Board for the
Protection of Human Subjects

THE UNIVERSITY OF
ALABAMA
R E S E A R C H

April 15, 2013

Monika Gragg Wedgeworth
Capstone College of Nursing
The University of Alabama
Box 870358

Re: IRB # EX-13-CM-040: "A Cross-Sectional Analysis of State Trait Anxiety among Pre, Early, and Late Baccalaureate Nursing Students: Implications of Nursing Education"

Dear Ms. Wedgeworth,

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given exempt approval according to 45 CFR part 46.101(b)(2) as outlined below:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

- i. information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and*
- ii. any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.*

This approval expires on April 14, 2014. If the study continues beyond that date, you must complete the IRB Renewal Application. If you modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Please use reproductions of the IRB-stamped consent form.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB application number.

Good luck with your research.

Sincerely,



Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama



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