Walden University

COLLEGE OF EDUCATION

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Nancy Elkins

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2013

Abstract

Predictors of Retention and Passing National Council Licensure Examination for Registered Nurses

by

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MSN, Walden University, 2008

BSN, Ohio University, 2003

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Higher Education and Adult Learning Specialization

Walden University

September 2013

Abstract

The current nursing shortage has challenged colleges to educate nurses at a faster pace than in previous times. Successful completion of the nursing programs and passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) exam is important for the students, faculty, and nursing programs. The purpose of this retrospective study was to investigate the possible predictors of completing the baccalaureate nursing program at a college in the eastern part of the United States and passing the NCLEX-RN licensure exam. Using Spearman's classical test theory and Seidman's retention formula as theoretical foundations, this study investigated historical data from 2 graduating classes of the Bachelor of Science (BSN) nursing program to determine whether the admission variables of the preprogram grade point averages (GPA), American College Testing (ACT) scores, course grades in anatomy and physiology, and/or the Health Education System Inc. (HESI) Exit Exam scores could predict who was most likely to complete the nursing program, as well as pass the NCLEX-RN. A non-experimental study using the Pearson R correlational test identified a significant relationship ($p < .01$) between the preprogram GPA, ACT scores, anatomy grades, and the HESI Exit Exam scores with the completion of the BSN program and passing the NCLEX-RN. A prenursing course will be developed to help prepare students for the expectations of the program. The implications for positive social change include addressing the nursing shortage by decreasing nursing student attrition and increasing the number of nursing graduates, thereby improving healthcare throughout the United States.

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Dedication

I would like to dedicate this study to my family, for their unyielding love and support throughout the years in this educational journey, from going back to college to become a registered nurse to completing my doctoral degree. To my husband Jeff, who has been my support throughout this educational journey and encouraged me when I doubted my ability to complete this goal; my two daughters, Heather and Melanie, who have been so wonderful to encourage me and serve as a sounding board when I needed it; my mother Helen, who is always so proud of my accomplishments and believes in me; and also to my late father Charles, for knowing the value of an education and instilling in me this desire for lifelong learning as well as furthering my education.

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Section 1: The Problem

Introduction

The nursing shortage currently affecting the United States has challenged colleges of nursing to educate nurses at a faster pace to meet the rising demand for health care (American Association of Colleges of Nursing [AACN], 2011). Completing the nursing program and passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) upon graduation is important for students, faculty, and nursing programs due to the critical nursing shortage (AACN, 2011; Buerhaus, Staiger, & Auerbach, 2009). The registered nurse (RN) workforce is one of the top ten occupations in the United States with an expected job growth of 26%, which is an increase of 1.2 million nursing jobs through 2020 (AACN, 2012; Bureau of Labor Statistics, 2012). Because this nursing shortage continues to grow, nurse educators cannot afford to lose qualified students hoping to become RNs and must increase the retention rate of nursing students who take one of the limited, sought-after positions in a nursing program (Gilmore, 2008; McGregor, 2007; Porter, 2008). The National League for Nursing Accrediting Commission set the desirable retention rate at 80% in 1996; however, many researchers have reported attrition rates of 20% to 41% for nursing students (Ehrenfeld, Rotenberg, Sharon, & Bergman, 1997; Shelton, 2003; Uyehara et al., 2007; Vance & Davidhizar, 1997; Veenstra, 2009).

The NCLEX-RN licensure exam is the standard for all undergraduate nursing schools to determine if the graduate nurse is prepared to provide safe and competent care, but the pass rate for the exam is also a way to judge the effectiveness of the nursing

program (Giddens, 2009). Little empirical data exist regarding retention in a Bachelor of Science (BSN) nursing program and the ability to predict success on the NCLEX-RN exam using student scholastic and aptitude data. In this study, I explored the factors that may influence the retention rate of nursing students and the nursing educator's need to determine the possible predictors of completing the BSN nursing program at a 4-year college in the eastern part of the United States and passing the NCLEX-RN licensure exam. Section 1 presents the local problem that prompted the study and provides an overview of the quantitative research method used, as well as the theoretical framework, review of the literature, implications, and the significance of this research endeavor on nursing education and healthcare in the United States.

Definition of the Problem

The current nursing shortage has created a demand for RNs in the workforce that is expected to continue to grow, with projections that by 2020 the United States will need an additional 340,000 RNs, and by 2025 the country will need an additional 500,000 RNs (Buerhaus et al., 2009). As the baby boomer generation, which is the largest generation of the United States and includes individuals born between 1946 and 1964, reaches the age where they need nurses to care for them, they will be challenged to find qualified and competent nurses to help with their health care needs (American Association of Retired Persons [AARP], 2009). Thus, as the population ages, the growing need for RNs is expected to intensify the nursing shortage (AACN, 2010; American Nursing Association [ANA], 2010).

The U.S. Department of Labor (2007) reported that the number of employed RNs is expected to grow from 2.74 million in 2010 to 3.45 million in 2020 (AACN, 2012). The public's need for nurses is projected by the Bureau of Labor Statistics (2012) to grow faster than for any other profession. The average age of an RN is 46.8 years, with only 8% under age 30, which helps contribute to the shortage of nurses (American Association of Colleges of Nursing, 2010; American Nursing Association, 2010; U.S. Department of Health Resources and Services Administration, 2004). As these RNs get ready to retire within the next 15 years, there will not be enough new graduate nurses to fill these positions, which will only make the nursing shortage more critical in years to come.

According to Glazer and Alexandre (2008), the current nursing shortage must be realized by consumers, providers, and financers of health care as a public health emergency for all Americans, as well as a threat to patient access for quality healthcare. Nursing programs are limited to the number of students who can be admitted; therefore, it is important that those students admitted complete the program in order to increase the overall number of nursing graduates (Jeffreys, 2012). The need for testing prior to admittance into the nursing program is an option that has been shown to be useful in the admission process when trying to admit those students most likely to complete the program (Grossbach & Kuncel, 2011; Shirrell, 2008; Simmons, Haupt, & Davis, 2004).

Due to the nursing shortage, most nursing programs face pressure to increase their enrollment and expedite the entry of these new graduate nurses into the workforce. Nursing programs also face the pressure of having the graduates pass the NCLEX-RN licensure exam on the first attempt because not maintaining at least an 80% passing rate

can be a factor jeopardizing nursing program accreditation status (Adamson & Young, 2012; Murray, Merriman, & Adamson, 2008). The admission of applicants to the nursing programs who are not retained to complete the program only compounds the nursing shortage problem.

Because baccalaureate nursing (BSN) curricula is known by faculty and institutions to be academically rigorous, it is important to select applicants on admission with high scholarly aptitudes. Past studies indicated that nursing students who are minimally qualified upon admission are most likely to fail the NCLEX-RN (Beeson & Kissling, 2001; Landry et al., 2010; Seldomridge & DiBartolo, 2004; Uyehara et al., 2007). It is important for nursing programs to identify admission screening criteria that will accurately predict completion of the BSN program at the time of admission, which will help reduce attrition rates in the program. Many nursing programs are using testing to help predict if the student will pass the board exam on the first attempt (Roa et al., 2011). The BSN program at the college in this study uses the Health Education System Inc. (HESI) exam, a problem-based learning (PBL) exam, to measure preparedness for taking the NCLEX-RN exam and for remediation.

Nursing students have a choice of three basic types of nursing programs to prepare them for the role of the RN. Students choose to attend a diploma program that is sponsored by a hospital, an associate degree nursing (ADN) program, or a BSN program in order to qualify for taking the NCLEX-RN exam. These programs have different requirements and length of completion times, but they all prepare graduates to take the NCLEX-RN.

Leaders in nursing programs throughout the United States, despite the differences in educational systems, are concerned about the critical need to improve student retention (Hopkins, 2008). Attrition of nursing students is a concern for nursing educators because it is a significant problem affecting nursing programs throughout the United States and is associated with the critical nursing shortage (Gilmore, 2008; Jeffreys, 2007; Yigezu, 2009). According to Peterson (2009), nursing student attrition affects the number of nursing graduates entering the workforce; increasing the number of nursing graduates would help alleviate the nursing shortage. In addition, it is a waste of time and resources for students when they are not successful in completing the nursing program. Peterson showed that the attrition rate is approximately 30% for students admitted into a BSN program and 82% of these students leave in the first semester of the program. The national dropout rate for nursing programs in the United States is 20%, and this high attrition rate is considered problematic (National League for Nursing [NLN], 2008).

In order for a graduate to be eligible for taking the NCLEX-RN, the nursing program must be approved by the State Board of Nursing. A factor jeopardizing program accreditation status includes failure to maintain at least 80% passing rate on the licensure examination by first-time candidates (National Council of State Boards of Nursing [NCBSN], 2009b). The State Board of Nursing monitors the NCLEX-RN pass rates of the program's graduates, so the potential for loss of board approval due to poor pass rates is of great concern for the educational administrators, nursing educators, and nursing students.

According to the chair of this institution's school of nursing, the State Board of Nursing reviews the school's annual report, which includes the retention rate and pass rates on the NCLEX-RN. Each State Board of Nursing can set its own recommended pass rate on the licensure exam, and this State Board of Nursing has set the minimum pass rate at 80% for each nursing school in the state (personal communication, Dec. 29, 2011). The Title 19 legislative rule for the State Board of Nursing governing this institution outlines what would happen to an accredited nursing school that has a high failure rate on the national licensure (Board of Examiners, 2009). Title 19CSR1 states that

> any professional nursing school having a 20% or higher failure rate on the national licensure examination, shall receive a warning from the Board. If changes, correction and/or adjustment relative to faculty, facilities, student admission, curriculum content, and/or methods of teaching are not initiated within a specified time and such action approved by the Board, the Board may impose additional requirements or restrictions on the program. (Board of Examiners, 2009, p. 6)

The Board of Examiners may also request additional reports from a nursing school, such as written plans for improving the pass rates on the NCLEX-RN exam for graduates and progress reports.

The attrition rates vary across the United States among nursing students in the different nursing programs. The national average first-year attrition rate for diploma students is 25%, the ADN student attrition rate is 20%, and the BSN student attrition rate is 13% (Buerhaus et al., 2009; Kaufman, 2008; NLN, 2008). The attrition rate for this

generic, or entry level, BSN nursing program was 17% in 2010 and 19.2% in 2011, which is significantly higher than the national average of 13% for BSN programs.

Researchers have identified the shortage of trained nursing faculty as a primary factor in the nursing shortage (AACN, 2010; Auerbeck et al., 2007). The Bureau of Labor Statistics projected the need for more than 580,000 RNs by the year 2018; to meet this need, nursing schools are trying to produce competent nurses and maintain quality nursing programs (AACN, 2010). The National League for Nursing Accrediting Commission, Inc. (NLNAC) accredits all types of nursing education programs in postsecondary and higher degree nursing programs. The NLNAC (2008) defined accreditation standards as "agreed upon rules to measure quantity, extent, value, and quality" (p. 10). The NLNAC's definition of quality states that "the core values of accreditation emphasize learning, community, responsibility, integrity, value, quality, and continuous improvement through reflection and analysis" and that "quality in education ensures high levels of opportunity for student learning and achievement" (p. 10).

There is also a shortage of nurses with master's or doctoral degrees, which is a qualification required to teach nursing students in the RN programs (Allan & Aldebron, 2008; Murray et al., 2008). Because of the shortage of qualified nursing faculty, these vacant nursing faculty positions are difficult to fill. This nursing faculty shortage has an impact by limiting the number of students who are admitted to nursing programs, which contributes to the critical nursing shortage.

In this quantitative, descriptive, nonexperimental study, I used secondary data analysis to investigate the factors related to retention and successful completion of the

BSN nursing program, as well as first-time pass rates on the NCLEX-RN exam in a generic BSN nursing program. Student attrition rates in this program were 17% in 2010 and 19.2% in 2011. The problem of nursing student attrition in this generic BSN nursing program affects the nursing students and faculty, as well as the reputation of the nursing program. The attrition rate can also affect the approval of the nursing program by the State Board of Nursing as well as the national accrediting organizations, such as the National League for Nursing Accreditation Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE).

Rationale

Evidence of the Problem at the Local Level

Selecting the best possible candidates who are likely to complete the nursing program and pass the licensure exam in a timely manner is of vital importance. Attrition in this baccalaureate nursing program continues to be a problem and finding a way to help decrease the attrition rate would help meet both the nursing students' goal of becoming RNs and the nursing program's goal of preparing students for providing competent care as RNs. The attrition rate in this BSN nursing program averaged approximately 20% in 2010 and 2011. Due to the current nursing shortage in the United States and an admission waiting list of nearly 300 candidates in prenursing courses, this nursing program is challenged to produce more graduates who can pass the NCLEX-RN on their first attempt and start their practice as nurses. By evaluating the admission variables and the HESI Exit Exam scores, I determined the relationship of these factors to graduating and first-time passing the NCLEX-RN exam. The purpose of this quantitative

retrospective study was to investigate the possible predictors of success in completing the baccalaureate nursing program at a college in the eastern part of the United States and passing the NCLEX-RN licensure exam.

The BSN nursing program at this 4-year college uses the HESI exam, a problem-based learning (PBL) exam, to measure preparedness for taking the NCLEX-RN exam and for remediation. The HESI is a comprehensive computerized exam that gives immediate feedback to the students about where progression and remediation are needed based on the HESI scores. The HESI exams are being used as an intervention to help prepare nursing students for taking the NCLEX-RN board exam after completing the nursing program and as a predictor to their success in passing the board exam.

The HESI Exit Exam is given to the senior nursing students prior to graduating, and the scores are used to predict success on the first time passing of the NCLEX-RN examination. A score of 850 or higher on the HESI Exit exam is the current benchmark used by the nursing program to predict success on the NCLEX-RN. Evolve, which is the parent company for the HESI Exit Exam, has shown that 98% of students with a score of 900 or above on the HESI Exit Exam will successfully pass the NCLEX-RN (Nibert, Young, & Adamson, 2002).

In this study, I sought to determine whether the admission variables of the preprogram grade point averages (GPA), American College Testing (ACT) assessment scores, course grades in anatomy and physiology, and the HESI Exit Exam scores may predict student success. By using historical data from two graduating classes of the baccalaureate nursing program, between May 2010 and May 2011, I sought to determine

if there is a relationship among selected factors (preprogram GPA, ACT scores, course grades in anatomy and physiology, HESI Exit Exam) related to passing of the NCLEX-RN licensure exam. The findings may be used to help identify variables that could predict performance on the NCLEX-RN and to support recommendations for program and policy changes.

Currently, the nursing program does not require the nursing students to complete a HESI entrance exam prior to starting in the nursing program, and the criteria for admissions are based mainly on grade point average (GPA), American College Testing (ACT) scores, and course grades of prerequisite courses. By identifying students at risk for attrition early in the nursing program, extra remediation or other interventions could be put in place to help with retention of these at-risk students. Identifying at-risk students could help decrease the attrition rate, which would help increase the number of nursing students completing the program and passing the licensure exam and therefore help to alleviate the nursing shortage.

The BSN nursing program at this 4-year college has been using the HESI exams since 2001. The HESI exam data was evaluated to see if the scores on the HESI Exit Exam predict completing the program and passing the NCLEX-RN on the first attempt. Students falling below that success score range could be identified as at risk for not passing the NCLEX-RN exam on the first attempt, and extra remediation or other interventions could be implemented to help prepare these students for passing the NCLEX-RN exam. Identifying the score range on the HESI Exit Exam of students completing the nursing program and passing the NCLEX-RN on the first attempt could

assist administrators of BSN programs in identifying nursing students who will be most likely to be successful in completing the nursing program and passing the NCLEX-RN exam. This information could also help identify students at risk for attrition and not passing the NCLEX-RN exam.

The implications for positive social change include addressing the attrition of nursing students and the nursing shortage by identifying variables that could predict success for nursing students completing the program and passing the licensure exam. Other implications for positive social change include revisions in nursing education policies and practice in preparing students for the NCLEX-RN. The analysis of the findings in this study could help nursing educators identify those nursing students who might require additional remediation or other academic support throughout the nursing program in order to help them pass the NCLEX-RN exam. These positive social changes may not only help with nursing student attrition, but may also increase the number of RNs to meet the nursing shortage crisis.

Definitions

The following terms were defined for this study:

American College Test (ACT): A national college admissions and placement exam, which has subject areas including English, math, science, and reading. The ACT provides an assessment of knowledge of subject matter taught in high school and the likelihood of success in college. The ACT Composite score is the average of four academic test scores in English language and composition, mathematics, science, and reading reasoning and is reported on a scale of 1 to 36 (ACT, 2009).

Attrition: A student who discontinued enrollment in the nursing program between the sophomore year through the senior year in the nursing program (Alden, 2008; Jeffreys, 2012).

Baccalaureate nursing program: A 4 year accredited nursing program that will result in a BSN degree upon successful completion of the program. The BSN program in this study includes one year of prerequisite nursing, science, and liberal arts courses completed prior to start of the nursing program in the sophomore year (Newton & Moore, 2009).

Bachelor of Science in Nursing (BSN) degree: The nursing degree obtained by the graduate nursing student upon successful completion of the 4 year accredited nursing program. Graduation from the state-accredited, NLN-approved program used in this study allows the student to take the NCLEX-RN licensure exam (Newton & Moore, 2009).

Completion of the program: The student completed the nursing program in the standard 3-year time period between the start of the nursing program in the sophomore year through graduation in the senior year (Jeffreys, 2007).

Continuous program retention: The student completed the nursing program (part-time or full-time) by taking the required courses sequentially to meet the nursing program's graduation requirements, possibly including courses repeated due to withdrawing and/or failure of courses. The standard 3-year time period for completing the BSN program is between the start of the nursing program in the sophomore year through graduation in the senior year (6 or more semesters). The BSN program policy

states that the student must complete all required nursing courses within five years, and the five years starts from the time the first nursing course is taken. The ideal program retention is not included in the continuous program retention category for the purpose of this study (Jeffreys, 2007).

First-Time Passage on the NCLEX-RN: When the graduate nursing student passes the NCLEX-RN licensure exam on the first attempt. A nursing graduate is allowed to take the exam up to four times, but passing the exam on the first attempt is important for nursing program evaluation and accreditation (National Council of State Boards of Nursing, 2009).

Graduate: A student who has successfully completed the nursing program and is eligible to sit for the NCLEX-RN Examination (Nibert, Young, & Adamson, 2008).

Health Education System Inc. (HESI) examinations: A problem-based learning (PBL) computerized exam, used to measure preparedness for taking the NCLEX-RN exam and for remediation (De Lima et al., 2011)

Ideal program retention: Completing the required courses sequentially in the BSN program, in the time period of three years from admission in the sophomore year to graduation in the senior year (6 or more semesters) without evidence of withdrawal or failure (Jeffreys, 2007).

Involuntary attrition: When a student drops out of the BSN nursing program due to academic reasons, such as failure of two nursing courses or dismissal from the program (Jeffreys, 2007). The BSN nursing program policy states that students who fail a

nursing course must reapply to the nursing program and will be re-admitted based on space availability determined by the admissions committee.

National Council of Licensure Examination for Registered Nurses (NCLEX-RN): An examination that a graduate nursing student must pass in order to be licensed as an RN. The exam "measures the competencies needed to perform safely and effectively as a newly license, entry-level nurse" (NCSBN, 2010, p. #1). The exam was developed by the National Council of State Boards of Nursing to "provide an organization through which boards of nursing act together on matters of common interest affecting the public safety" (NCSBN, 2010, para. 2).

Predictive accuracy: The ability of an instrument to differentiate between the performances of people on some future criterion. Predictive accuracy is defined for this study as the scores achieved on a prerequisite course, or a specified placement test, such as ACT scores, and how they correlate with successful completion of the BSN program (Polit & Beck, 2004; Polit, Beck, & Hungler, 2001).

Retention: The continuous enrollment of the nursing student from the start of the sophomore year in the nursing program until graduation from the nursing program (Alden, 2008).

Success: Achieving a score of 850 or greater on the HESI Exit Exam, which predicts passing on the first attempt on the NCLEX-RN examination. Successful passing of the NCLEX-RN examination is reported by the state board of nursing (Nibert, Young, & Adamson, 2008).

Voluntary attrition: When a student drops out of the BSN nursing program due to non-academic reasons (Jeffreys, 2007).

Withdrawal: When the student officially withdraws from a college course, due either to academic reasons or personal reasons (Jeffreys, 2007).

Significance

This study investigated the factors related to retention and successful completion of the BSN nursing program, as well as first-time NCLEX-RN pass rates of nursing students at a 4-year college in the eastern United States. This problem affects not only the BSN nursing program at this college, but with other nursing programs throughout the country (McLaughlin, Moutray, & Muldoon, 2008). There is little empirical data regarding whether retention in a BSN program and successfully passing the NCLEX-RN exam can be predicted using student aptitude data (Newton & Moore, 2009). The nursing shortage has impacted the push to graduate more nursing students who have successfully completed their program and pass the NCLEX-RN board exam on the first attempt. Historically, attrition and retention of nursing students has been a concern for leaders in nursing education and institutions of higher education (Gilmore, 2008; McLaughlin, 2008).

The attrition rate for this BSN nursing program was 17% in 2010 and 19.2% in 2011. By evaluating the admission requirements, the HESI testing and remediation, and the relationship with the successful completion of the program, I planned to evaluate for any significant relationships that may identify students at risk for not completing the program or passing their boards successfully.

The BSN nursing program at this college has been using the HESI exams for 11 years. By reviewing the data collected using the HESI, I intended to evaluate if the HESI was effective in assisting students to successfully complete the nursing program and pass the NCLEX-RN exam. The results of this study could help determine whether to continue to use the HESI testing and remediation procedures this nursing program has been using, or if extra remediation work, such as case studies, would work better to help improve the success rates in completing nursing programs and passing the NCLEX-RN exam. The results of this study may assist administrators of BSN programs in identifying nursing students who will be most likely to be successful in completing the nursing program and passing the NCLEX-RN exam, thereby helping with retention and promoting program completion in the nursing program and helping meet challenge of the nation's growing deficit of nurses.

Guiding/Research Questions

The overarching research questions for this study were the following:

1. Is there a significant relationship among selected factors (preprogram GPA, ACT scores, anatomy and physiology course grades, HESI Exit Exam) related to completion of the BSN nursing program and passing the NCLEX-RN exam?
2. Does the HESI Exit Exam score predict success on the NCLEX-RN exam?

The following secondary questions were also addressed:

1. What preprogram admission criteria best predict completion of the nursing program and passing the NCLEX-RN exam?

2. What is the HESI Exit Exam score range that predicts the first time pass rate on the NCLEX-RN?

Research Hypotheses

The null and alternative hypotheses for this study were the following:

$H1_0$: There is no statistically significant relationship between the selected factors (preprogram GPA, ACT scores, course grades in anatomy and physiology, and the HESI Exit Exam) related to retention and successful completion of the BSN nursing program and passing the NCLEX-RN exam.

$H1_A$: There is a statistically significant relationship between the selected factors (preprogram GPA, ACT scores, course grades in anatomy and physiology, and HESI Exit Exam) related to the retention and successful completion of the BSN nursing program and passing the NCLEX-RN exam.

$H2_0$: There is no statistically significant relationship between the HESI Exit Exam scores and successfully passing the NCLEX-RN licensure examination on the first attempt.

$H2_A$: There is a statistically significant relationship between the HESI Exit Exam scores and successfully passing the NCLEX-RN examination on the first attempt.

For the Null Hypotheses 1-2, the following academic factors/scores were used as independent variables: preprogram GPA, ACT scores, anatomy and physiology course grades, and the HESI Exit Exam. The dependent variable of student retention was measured as continued enrollment at the final term of the BSN program. The dependent variable of student success was measured using BSN program completion status

(completer versus noncompleter) and individual success status (pass/fail) on first attempt of the NCLEX-RN licensure exam.

Theory

Theoretical Framework

The theoretical framework for this study is based upon the theories of Spearman (1904, 1907, 1913), and Seidman's (2005) retention formula for student success. The classical test theory, which was established by Charles Spearman (1904, 1907, 1913), is based on the concept that each person has a true score (T), which would be obtained if there were no errors in measurement (E), but it is the reliability of the observed score (X) that is found to be the true score. Although I did not conduct specific hypothesis testing of these theories, these theories served as a guide for assessing the academic variables such as admission data and HESI Exit Exam scores as predictors of student retention and success in completing this BSN program and passing the NCLEX-RN licensure exam on the first attempt.

Spearman was the originator of the classical theory of mental tests, the multivariate statistical method called *factor analysis*, and the first comprehensive theory of the intellect called *two-factor theory of intelligence* (Williams, Zimmerman, Zumbo, & Ross, 2003). The classical test score theory introduces three basic measurement concepts: (a) test score or observed score, (b) true score, and (c) error score. The starting point in the classical theory is $X = T + E$, where X is the observed score, T is the true score, and E is the error score. Researchers want to find out the true measurement, but the errors of

measurement may obscure the true measurement, so it was important to minimize these errors, which are important topics in the test theory with test reliability and validity.

The classical test theory established the origin of the classical true score model, which has as its foundation the perception of an individual test score as a random variable (Crocker & Algina, 1986). The student's true score, obtained score, and random error of measurement are measured by tests constructed using the classical test theory. A test score is one of many possible scores that a student can achieve with taking the same test multiple times. A student's true score can be established by identifying the expected value of a test score after administration of the same test multiple times. By decreasing the error score, the student's observed score will become a more reliable indicator of the student's true score on the test. Essentially, it is postulated that the observed score combined with the random error score makes up the individual's true score, and all of these components are identifiable (Crocker & Algina, 1986).

Properties, established in the classical true score model, for the true and error scores include that the mean error scores for a population be zero, the correlation between the true and error scores for a population should be zero, and the correlation between the error scores of two separate testing should be zero. These properties establish the correlation between equivalent measures and establish reliability of the test scores. The Spearman-Brown formula for theoretical test lengthening shows the influence of test length on test reliability (Williams et al., 2003). Spearman also created the two-factor theory of intelligence used to measure one general factor, or g factor, which is the general ability common to most cognitive tests, and an additional specific factor unique to that

test. Many well-known intelligence tests, such as the Raven's Progressive Matrices, have been based on Spearman's two-factor theory (Williams et al., 2003).

In order to determine the reliability of a multiple-choice test and improve its reliability in the future, it is important to conduct an analysis of the test items after administering the test. This multi-step process for test construction includes establishing the need for the test, developing the test objectives and how the questions meet these objectives, and developing a test blueprint (Morrison & Free, 2001). This multiple step process for test construction is utilized by the HESI in constructing test questions and also by the National Council of State Boards of Nursing (NCSBN) in developing a blueprint for the NCLEX-RN exam.

According to Nibert et al. (2006), "the classical test theory provides a sound theoretical framework for assessing the value of the HESI Exit Examination in predicting NCLEX-RN outcomes" (p. 305). Nibert et al. discussed how there will always be an element of uncertainty about the student's performance on a certain test day. The HESI Exit Exam outcome is the predictor variable that can predict the student's performance in the future on the NCLEX-RN, or the criterion variable.

This classical test theory allows the HESI Exit Examination scores to be used by nursing faculty to determine the nursing student's probability of passing the NCLEX-RN and their risk of failing it. Standardized assessment exams, such as the HESI Exit Exam, allows for the existence of a category of students who are described as indeterminate or having some degree of risk for NCLEX-RN failure, and not just into two categories predicted to pass or predicted to fail the NCLEX-RN. The objective of using these

standardized assessment exams, such as the HESI, is to identify students with gaps in their nursing knowledge so that remediation can occur, and can provide valuable feedback to the students, administrators, and faculty on how the students are doing, as well as compare the students to other nursing students throughout the country.

According to Seidman's (2005) retention formula for student success, retention refers to a student meeting their goal of graduating from a major area of study or discipline. Through early identification of students who are likely to be unsuccessful, assistance in helping these at-risk students can begin as soon as they are identified as likely to be unsuccessful. Based on Tinto's (1987) retention model, Seidman argued that early intervention that is intensive and continuous will help with student retention and help the students be successful by meeting their goal of graduating. Tinto (1987), who is cited by many researchers for his foundational theories on student attrition, attributed student attrition to the conscious decision of the student to withdraw from college and argued that retention programs are tied to the admission process. Tinto's (1975) theory attempted to explain the interaction between the student and the institution and how the student's level of motivation to succeed as well as their educational expectations and career goals play an important part in the student's decision to withdraw from college.

Seidman (2005) recommended that colleges support students through intensive intervention as soon as they are identified as being at-risk. The student should be frequently assessed for progress in mastering these identified skills until the desired skills are attained. Seidman argued that colleges should offer these interventions or programs to assist these students even prior to enrollment, to help them become successful. Even

though many nursing students have the same goals of graduating from the nursing program and all meet the requirements for admission, many of the students have varying levels of preparation when it comes to the four core areas of college preparation in reading, math, science, and language (Tinto, 2007).

Seidman's (2005) formula for student retention shows that successfully completing a program of study and graduating is a goal that is attainable for these at-risk students if they are identified early on and early intervention or assistance is made available. In completing this literature review, the majority of the literature that pertained to variables in achieving success in nursing programs or on the NCLEX-RN did not indicate the use of any theoretical frameworks as a basis for conducting their studies. By identifying the variables that best predict student success in completing the baccalaureate nursing program and successfully passing the NCLEX-RN on the first attempt, this may help nurse educators to identify these at-risk students who are likely to struggle in the nursing program, and will help increase the retention rates of the nursing students.

Literature Review

Evidence of the Problem

The purpose of conducting the literature review was to assess and critically analyze the research that related to variables predictive of completion of nursing program in a timely manner and passing the NCLEX-RN licensure exam on the first attempt. An exhaustive search and review was conducted using peer reviewed or refereed research articles. The focus of this search for this study included multiple resources, including the Walden Online Library and a local university library.

The databases used for this study included Academic Search Premier, CINAHL Plus with Full Text, EbscoHost, Education Resources Complete, ERIC, PsycInfo, ProQuest, SocioINDEX with full text, MEDLINE, and the ProQuest Digital Dissertation database. Key search words used in the search included: *nursing student, nursing student attrition, nursing student retention, nursing program failure/success, entrance scores, entrance requirements, NCLEX-RN success/performance, NCLEX-RN failure, nursing shortage, predictors of success, academic predictors of success, nonacademic predictors of success, retention theories, classical test theory, preadmission screening, and nursing education.*

The research articles were critically analyzed and are presented in the following discussion. The search for new research articles was completed on a continual basis. This review includes research articles conducted within the past 5 years; those older than 5 years were reviewed but not included unless they were especially pertinent to this study.

The Nursing Shortage

The nursing shortage supports the need to improve the NCLEX-RN pass rates and to decrease the attrition rates for the nursing students. Barry (2002) indicated that approximately one half of all nurses will retire from the workforce in the next 15 years. The U.S. Department of Labor projected that the United States will need more than a million additional nurses by the year 2018, and many of them will replace nurses who are expected to retire in the near future (Bureau of Labor Statistics, 2008). According to Buerhaus (2009), 2001 predictions were that by the year 2020 there would be a shortage of more than 400,000 RNs, but the 2009 estimates on the nursing shortages have grown

to more than a million. Despite the current recession that is affecting the employment climate, healthcare employment continues to grow and increased by more than 9,000 new jobs in June 2010, a month where 125,000 jobs were eliminated across the country (Bureau of Labor Statistics, 2012). With RNs making up the largest segment of the healthcare workforce, they will likely be filling these new jobs (AACN, 2010).

Although some RNs are delaying retirement or working longer hours to support their family when their family has experienced job losses, the nurses delaying retirement or working longer hours have not added new nurses to the workforce to fill these new RN positions created. The Bureau of Labor Statistics estimated that through 2016 more than 587,000 new RN jobs will be created (AACN, 2009). Even with a 5.7% increase in baccalaureate nursing programs in 2010, this small increase will not be sufficient to meet the future projected nursing shortage (AACN, 2011). In a recent report, nursing schools in the United States were unable to accept 67,563 qualified applicants in 2010 from baccalaureate and graduate nursing programs due to lack of sufficient number of faculty, classrooms, and clinical sites, as well as budgetary issues (AACN, 2011).

The Nursing Faculty Shortage

Nursing schools have to deal with a nursing faculty shortage, which also impacts the number of students who can be enrolled in the nursing programs. According to the Southern Regional Education Board (2002), there were 432 nursing faculty vacancies reported in 2002, and the shortage of available nurse educators has many baccalaureate nursing programs recruiting master's prepared nurse educators to fill these faculty vacancies (Anderson, 2009). In the American Association of Colleges of Nursing

(AACN, 2010) report on 2009-2010 enrollment in baccalaureate and graduate programs, the nursing schools in the United States turned away 54,991 qualified applicants due to lack of qualified faculty, insufficient clinical sites, limited classroom space, and budget cuts.

The number of students that can enroll in nursing schools is many times limited due to a lack of qualified nursing faculty (Allen, 2008; NLN, 2011; Roman, 2008; Walrath & Belcher, 2006). This shortage of nursing faculty throughout the United States has lead to the hiring of nurses with baccalaureate degrees in nursing (BSN) to teach the clinical courses, with supervision from faculty who have graduate degrees (Roehrs, 2011). The faculty shortage will grow because more nursing faculty will be required to obtain a master's degree in nursing because of a requirement by state government agencies that associate degree nursing (ADN) and licensed practical nursing (LPN) programs seek accreditation from the National League for Nursing Accrediting Commission (NLNAC) by 2010 (NLNAC, 2008).

Due to the nursing faculty shortage and nursing shortage impacting the United States, it is important to ensure that the limited number of nursing students who are able to enter the programs will succeed in completing the programs and successfully pass their NCLEX-RN exam on the first attempt. The National League of Nursing (NLNAC, 2005) accreditation requirements for nursing schools mandate that one nursing instructor may have no more than 10 students in a clinical practice site. Some of the clinical agencies or hospitals require that the nursing instructor have no more than six to eight students with

each instructor. These mandates or requirements create the need for a large pool of nursing faculty to teach in the schools of nursing.

The capacity for enrolling students in nursing schools is directly related to the nursing faculty shortage (Allan & Aldebron, 2008; Murray et al., 2008; Roehrs, 2011). A shortage of master's and doctoral prepared nurses qualified to teach nursing students exists nationwide, which makes filling these nurse educator positions even more difficult (Allen, 2008; Larson, 2006). The average age of nursing faculty in baccalaureate and graduate programs is 51.5 years of age, and the nursing faculty usually start teaching later in their career with the average age of retirement around 62.5 years of age (Allen, 2008; Tanner, 2006; Yordy, 2006).

In a recent survey of nursing faculty in Colorado, it was shown that their teaching and family responsibilities were important to them, but 83% indicated that barriers for graduate studies were being unable to decrease their current teaching load and finding time for graduate studies (Roehrs, 2011). This study indicated that the reasons for faculty shortage included the retirement of faculty, teaching workload, compensation, cost of graduate education, and the lack of sources of funding or scholarships for graduate education (Roehrs, 2011). With the acute shortage of nurses, as well as the acute shortage of nursing faculty, it is of great concern to admit nursing students who will be successful in completing the nursing program and pass the NCLEX-RN exam.

End of Program Testing - Health Education Systems, Incorporated (HESI) Exams

The HESI is a comprehensive computerized exam that gives immediate feedback to the nursing students so that if the students need remediation, the students can do so.

Progression through the nursing program is also based on the Health Education System Inc. (HESI) scores. According to Spaulding (2008), a program evaluation is used to help make decisions about a program to determine if any improvements or changes need to be made. By evaluating the nursing program's use of the HESI testing, the data could help determine whether to continue to use the HESI testing and remediation procedures the program has been using, or if another type of testing or strategies would work better to help the students complete the program and pass their nursing boards.

Nursing schools have used the evidence-based results from the HESI Exit Examination validity studies to help them assess student progress through the curriculum. The HESI Exit Examination was reported to be 96.36% to 98.30% accurate in predicting success on the NCLEX-RN in studies conducted over four consecutive years (1996-2000) with a sample of 17,342 RN students (Lauchner, Newman, & Britt, 1999; Newman, Britt, & Lauchner, 2000; Nibert, Young, & Adamson, 2002).

The results of a study on the HESI Exit Exam showed that as the HESI Exit Examination scores decreased, there was an increase in the percentage of NCLEX-RN failures (Nibert et al., 2002). "Low HESI Exit Examination scores do not mandate that students must experience a fatal NCLEX-RN outcome" (Nibert et al., 2006, p. 306). This should be used as a warning that the student may be at risk for failing the NCLEX-RN and is an opportunity for the student to engage in remediation or other learning interventions recommended by the faculty. This study determined that a variety of performance evaluation tools, not just one, should be used to assess the student progress over the course of the program. These different evaluation tools, such as teacher-made

exams, clinical performance evaluations, graded papers and presentations, and other evaluation measures should be used to determine progression and graduation from the program (Nibert et al., 2006).

In determining strategies to raise the NCLEX-RN pass rate and lower the attrition rate in a community college nursing program, Higgins (2005) showed a relationship between passing the NCLEX-RN and the variables of two biology courses, the preadmission test component of science, HESI Exit Exam scores, and the nursing skills course. The study showed a relationship was between the preadmission assessment and reassessment after completing the nursing skills course and the HESI Exit Examination. Higgins (2005) recommended that students receive individual advising and referral for study skills after each of these assessments because this helps identify at-risk students. By identifying these at-risk students early on, this helps to increase the retention rates and increases the chances for student success in completing the nursing program and on the NCLEX-RN exam.

The National Council Licensing Examination for Registered Nurses (NCLEX-RN)

The National Council Licensing Exam for registered nurses (NCLEX-RN) is the final exam that all graduate nurses are required to pass for entry into the practice of nursing. The NCLEX-RN is designed to measure if the candidate possesses the minimum knowledge and abilities to provide entry level nursing care in a safe and effective manner. The exam consists of 75 to 265 test items with a variety of formats, such as multiple choice questions, multiple response, fill-in-the-blank calculations, and charts and graphs (National Council State Boards of Nursing [NCSBN], 2009a).

The NCLEX-RN exam is controlled by the National Council State Boards of Nursing, and every three years the passing standard is increased to meet the advancement and complexity in patient care (NCSBN, 2009a). The NCLEX-RN exam was updated in April 2010 due to an increased demand by employers for a higher level of competence for entry-level nurses and was based on a national practice survey, which included the frequency and importance of 155 nursing activities performed at bedside nationally (NCSBN, 2010).

According to the National NCLEX-RN pass rates (NCSBN, 2011), as of June 2011, 91.97% of the 31,608 baccalaureate degree first time applicants passed the NCLEX-RN exam on the first attempt. This compares to a 91.22% first time pass rate for 1,572 diploma first time applicants, and the 89.52% pass rate for 47,005 first time associate degree applicants. As of June 2011, the overall first time pass rate for all NCLEX-RN applicants is 87.20% for the 85,280 applicants, and the overall pass rate for 18,336 repeat test takers is 41.99% (NCSBN, 2011). These data are evidence that the chance of passing the NCLEX-RN exam, on subsequent attempts to retake the exam, decreases significantly if failing the exam on the first attempt.

The Stakeholders Affected by Failure of NCLEX-RN

There are three major stakeholders affected by failure on the NCLEX-RN exam, and these include the graduate nurse, the nursing program, and the healthcare organization (Greenspan et al., 2009). The costs of failure are immense for all of these stakeholders, and strategies for success should include a collaborative partnership between the nursing programs and health care organizations. Some suggestions for

collaboration include providing psychological support to those graduates who are devastated by failing the NCLEX-RN, providing review programs, and also coaching to prevent the graduate from having a repeat failure on the exam or giving up trying to retake the exam (Roa et al., 2011). The effects of not passing the NCLEX-RN exam can be devastating for nursing students, but even when baccalaureate of science in nursing (BSN) students graduate from a program, they can still be at risk for failing the NCLEX-RN exam (Newton & Moore, 2009; Seldomridge & DiBartolo, 2004; Stuenkel, 2006).

Through September 2011, the NCLEX-RN exam passing rate was 85.53% for first time graduate nurses, which meant that 14.47% of the graduate nurses ended up failing the NCLEX-RN (NCSBN, 2011). The cost for the graduate nurse for failing the NCLEX-RN includes an immediate loss in wages for three months with tuition loan payments coming due soon. Based on the average wage for RNs throughout the United States at $30.62 per hour (U.S. Bureau of Labor & Statistics, 2011) and working a 36 hour work week, the loss of wages for three months would amount to approximately U.S. $13,228 before taxes. The cost for failure also includes the cost of a remediation class of approximately U.S. $500, and then the U.S. $200 registration cost for taking the NCLEX-RN exam again.

The approximate total cost for the graduate nurse for failing the NCLEX-RN exam in lost wages for three months, remediation, and fees for retaking the exam is U.S. $l3,928. This failure on the exam also has an impact on the healthcare organizations because of the costs involved in replacing these new RNs whom they have invested in hiring and training. The impending nursing shortage, coupled with the problem of nursing

graduates unable to pass the NCLEX-RN exam, could severely impact our health care in the United States.

Predicting Success in Nursing School

Admission Criteria Used to Predict Success

Many studies have examined how different admission data can be used to predict success on the NCLEX-RN exam. A recent study was completed using data from the records of 153 graduates of a baccalaureate nursing school to examine academic variables that may predict success on the NCLEX-RN exam (McGahee, Gramling, & Reid, 2010). The data collected included the SAT/ACT scores, the overall science grade point average (GPA) prior to admission, scores on all standardized tests, a critical thinking test score, individual nursing course grades, writing portfolio score, graduating GPA, number of semesters required to complete the program, and an RN Assessment Test administered during the final semester which is designed to predict success on the NCLEX-RN. The variables reported to be significant included the science GPA (calculation for the anatomy, physiology, and chemistry courses) before admission to the nursing program, the four nursing course grades (with a C or better) in the first semester of the program, and the RN Assessment Test (McGahee et al., 2010).

(McGahee et al., (2010) recommended that admission committees examine the required science coursework due to the fact that students who do not successfully complete or repeat these science courses are at risk for not successfully completing the nursing program. The results (McGahee et al., 2010) indicated that the science GPA prior to admission to the nursing program is a good predictor for success on the NCLEX-RN. It

was also concluded that the RN Assessment Test given in the final semester of the program is a good predictor of success on the NCLEX-RN. As a result of this study on this particular nursing program, several programs were started to work with the students considered to be at risk during the first nursing semester. A mentorship program that paired upper class nursing students with first year students was implemented, the content from two of the nursing courses was made available online with a voice-over for those students who are auditory learners, and one faculty member worked with these students individually as well as in a group setting to build their strengths (McGahee et al., 2010).

The most commonly used admission criterion is the college cumulative GPA (Crow, Handley, Morrison, & Shelton, 2004). Yin and Burger (2003) concluded the cumulative GPA to be a significant predictor of graduation and passing the NCLEX-RN in associate degree in nursing (ADN) program students. Other studies revealed that the cumulative GPA was not a good predictor of successfully passing the NCLEX-RN (Haas, Nugent & Rule, 2004; Uyehara et al., 2007).

Studies have shown that certain preadmission variables are predictive of success on the NCLEX-RN, and these include science course grades, cumulative GPA prior to entering the nursing program, ACT English subscore, nursing GPA, and preadmission tests such as the Test of Essential Academic Skills (Gilmore, 2008; Higgins, 2005). The ACT composite score is the average of four academic test scores on English, mathematics, reading and science reasoning reported on a Likert-type scale of 1 to 36. ACT reported in 2005 that most high school students were not ready for college level courses (ACT, 2005). Higgins (2005) showed that the nursing skill courses were

predictive of NCLEX-RN success, but another study (Landry et al., 2010) did not find a relationship between the two nursing skill courses of basic nursing skills and health assessment laboratory and NCLEX-RN success.

Assessing the number of individual prenursing course grades that are less than 2.5, not just the overall GPA has been shown to predict NCLEX-RN success (Seldomridge & DiBartolo, 2004). A study by Newton, Smith, and Moore (2007) showed that prenursing grades less than 2.5 are predictive of nursing program attrition. Newton et al. (2007) studied two cohorts of BSN students who were admitted twice a year, and the fall cohort had an attrition rate of 2% compared to the winter cohort attrition rate of 10%. The fall cohort had only 31% of the students with at least one prenursing grade of less than 2.5, whereas 63% of the students had at least one prenursing grade less than 2.5 (Newton, Smith, & Moore, 2007), which provides evidence of the importance of the prenursing grades in predicting success of the nursing student.

A study by Potolsky, Cohen, and Saylor (2003) concluded that performance in prerequisite science courses is a reliable predictor for performance in the nursing program. A 5-year study by Alexander and Brophy (1997) revealed that among the admission data, the SAT verbal score was the strongest predictor of success on the NCLEX-RN exam. After reviewing the grades of 505 baccalaureate nursing students, Beeson and Kissling (2001) concluded that the odds of failing the NCLEX-RN increased 56% for every C, D, or F that a nursing student received in their nursing courses. Gender was shown to be unrelated to NCLEX-RN outcome, and nontraditional college age

students had a higher pass rate of 95.7% compared to 88.3% for traditional age nursing students (Beeson & Kissling, 2001).

McGann and Thompson (2008) investigated factors related to academic success for sixteen at-risk senior students in a baccalaureate nursing program. These at-risk senior nursing students enrolled in a nursing course called Academic Improvement Strategies, which implemented faculty mentoring, journaling, tutorials, and other student activities. The results of this study showed that the mean semester grade point average improved significantly from 2.48 to 2.92 by the end of the semester. The pass rate on the NCLEX-RN exam was 87% for the participants in this study, and the findings suggested that faculty mentoring can help students with behavioral changes that may contribute to academic success in the nursing program. The results also showed that the number of C grades in science courses was related to earning more C grades in nursing courses (McGann & Thompson, 2008).

Grossbach and Kuncel (2011) examined key admission and nursing school variables that could predict success on the NCLEX-RN in a meta-analysis of 31 independent samples with 7,159 participants from baccalaureate nursing programs who took the NCLEX-RN. The results showed that the SAT and ACT standardized admission tests were the most effective predictors of performance on the NCLEX-RN, and the prenursing grade point average (GPA) was predictive, but not as strong as the SAT and ACT admission tests. Grades earned during the nursing program were identified to be strong predictors also, especially the grades in the second year nursing courses. Implications for this study show that admissions based on test scores and prior GPA can

help predict success on passing the NCLEX-RN, and that grades in the nursing program can predict at-risk students early on, especially in the second year of the nursing program, when there is time to conduct interventions to help the students achieve success in the nursing program and pass the NCLEX-RN.

A study was conducted to investigate the admission variables of high school rank, ACT scores, and cumulative grade point averages for chemistry, biological sciences, social sciences, and prenursing courses in a baccalaureate nursing program at a large, midwestern university (Yang, Glick, & McClelland, 1987). The results showed the best predictor for achievement on the NCLEX-RN was the ACT social science subscore (Yang et al., 1987). Gilmore (2008) showed that the ACT English subscore was a significant indicator for success in the nursing program, and speculated that reading comprehension may correlate with critical thinking skills needed to pass the nursing curriculum. However, research by Shirrell (2008) in an ADN program revealed that the nursing GPA was the best predictor of NCLEX-RN success and that critical thinking was not a predictor of success.

Some nursing schools use specialized prenursing entrance exams as admission criteria to help identify students that may be weak in a certain area and may be at risk for dropping out of the nursing program. Crowe, Handley, Morrison, and Shelton (2004) concluded that in a study of 160 baccalaureate nursing programs, there was a significant correlation with the use of a standardized nursing entrance exam and passing the NCLEX-RN. Simmons et al. (2004) identified that Educational Resources, Inc. (ERI) Nurse Entrance Exam (NET) was a good predictor of successfully completing nursing

programs among associate degree in nursing (ADN), diploma, and baccalaureate programs. However, a study by Gallagher et al. (2001) concluded that the Registered Nurse Entrance Examination (RNEE) was a more reliable predictor of success than the Nursing Entrance Test (NET) in an ADN nursing program.

A study by Newton and Moore (2009) reported that the ATI Test of Essential Academic Skills (TEAS) was a good predictor of early academic achievement in nursing programs; however, another study by Newton, Smith, and Moore (2007) reported that the TEAS entrance exam did not predict student attrition or readiness for taking the NCLEX-RN exam. The use of an entrance exam in combination with other admission criteria could help to identify students at risk for attrition and not passing the NCLEX-RN. For example, a study by Stuenkel (2006) concluded that a combination of the National League of Nursing (NLN) prenursing examination, college GPA, and SAT was a good predictor of passing the NCLEX-RN exam.

Murray, Merriman, and Adamson (2008) reported that the Health Education Systems Inc. (HESI) Admission Assessment Exam (A2) was a valid predictor of nursing student success in nursing programs. The HESI Admissions Assessment Exam (A2) assesses the math, English, vocabulary and grammar skills, and the knowledge of the basic sciences including chemistry, biology, anatomy and physiology. The A2 exam also provides a personal assessment of the students' motivation and learning styles. The results of the study by Murray et al. (2008) reported that the nursing students who completed the associate degree nursing program (ADN) program had significantly higher HESI Admission Assessment scores than the students who did not complete the ADN

program. The HESI Admission Assessment scores were positively correlated with 88.89% of all nursing course grades in the ADN program and 100% of the beginning level course grades in the ADN program. The HESI Admission Assessment scores were also positively correlated with 50% of all nursing course grades in the baccalaureate nursing program students and 80% of the beginning level course grades.

Some nursing programs use other sources of information in admissions, such as interviews, letters of recommendation, and personal statements, but most of these have been identified to be poor predictors of success (Murphy, Klieger, Borneman, & Kuncel, 2009; Zeleznik, Hojat, & Veloski, 1983). Using structured or standardized evaluations of students' study habits and personality could be used along with test and grades to predict student achievement in the nursing program and passing the NCLEX-RN (Crede & Kuncel, 2008). One study reported that one-on-one interviews were correlated with a lower attrition rate compared to interviews with a group of five students (Ehrenfeld & Tabak, 2000). However, the interviews were only partially effective in preventing attrition of the nursing students (Ehrenfeld & Tabak, 2000). Trice and Foster (2008) reported that including admission interviews to their baccalaureate program helped increase diversity in the program, but did not affect the attrition or NCLEX-RN pass rates.

Nonacademic variables have been studied to see if there is a relationship between them and successfully passing the NCLEX-RN. Studies on the role of gender in predicting first time success on passing the NCLEX-RN have produced varied results. Several studies have shown that gender was not a predictor of NCLEX-RN success

(Beeman & Waterhouse, 2001; Beeson & Kissling, 2001; Landry et al., 2010). However, men were reported to have failed the NCLEX-RN at a significantly higher rate than the females in other studies though (Haas, Nugent, & Rule, 2004; Sayles, Shelton, & Powell, 2003).

Other nonacademic measurable variables as indicators of passing the NCLEX-RN have been reported, such as age and race. A study by Nnedu (2000) reported that the nontraditional nursing graduate, over the age of 23, had a higher pass rate on the NCLEX-RN compared to the traditional nursing graduate, and also reported that Caucasian graduates had a higher pass rate on the NCLEX-RN compared to other races. Haas et al. (2004) concluded that NCLEX-RN failure rate was higher for African American nursing students compared to the Caucasian nursing students, and several other researchers have reported that race is a predictor of NCLEX-RN success (Barkley et al., 1998; Campbell & Dickson, 1996; Haas et al., 2004; Nnedu, 2000). According to previous research studies, the data has shown that age is not a predictor of NCLEX-RN success (Beeson & Kissling, 2001; Roncoli, Lisanti, & Palcone, 2000), and the only consistent demographic predictor of first-time NCLEX-RN success is race.

According to National League of Nursing (NLN, 2011), in the year 2009 through 2010, only 40% of the qualified applicants to basic RN programs were accepted into the programs and an additional 28% of qualified applicants were not accepted due to the limited number of student positions. The AACN (2009) predicted that the large percentage of qualified nursing students being turned away from being admitted into nursing programs is going to continue through 2020. Due to turning away such a large

percentage of qualified nursing applicants each year, it is important to help identify key admission and nursing school variables as indicators of retention and successful completion of nursing school program, as well as passing the NCLEX-RN licensure exam.

Within Program Predictors of Success

Findings of studies investigating success of baccalaureate student success during the program have not been consistent. Uyehara et al. (2007) reported that the nursing fundamentals course was the only course predictive of passing the NCLEX-RN exam. Other researchers (Beeman & Waterhouse, 2001; Beeson & Kissling, 2001) showed a significant correlation between certain nursing courses and passing the NCLEX-RN. Courses predicting success on the NCLEX exam included Mental Health Nursing, Maternal-Newborn Nursing, Pediatric Nursing, Adult Health Nursing I & II, Pathophysiology, and Nursing Care of Critically Ill.

A study conducted recently reported that the grades in the pathophysiology course, medical/surgical nursing practicum, and the foundation of nursing theory course were predictive of NCLEX-RN success (Landry et al., 2010). The nursing GPA has been shown to be predictive of NCLEX-RN success with BSN students, and that nursing course grades can be used to ascertain these at-risk students early on in the nursing program (Grossbach & Kuncel, 2011; Landry et al., 2010). By knowing which courses can help identify a student at risk for attrition in the nursing program will help nurse educators to intervene and improve the student's chances for completion of the program and passing the NCLEX-RN.

Harding (2010) investigated the use of the Health Education Systems, Inc., (HESI) midcurricular exam, used at the end of the first year of the two year ADN program, in identifying students at risk for not achieving success in the nursing program and the NCLEX-RN. The findings showed a correlation between the midcurricular exam, admission GPA, GPA at the time of the HESI Exit Exam, HESI Exit Exam scores, and the nursing capstone course grades. The data supported the HESI midcurricular examination as a predictive tool to identify these at-risk students so that interventions can take place to ensure success in the program and passing the NCLEX-RN (Harding, 2010). Studies have shown that scores on standardized tests, especially the HESI exams, are the most consistent predictors of success on the NCLEX-RN (Bondmass et al., 2008; Frith et al., 2006; Newman et al., 2000; Nibert & Young, 2001).

Successfully passing the first semester nursing courses has been positively correlated to progressing through the program to graduation and NCLEX-RN success (Newton & Moore, 2009). A study reported three nursing courses offered early in the program (pathophysiology, foundations of nursing theory, and the first medical/surgical nursing course) were predictive of success on the NCLEX-RN (Landry et al., 2010). Research studies have shown that the first semester has the highest attrition rate compared to other semesters (Jeffreys, 2007; Rees, 2006). Other studies have indicated that the first six weeks in the nursing program is when most nursing students decide whether they will drop out of the program or continue with the nursing program, as they are trying to make the adjustment from the prenursing courses to the rigorous and demanding nursing program expectations (Colalillo, 2007; Jeffreys, 2012; Jenkins, 2006).

Newton (2008) reported that BSN students transferring from a community college to a four year college or university are at a high risk for attrition. The transition from the community college to a four year college can be difficult for community college students, and this may be a reason for the high risk for attrition (Newton, 2008). Most community colleges have smaller classes, which is very student centered compared to the larger university (Newton, 2008). It is important for students to establish personal ties to their institution or becoming involved in the social or intellectual activities surrounding their institution, because this has been shown to increase retention rates of students (Brown & Marshall, 2008; Gardner, 2005).

End of Program Predictors of Success

End of Program testing is often used to help predict success on passing the NCLEX-RN exam. A variety of NCLEX-RN readiness assessment tests are used to predict student preparedness for the licensure exam. These tests undergo validity and reliability testing and have reported a highly reliable predictor of NCLEX-RN success (Nibert & Young, 2001; Spurlock & Hunt, 2008). Research was conducted to seek to find out which HESI test scores help predict timely first-time NCLEX-RN success, with licensure in less than 140 days after graduation (Lavandera et al., 2011). The results showed that the HESI Exit Exam scores were the best predictor of timely licensure with passing the NCLEX-RN on the first attempt. These findings correlate with a recent study by De Lima et al. (2011) that reported the HESI scores correlate with student success.

The HESI Exit Exam (E2) is a comprehensive computerized nursing exam usually administered in the last quarter or last semester of a nursing program, and it is used to

identify students at risk for failing the NCLEX-RN. The HESI Exit Exam has 150 multiple choice items that uses the HESI predictability model (HPM), a proprietary mathematical model, to calculate the HESI scores. The HPM uses several factors, such as the difficulty of the test question, to calculate the score on all HESI exams (Lavandera et al., 2011; Nibert, Young, & Adamson, 2008). This exit exam is made to simulate the NCLEX-RN blueprint, and retesting can be used to evaluate the effects of remediation often required if the student does not meet the school's benchmark score for passing the exam (Nibert, Young, & Adamson, 2008). The most common benchmark score used is 850, which has been reported to be 97.5% accurate in predicting success, and a score of 900 or above has been reported to be 98.3% predicting of success (Young & Langford, 2011).

A study was completed to investigate the accuracy of the HESI Exit Exam in predicting success on the NCLEX-RN exam, and the findings were consistent with findings from prior studies (Adamson & Britt, 2009). Five studies of BSN, ADN, and diploma nursing students taking the HESI Exit Exam, reported that the HESI Exit Exam was between 96.36% and 98.46% accurate in predicting that nursing students would pass the NCLEX-RN exam on the first attempt, based on the scores of the first version of the exam given (Lauchner, Newman, & Britt, 1999; Lewis, 2005; Newman, Britt, & Lauchner, 2000; Nibert, Young, & Adamson, 2002). There are three versions of the HESI Exit Exam that can be used for retesting nursing students, and depending on the school's policy, the student is often retested after completing the required remediation based on their exam score.

Adamson and Britt (2009) examined the predictive accuracy of the first, second, and third versions of the HESI Exit Exam on passing the NCLEX-RN exam. This study indicated that there was little difference in predicting passing the NCLEX-RN exam between the first (96.44%) and the second (92.94%) versions of the HESI Exit Exam. They reported that the third version of the exam was only 82.50% correct in predicting passing the NCLEX-RN exam, which is significantly less accurate in predicting passing the NCLEX-RN exam than the first two versions of the exam (Adamson & Britt, 2009). The results of this study suggested that the students taking the exam for the third time are probably at higher risk for failing the NCLEX-RN because of not meeting the benchmark needed to pass the first two versions of the HESI Exit Exam.

Lavandera et al. (2011) reported that a predictor of failure on the NCLEX-RN is earning even one D or F in a nursing, math, or science course. The research showed that with just one D or F, the probability of failure raises from 6% to 25%, so both the academic performance and the HESI Exit scores are good predictors and can help nurse educators identify these students at risk for failing the NCLEX-RN (Lavandera et al., 2011). Other researchers concluded through their research that there is a correlation between successful passing of standardized tests and passing the NCLEX-RN (Bondmass et al., 2008; Lewis, 2008).

By adding other measures of academic performance in the nursing curriculum, such as adding the nursing GPA and the D/F grade indicators, this increases the ability to predict failure on the NCLECX-RN by 8% (Lavandera et al., 2011). This study reported that using HESI Exit scores alone was a weak predictor (80%). Lavandera et al.

recommended using both academic performance and HESI Exit scores to identify students at risk for failing the NCLEX-RN and would be a better use of resources to remediate these at-risk students. Recommendations were made in this study to identify these students at risk for failure on the licensing examination early on in the nursing program and implement interventions to achieve success on their first attempt of NCLEX-RN.

Some nursing schools have started to require students to pass the HESI Exit Exam, with a minimum competency score set forth by the school, in order to complete the nursing program and graduate. Although the nursing students may pass all of their required classes and curriculum, they may be prevented from graduating from the nursing program due to not achieving a certain score on the HESI Exit Exam. This requirement to pass the HESI Exit Exam prevents the nursing graduate from taking the NCLEX-RN and starting their career as an RN, thus adding to the nursing shortage (Lavandera et al., 2011). Some nursing programs have linked the HESI Exit Exam with a course and may prevent the student from graduating if the minimum competency score set by the school is not achieved.

In a study by Nibert, Young, and Adamson (2008), questionnaires were mailed to 158 participating RN programs to find out if the schools required a minimally accepted HESI Exit Exam score to graduate or take the NCLEX-RN licensure exam. The results showed that of the 149 that responded to the survey, 45 (30.20%) schools required a minimally accepted HESI Exit Exam score in order to graduate or take the NCLEX-RN. Of these 45 RN programs, 34 (75.56%) require a minimal score of 85 on the HESI Exit

Exam, with only two schools using less than 85 score on the HESI Exit Exam. The lowest reported score required was 77, and 90 was the highest score used as a benchmark in a few of the other RN schools (Nibert et al., 2008).

Nibert et al. (2008) reported that decisions regarding progression policies may be influenced by the class size of the school, because schools with smaller graduating classes cannot afford to have very many students fail the NCLEX-RN due to it affecting their pass rates and accreditation. However, Spurlock and Hunt (2008) reported that the HESI Exit Exam could not accurately predict failure on the NCLEX-RN and that progression policies could not be supported. Students who complete the nursing school curriculum requirement and are unable to sit for the NCLEX-RN, due to not attaining a required score on the HESI Exit Exam, "will add to the nursing shortage and is antithetical to the mission of schools of nursing" (Lavandera et al., 2011, p. 10).

Implications

The implications for positive social change include addressing the nursing shortage by analyzing the admission data, standardized testing, and other identifying variables that could predict success for nursing students completing the program and passing the licensure exam. Other implications for positive social change include revisions in nursing education policies and practice in preparing students for the NCLEX-RN. By evaluating the admission criteria, the HESI testing, and the successful completion of the program and passing the NCLEX-RN on the first attempt, the results of this study could help identify any significant relationships that may identify students as risk for non-completion of the nursing program or not passing the licensure exam. These positive

social changes will not only help with the nursing student attrition, but may also increase the number of RNs to meet the current nursing shortage crisis.

Summary

In order to help with the nursing shortage, it is important for nurse educators to admit the nursing students most likely to complete the nursing program and pass the NCLEX-RN licensure exam upon graduation. Nurse educators try to identify which students are most likely to succeed upon admission when reviewing the numerous applications. In this literature review the was an assortment of nursing programs represented in the literature, with BSN program represented exclusively in only a few current studies (Campbell 2006; Newton et al., 2007; Roat, 2008; Strayer, 2010). Most of the recent studies have been related to attrition in ADN programs (Esper, 2009; Gilmore, 2008; Hopkins, 2008; Jeffreys, 2007). Even though studies have analyzed commonly used admission criteria, the researchers were unable to agree upon definitive predictors of success on the NCLEX-RN, thus further studies on admission criteria and standardized testing would help nurse educators identify nursing applicants most likely to succeed in the program and passing the NCLEX-RN licensure exam, thus ensuring a competent nursing workforce and help to meet the nursing shortage in the future (Newton, 2008; Schmidt & MacWilliams, 2011). By analyzing data and identifying problems with student attrition and failure on NCLEX-RN, the goal of improving student success can be met (Rothkopf, 2009).

Colleges and universities are concerned about student attrition and preventing students from dropping out prior to completion of their program (Kuh, 2008). Graduation

rates for BSN programs are less than 50% nationwide, even though the National League for Nursing Accrediting Commission recommends that an acceptable retention rate is 80% (Brown & Marshall, 2008; Newton & Moore, 2009; Peter, 2005). Studies indicate that BSN programs with more stringent admission policies may help identify students who are most likely to succeed in the program and pass the NCLEX-RN (DiBartolo & Seldomridge, 2005; Newton et al., 2007). By reviewing the variables of the nursing curriculum that can predict success on the NCLEX-RN, measures can be used to prevent nursing student attrition and promote completion of the nursing program and passing the NCLEX-RN for all students. In Section 2, the methodology of this quantitative research study is discussed, as well as the quantitative data collection and analysis of the data.

Section 2: The Methodology

Introduction

The purpose of this study was to evaluate the variables of the nursing curriculum by examining the admission variables used during the admission selection process and the HESI Exit Exam scores to see if these variables can predict success on the NCLEX-RN licensure exam, which nursing students of this BSN program are eligible to take upon graduation. By identifying the admission variables and the score range on the HESI Exit Exam of students who completed the nursing program and passed the NCLEX-RN on the first attempt, I hope to assist administrators of BSN programs in identifying nursing students who will be most likely to be successful in completing the nursing program and passing the NCLEX-RN exam. This information would also help identify students at risk for attrition and not passing the NCLEX-RN exam.

Using Spearman's (1904, 1907, 1913) classical test theory and Seidman's (2005) retention formula as a theoretical foundation, factors that were evaluated included the admission variables of the preprogram grade point averages (GPA), American College Testing (ACT) assessment scores, course grades in anatomy and physiology, and/or the HESI Exit Exam scores that may predict completion of the nursing program, as well as passing the NCLEX-RN exam on the first attempt. The findings may be used to improve the BSN program's admission policies and curricula, which could help decrease the attrition rate and improve the graduation and pass rates for the NCLEX-RN licensure exam.

The implications for positive social change include addressing the nursing shortage by increasing the number of nursing graduates who pass the NCLEX-RN on the first attempt, which may result in improved healthcare throughout the country, as well as positively affect the lives of the nursing students. These positive social changes will not only help to decrease nursing student attrition, but may also increase the number of RNs to meet the current nursing shortage crisis. This section described the research design, setting and sample, instrumentation and materials, data collection, data analysis, assumptions and limitations, and the ethical protection of the participants.

Research Design

This quantitative, nonexperimental, correlational study, using secondary data analysis, investigated the relationship between the independent variables: preprogram GPA, ACT assessment scores, course grades in anatomy and physiology, and/or the HESI Exit Exam scores. The dependent variables of student success include completion in the BSN program and passing NCLEX-RN exam on the first attempt. In a correlational study, the variables are examined to see if there is a relationship between them by using the application of quantitative statistical analysis (Lodico, Spaulding, & Voegtle, 2010). This research design is based on the purpose of the study, which was to investigate the factors related to retention and successful completion of the BSN nursing program, as well as first-time pass rates on the NCLEX-RN exam in a generic BSN nursing program. The data for this study were collected from student records maintained in the BSN program, and the data were coded and compiled into a spreadsheet to facilitate the data

analysis. Because this was a statistical study and was based on the data maintained by the BSN program, no individual student contact occurred.

This quantitative study will use preexisting data from the BSN program, from the two graduating classes of May 2010 and May 2011, to help identify variables to predict program completion and success on the NCLEX-RN exam. The measure of student success in this study, or the dependent variables, includes completion of the nursing program and successfully passing the NCLEX-RN licensure exam because these are required to begin entry into nursing practice. Using a quantitative research design for this study was an appropriate research approach to provide a better understanding of the variables of this BSN nursing curriculum that can help identify students at risk for not completing the program and passing the NCLEX-RN.

Correlational research is a nonexperimental, quantitative method of research used to determine if there are any relationships between the variables (Lodico et al., 2010). The correlational research does not seek to show causality, which is where one variable causes a change to occur in the other variable (Steinberg, 2008). The quantitative researcher does not manipulate or control the variables in correlational studies (Lodico et al., 2010; Steinberg, 2008). Because the data used in this study are based on archival data, I was unable to control or manipulate the independent variables, which makes this design appropriate for this study.

In quantitative research, the researcher decides what to study, asks specific questions, collects numeric data, analyzes the data, and reports the results in an unbiased manner (Creswell, 2008). Two concepts that are important in evaluating the quality of

the quantitative research are the reliability and validity measures. Reliability refers to the accuracy and consistency of the measurement of information or methods used to measure the variables (Schumacker, 2010). Correlation coefficients (r) are used to estimate reliability and the possible values range from -1.0 to +1.0 (Lodico et al., 2010). The reliability coefficient is a numeric indicator of the test's validity, and the higher the coefficient the more stable the measure. Reliability coefficients above .70 are usually considered satisfactory, but a reliability coefficient of .90 or higher is a desirable standard for decisions regarding test scores (Lodico et al., 2010; Polit & Beck, 2004; Schumacker, 2010).

Validity refers to whether the research findings were convincing and measured what the study stated it was going to measure (Lodico et al., 2010; Polit & Beck, 2004). Predictive validity is "the degree to which an instrument can predict some criterion observed at a future time" (Polit & Beck, 2004, p. 728). Predictive validity refers to the ability of an instrument to correlate the results and future criterion. For the purpose of this study, academic variables were correlated with completing the BSN program and passing the NCLEX-RN licensure exam. A high correlation is a direct indicator of how valid an instrument is (Lodico et al., 2010; Polit & Beck, 2004). Using the Statistical Package for the Social Sciences (SPSS) computer program, I analyzed the data for reliability and validity.

Setting and Sample

The setting for this study is a baccalaureate nursing (BSN) program at a large, state-supported public university in the eastern part of the United States. The university is

located in one of the largest cities in the state, with a population of approximately 50,000 within the city, and draws from the surrounding communities, which are primarily rural. The nursing program also has a graduate nursing program at the university, which allows BSN graduates to continue on with their educational pursuits.

One main difference between the population of the nursing program and that of the institution is that the nursing student population is predominantly female, whereas the student population of the institution is more equally divided between genders. The population of the nursing program is predominantly Caucasian, which is consistent with the population of the institution, the population within the state, and the population of surrounding nearby states. According to the chairperson on the admissions committee for the nursing program, approximately 90% of the students are female, and the ethnic makeup of the program is approximately 99% Caucasian, with 1% or less other ethnicities (personal communication, December 1, 2011). The student population at the institution consists of mostly in-state students and students from surrounding states. The sample from this BSN program lacks ethnic diversity, as defined by Creswell (2008), but represents the population from which it is drawn at this university in the eastern part of the United States. However, this sample does make it difficult to generalize the results to institutions with more ethnically diverse student population.

The sample for this study includes a convenience sample of BSN nursing students from the two graduating classes of May 2010 and May 2011, which were admitted in the fall semester of 2007 and 2008. A sample is made up of a smaller group or realistic population, which is representative of a larger population and allows the researcher the

ability to complete the research with a more manageable sample group (Lodico et al., 2010). The sample for this study includes all the students admitted to the BSN program in 2007 and 2008, which was a total of 201 students. However, 14 of those students were missing data from their student files, so a total of 187 of the 201 met the criteria for inclusion in the study. Although a convenience sample is a type of nonrandom sampling, which can sometimes prevent generalizing the results back to the entire population from which the sample was drawn, this method was necessary in order to collect enough data from recent academic records.

The data were collected for this study from student records maintained by the BSN program, based on archival data, which are "data taken from records collected by educators or educational institutions" (Lodico et al., 2010, p. 66). A variety of sources will be used for data collection, with one of the primary sources for data for this study being the written student records located in the office of the nursing program as well as information from the computer record. Other sources of data include the state board of examiners for RNs reports providing graduates' pass/fail status, as well as class lists provided by the faculty members and the office for the nursing program. Approximately 100 nursing students are admitted every year into the BSN program, but due to attrition the number of graduates in 2011 was 84, and the number of graduates in 2010 was 56. Table 1 shows the number of graduates in the past 4 years.

Table 1

Number of Graduates in the Past 4 Years in BSN Program

# Graduates in BSN program	Graduating year
70	2008
66	2009
56	2010
84	2011

Only those students who graduate from the program are eligible to sit for the NCLEX-RN licensure exam, so the prediction of NCLEX-RN success includes only those students who have successfully graduated from the BSN program. Individual student records with missing data were eliminated from the sample. The sample was mostly female, Caucasian, and composed of traditional college age students of 23 years or younger.

Tabachnick and Fidell (2007) discussed how an appropriate effect size, or power, for a correlational study can vary according to the number of variables in a study. Using a standard formula, a simple method was used to calculate the sample size for this study. Lenth (2001) stated that "the study must be of adequate size relative to goals of the study" but it is "just as important, however, that the study not be too big" (p. 187). According to Lenth, a medium sample size is calculated using an 80% power (p. 191). In calculating a medium sample size with multiple correlation procedures, a standard formula used is "$N \geq 50 + 8m$" (Lenth, 2001, p. 187). The number of this study's independent variables was used to obtain the value of m (Tabachnick & Fidell, 2007). With the use of this standard

formula and this study's five independent variables, the sample size was computed at 90 participants. The sample includes the total number of students admitted to the program in the fall of 2007 and 2008, for a total of 201. Of the 201 enrolled students, 187 met the criteria for inclusion in this study, which is a larger sample compared to the 90 participants in the medium sample size computed using the standard formula.

Data Collection and Analysis

In quantitative research, the researcher collects primarily numerical data and measures the variables through instruments that yield statistical data (Creswell, 2008). Statistical analysis of the data enables the researcher to confirm the quantitative data by summarizing, organizing, evaluating, interpreting, and reporting the numerical data (Creswell, 2008; Polit & Beck, 2004). The Statistical Package for the Social Sciences (SPSS) computer program will be used to input and analyze the data .

The Pearson R correlational statistical test and descriptive analysis procedures were used for the data analysis. The data were collected and analyzed using data from student records maintained by the BSN program. This type of secondary data, or archival data, is often used in research studies that must analyze data that has been filed away (Creswell, 2008). Individual scores on the HESI Exit Exam are reported as a numerical value, with a true zero point used in the ratio scale. The ratio scale of measurement "includes the properties of nominal, ordinal, and interval variables and also include a true zero point" (Lodico et al., 2010, p. 74). Individual scores in the prerequisite admission courses are reported as a letter grade.

The nominal scale includes variables that “separate groups or categories” (Lodico et al., 2010, p. 72). The nursing student data were categorized using the nominal scale for demographic information such male, female, age, and race. My request for permission from the institution and school of nursing to complete the study and a sample letter requesting permission is located in Appendix A. The data collection began after receiving approval # 08-02-12-0050220 from the Walden University Institutional Review Board (IRB) to conduct the research.

This quantitative, correlational study answered two research questions and two subquestions by investigating the variables that may predict success in the BSN nursing program and passing the NCLEX-RN licensure exam. The first question addressed was, Is there a significant relationship among selected factors (preprogram GPA, ACT scores, course grades in anatomy and physiology, and/or HESI Exit Exam) related to completion of the BSN nursing program and passing the NCLEX-RN exam? The second question addressed was, Does the HESI Exit Exam score predict success on the NCLEX-RN exam? The subquestions addressed were the following: What preprogram admission criteria best predicted completion of the nursing program and passing the NCLEX-RN exam? What is the HESI Exit Exam score range that predicted the first time pass rate on the NCLEX-RN? I completed this quantitative secondary data analysis to test to see if the admission variables and the HESI Exit Exam were not effective in predicting the students to succeed in completing the nursing program, as well as the first time passing of the NCLEX-RN exam.

Instrumentation and Materials

The data were accessed from the student transcripts, student electronic and paper files, test scores in electronic and paper records, and NCLEX-RN reported results through online verification and also paper files. The data collected included the preprogram GPA, ACT assessment scores, course grades in anatomy and physiology, and/or the HESI Exit Exam scores, which are the independent variables. The dependent variables of student success included data on completion in the BSN program, and passing NCLEX-RN exam on the first attempt. In order to prevent bias, which produces a distortion in the research results, the data were collected in a systematic way and recorded accurately (Lodico, Spaulding, & Voegtle, 2010).

Once the data were retrieved, they were coded to maintain confidentiality and facilitate data analysis. Confidentiality is of utmost importance when conducting any type of research, and is one of the researcher's most important responsibilities (Lodico et al., 2010). After the data were coded, they were first entered into an Excel spreadsheet for organization, then into the Statistical Package for the Social Sciences (SPSS) program for analysis. The data were stored in a locked, fireproof file cabinet in an undisclosed location, as well as on an encrypted jump drive.

Assumptions

There were various assumptions for this study. It was assumed that the findings for this study, which were based on the historical data from two recent graduating classes of the BSN nursing program, would have been the same for other years in the nursing program. It was also assumed that the student files and records were accurate. The

methods used in collecting and managing the data were efficient and confidentiality was also assumed. It was assumed that external factors did not influence whether the students dropped out of the program, failed exams, failed the nursing program, or failed the NCLEX-RN exam. It was assumed that the sample is representative of nursing students in other nursing programs across the United States. Another assumption for this study was that the HESI Exit Exam is similar to other NCLEX-RN preparatory tests.

Limitations and Delimitations

This study was limited to a group of nursing students who completed the BSN program at a public institution in the eastern part of the United States; therefore, the results are specific to this institution and may not be generalized to other nursing programs. This study included only students who graduated in the past two years and took their NCLEX-RN exam for the first time upon graduation. The results of this study may not be generalized to other nursing students in all levels of nursing schools, such as those attending diploma, associate degree nursing (ADN) programs, and other BSN programs.

Data were limited to data found in student records and information routinely kept by the School of Nursing. The reason for student attrition was not addressed in this study. Only select variables were included in this study, but other variables could have influenced the outcome such as motivation, prior work experience in healthcare, peer support, advising support, financial support, and guaranteed employment upon graduation.

The sample in this BSN program lacks ethnic diversity due to the fact that the BSN program is made up of approximately 99% Caucasian students; however, this sample was representative of the population from which it is drawn at this university in the eastern part of the United States. The results of this study may be difficult to generalize to institutions with more diversity among the nursing student population. The instructors also use various teaching methods in the required courses and their teaching methods are unknown to this researcher.

Ethical Protection of Participants

Ethical protection of participants of any study is of critical concern in any type of research. Maintaining confidentiality is of utmost importance, and it is the researcher's responsibility to preserve the confidentiality of the participants (Creswell, 2013; Lodico et al., 2010). After the data were coded numerically, the data were entered into an Excel spreadsheet to organize the data. The data were then entered into the Statistical Package for the Social Sciences (SPSS) program to be analyzed.

Only the researcher has access to the data, which will protect the confidentiality of the participants. This is a statistical study and based on secondary data maintained by the BSN program, so no individual student contact occurred. To maintain confidentiality of the participants, the data were stored in a locked, fireproof file cabinet in an undisclosed location, and also on an encrypted jump drive.

Other ethical procedures include obtaining written permission from the individuals in authority to collect data and have access to participants in a research study (Creswell, 2013). I requested permission from the institution and the school of nursing to

collect and analyze data from the BSN program to complete the study and a sample letter is located in Appendix A. The Institutional Review Board (IRB) gave approval for the study, so the data collection for the study began after the approval was received.

Data Collection and Analysis Results

Once I obtained approval to conduct research, a complete list of the students by enrollment date in the nursing program was obtained from the BSN program files, including the last semester enrolled in the program, whether they graduated from the program, and the NCLEX-RN exam status of the nursing graduates. The Walden University Institutional Review Board (IRB) approved me to conduct research and the approval # is 08-02-12-0050220. The total number of nursing students enrolled in the BSN program admitted in the fall semester of 2007 and 2008 was 201. Fourteen of those students enrolled were missing data from their student files, so they did not meet the inclusion criteria for this study. The data collected for this study was based on student records maintained by the BSN program, or archival data, which is "data taken from records collected by educators or educational institutions" (Lodico et al., 2010, p. 66). One hundred eighty-seven (N = 187) of the 201 enrolled students met the criteria for inclusion in this study.

Data were collected and coded as numerical values in an excel spreadsheet to facilitate the data analysis. Reliability refers to "the consistency of measurement" and validity refers to "accurately and appropriately measures whatever it is supposed to measure" (Lodico et al., 2010, p. 230). The data were collected in a systematic way to ensure reliability, as well as coded to analyze the data and to ensure validity of the

results. The categories of the data collected included the preprogram GPAs, ACT scores, course grades in anatomy and physiology, the HESI Exit Exam scores, graduation status in the BSN program, and NCLEX-RN exam status. The graduation status of the students was coded as 1 for completing the program, and coded 2 for those who did not complete the program. The NCLEX-RN exam status was coded 1 for passed and 2 for failed the exam. The minimum accepted course grade in the BSN program is a C, so the data analysis included only grades of C or higher. The grades of C were coded as a 2, grades of B as a 3, and the grades of A were coded as a 4. The SPSS computer program was used to input and analyze the data.

Descriptive Analysis of the Population

The descriptive analysis of the demographic makeup of the population in this study was completed to provide a description of the population. Table 2 presents the demographic data for this study population.

Table 2

Demographic Analysis of Study Population

Demographic		Frequency	%
Gender	Male	29	15.5%
	Female	158	84.5%
Race	Caucasian	180	96.3%
	African American	2	1.1%
	Hispanic	3	1.6%
	Asian/Pacific Islander	1	0.5%
	American Indian/Alaskan Native	1	0.5%
Program status	Completed BSN program	136	72.7%
	Noncompleted BSN program	51	27.2%

The descriptive analysis of the population in the study revealed that 84.5% were female; 15.5% were males; 96.3% were Caucasian; and the minorities were 1.6% or less. The findings support research that nursing is still a predominantly female profession with an underrepresentation of minorities in nursing (Manifold & Rambur, 2001; NLN, 2011). The sample of the minority nursing students in the study was not sufficient to demonstrate a significant difference in retention based on race. The sample from this BSN program lacks ethnic diversity, but it represents the population from which it is drawn at this university located in the eastern part of the United States, as defined by Creswell (2008). The findings are reflective of the unique nursing student population at the college in this study, and the nursing student population may not be reflective of the

population within the state or at other colleges. Table 3 presents the demographic analysis of the BSN program graduates.

Table 3

Demographic Analysis of BSN Program Graduates

Demographic		Frequency	%
Gender	Male	17	12.5%
	Female	119	87.5%
Race	Caucasian	131	72.7%
	African American	2	100%
	Hispanic	2	66.6%
	Asian/Pacific Islander	1	100%
	American Indian/Alaskan Native	0	0%

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Study Findings Related to Research Questions/Hypotheses

This quantitative, correlational study answered two research question and two subquestions by investigating the variables that may predict success in the BSN program and passing the NCLEX-RN exam. The research questions addressed in this study are:

1. Is there a significant relationship among selected factors (preprogram GPA, ACT scores, anatomy and physiology course grades, HESI Exit Exam) related to completion of the BSN nursing program and passing the NCLEX-RN exam?
2. Does the HESI Exit Exam score predict success on the NCLEX-RN exam?

The following secondary questions addressed in this study are:

1. What preprogram admission criteria best predicted completion of the nursing program and passing the NCLEX-RN exam?
2. What is the HESI Exit Exam score range that predicted the first time pass rate on the NCLEX-RN?

The following null and alternative hypotheses tested in this study are:

$H1_0$: There is no statistically significant relationship between the selected factors (preprogram GPA, ACT scores, course grades in anatomy and physiology, and the HESI Exit Exam) related to retention and successful completion of the BSN nursing program and passing the NCLEX-RN exam.

$H1_A$: There is a statistically significant relationship between the selected factors (preprogram GPA, ACT scores, course grades in anatomy and physiology, and HESI Exit Exam) related to the retention and successful completion of the BSN nursing program and passing the NCLEX-RN exam.

$H2_0$: There is no statistically significant relationship between the HESI Exit Exam scores and successfully passing the NCLEX-RN licensure examination on the first attempt.

$H2_A$: There is a statistically significant relationship between the scores and successfully passing the NCLEX-RN examination on the first attempt.

For the Null Hypotheses 1-2, the following academic factors/scores were used as independent variables: preprogram GPA, ACT scores, anatomy and physiology course grades, and the HESI Exit Exam.

Research Question 1

Is there a significant relationship among selected factors (preprogram GPA, ACT scores, anatomy and physiology course grades, HESI Exit Exam) related to completion of the BSN nursing program and passing the NCLEX-RN exam? After using descriptive statistics, this researcher used inferential statistics to analyze the data. The results revealed that there is a significant relationship between the selected factors and completing the BSN program and passing the NCLEX-RN exam, thus rejecting the null hypothesis.

Figure 1 presents a bivariate scatterplot from SPSS that shows the relationship between the preprogram GPA and completing the BSN program and passing the NCLEX-RN exam. The correlation is significant, $p < .05$, therefore rejecting the null hypothesis. Figure 1 shows 20% (2 out of 10) failed the NCLEX-RN with a preprogram GPA of < 3.0. In the range of GPA 3.0-3.99 there were 10% (12 out of 116) of the students failed the NCLEX-RN exam on the first attempt. Of the 10 students with a GPA of 4.0, 10% (1 out of 10) of the students failed the NCLEX-RN exam on the first attempt. The relationship between the preprogram GPA and passing the NCLEX-RN exam upon graduation, as seen in Figure 1, shows that there were twice as many students who failed the NCLEX with a GPA of 2.99 or less compared to a preprogram GPA of 3.0 to 4.0.

Table 4 presents the summary of the correlation between the HESI Exit Exam and GPA. The correlation was shown to be significant ($p < 0.05$), therefore the null hypothesis was rejected. The nursing GPA has been shown to be predictive of NCLEX-RN success with BSN students, and that nursing course grades can be used to identify

these at-risk students early on in the nursing program (Grossbach & Kuncel, 2011; Landry et al., 2010; McGahee et al., 2010).

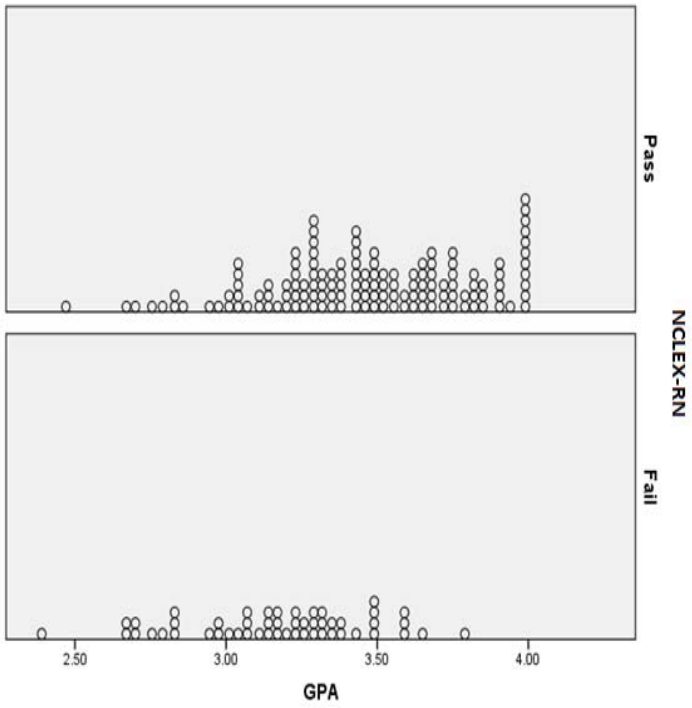


Figure 1. Scatterplot shows the relationship between preprogram GPA and passing NCLEX-RN exam on the first attempt upon graduation from the BSN program.

Table 4

Correlation between HESI Exit Exam and GPA

Variables	*HESI*	*GPA*
Pearson correlation	1	.227**
HESI Sig. (2-tailed)		.008
N	136	136
Pearson correlation	.227**	1
GPA Sig. (2-tailed)	.008	
N	136	.187

Note. ** $p < .01$, two-tailed.

Table 5

Correlation between ACT and HESI Exit Exam

Variables	*ACT*	*HESI*
Pearson correlation	1	.354**
ACT Sig. (2-tailed)		.000
N	187	136
Pearson correlation	.354**	1
HESI Sig. (2-tailed)	.000	
N	136	136

Note. ** $p < .01$, two-tailed.

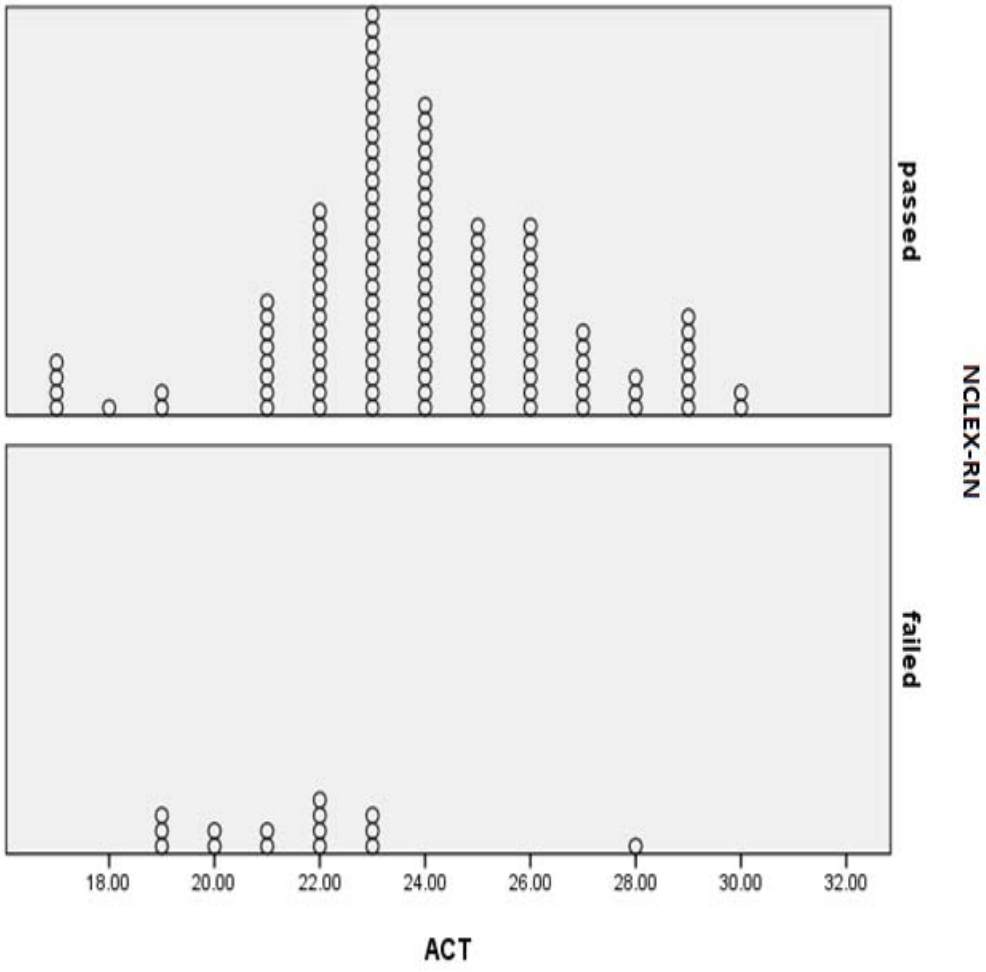


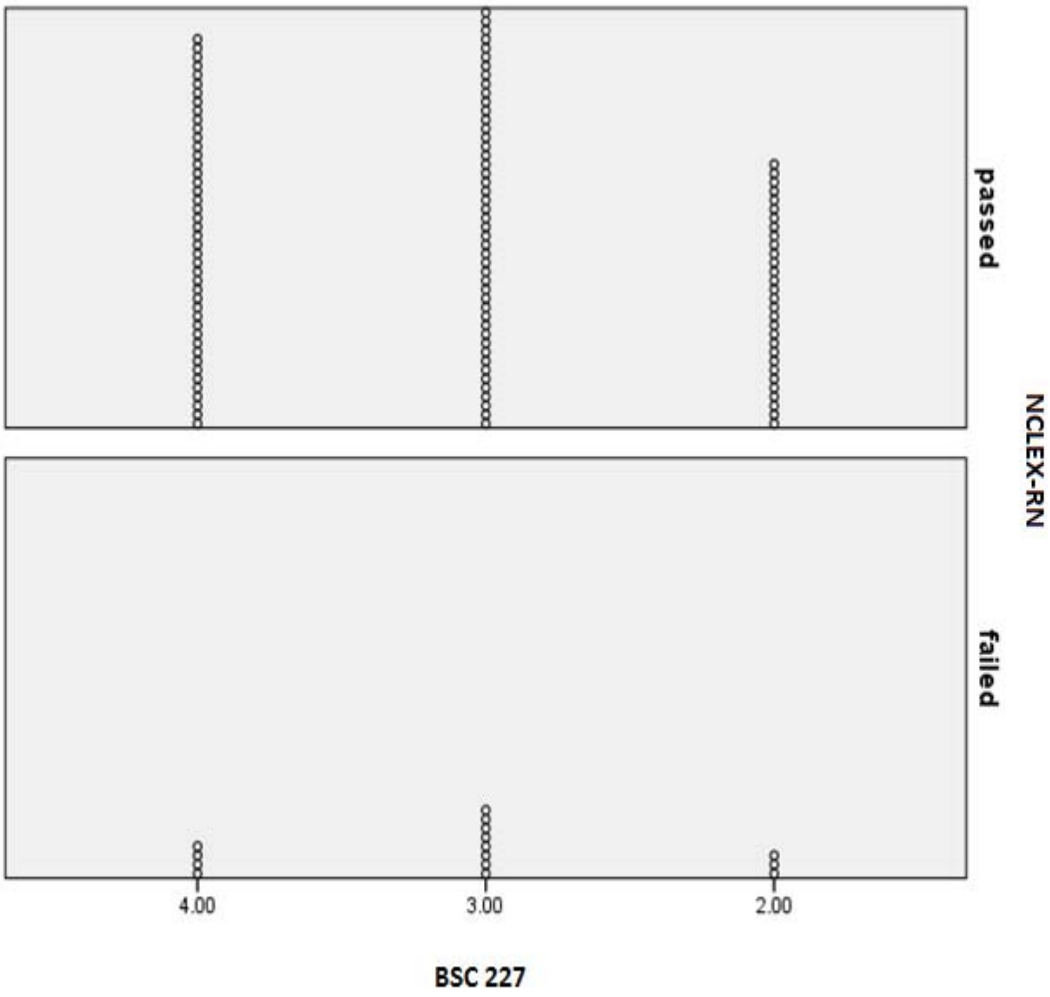
Figure 2. Scatterplot showing the relationship between ACT scores and passing NCLEX-RN exam on the first attempt upon graduation from the BSN program.

Figure 2 presents a summary of the relationship between the ACT scores and if the student passed or failed the NCLEX-RN exam on the first attempt upon graduation from the BSN program. Of the 136 students that completed the BSN program and took the NCLEX-RN exam, 121 passed the NCLEX-RN and 15 failed the NCLEX-RN. The correlation is significant, $p < 0.05$, which therefore rejects the null hypothesis, as shown

in Figure 3. The minimum ACT score was 17 and the maximum ACT score achieved was 30 among the graduate students who took the NCLEX-RN exam.

Of the 12 students with an ACT 20 or below, five students (or 42% of those students) failed the NCLEX-RN exam on the first attempt, which indicates those students with an ACT of 20 or below are at high risk for failing the NCLEX-RN exam. Of the 58 students with ACT 21-23, only nine students (15%) failed the NCLEX-RN exam on the first attempt. An ACT score of 24 or higher was revealed to be a good indicator for passing the NCLEX-RN exam. Of the 66 students with an ACT of 24 or higher, only one student failed the NCLEX-RN exam and 65 students (98%) passed the NCLEX-RN exam on the first attempt. Table 5 presents the summary of the correlation between the ACT scores and the HESI Exit Exam. The correlation was shown to be significant ($p < 0.05$), therefore the null hypothesis was rejected.

The minimum requirement for admission to the BSN program for high school applicants is an ACT 21 or higher and a GPA 2.5 or higher. The minimum requirement for high school graduates with some college experience is a GPA 2.5 or higher, but is automatically admitted with an ACT composite score of 24 or higher and with a minimum of 2.5 GPA. The results show that there is a significant correlation between the ACT score and passing the NCLEX-RN exam upon graduation from the BSN program.



BSC227 (Anatomy Course) Grades

Figure 3. Scatterplot shows relationship between anatomy course (BSC227) grades and passing NCLEX-RN exam on the first attempt upon graduation from the BSN program.

Figure 3 presents the summary of the relationship between the BSC227 (anatomy) grades and passing the NCLEX-RN exam on the first attempt upon graduation from the BSN program. The anatomy course is a prerequisite course required to be

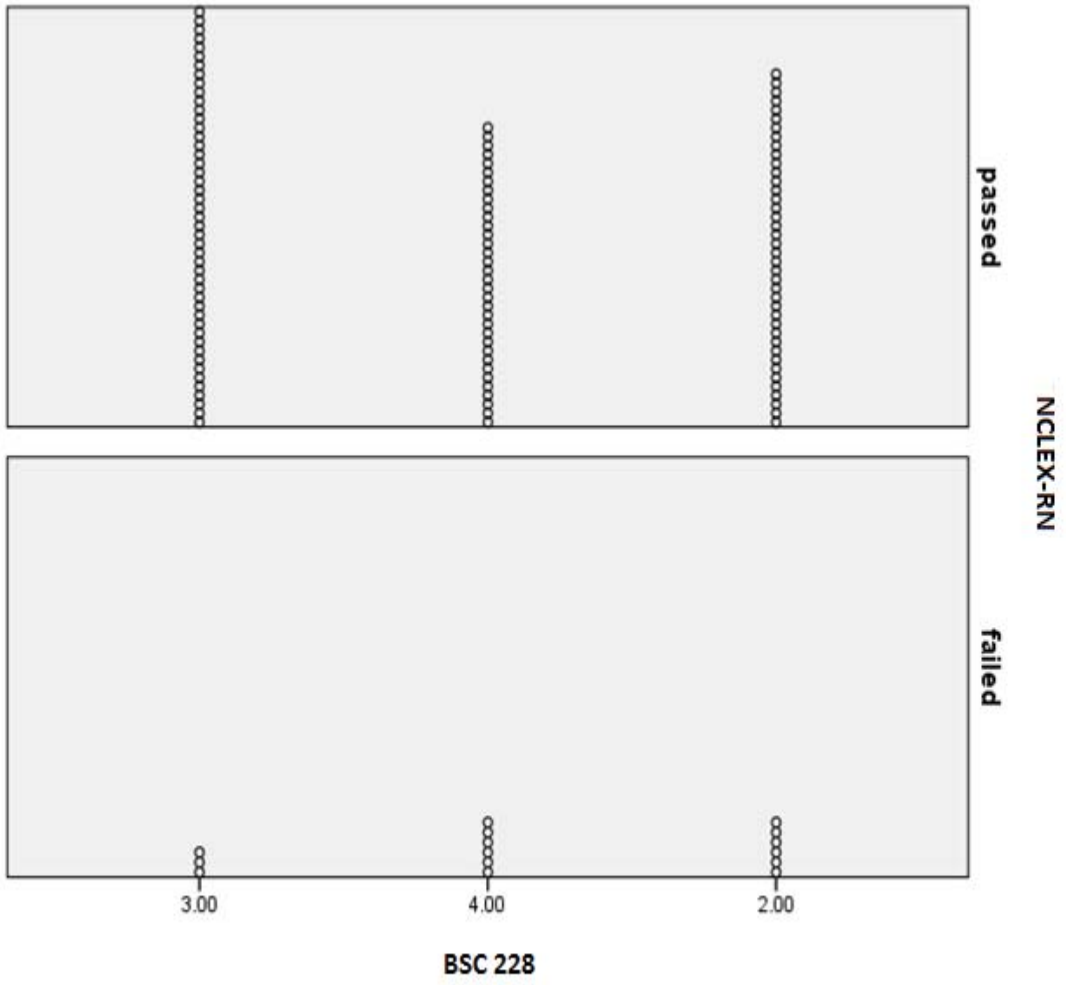
completed with a C grade or higher in order to be admitted to the BSN program. The grades of C were coded as a 2, grades of B were coded as 3, and grades of A were coded as 4 for this study. The scatterplot shows the students that passed the NCLEX-RN exam on the first attempt (Passed) status was coded as 1 for passed and 2 for failed. The students with a C in the anatomy course, 30 (91%) out of 33 passed the NCLEX-RN. Of the 55 students with a B grade in the anatomy course, 47 (85%) passed the NCLEX-RN. Of the 48 students with A grade in the anatomy course, 44 (92%) passed the NCLEX-RN. Table 6 presents the summary of the correlation between the BSC227 (anatomy grades) and the HESI Exit Exam. The correlation was shown to be significant ($p < 0.05$), therefore the null hypothesis was rejected.

Table 6

Correlation between BSC227 and HESI Exit Exam

Variables		*HESI*	*BSC227*
Pearson correlation		1	-.241**
HESI	Sig. (2-tailed)		.005
N		136	136
Pearson correlation		-.241**	1
BSC227	Sig. (2-tailed)	.005	
N		136	187

Note. ** $p < .01$, two-tailed.



BSC228 (Physiology Course) Grades

Figure 4. Scatterplot shows the relationship between physiology course (BSC228) grades and passing the NCLEX-RN exam on the first attempt upon graduation from the BSN program.

Figure 4 presents the relationship between the BSC228 (physiology) grades and passing the NCLEX-RN exam on the first attempt upon graduation from the BSN program. The physiology course is a prerequisite course required to be completed with a C grade or higher in order to be admitted to the BSN program. The correlation shows

there is not a significant relationship ($p < 0.05$), and therefore the null hypothesis is accepted. The students with a C grade in the physiology course included 46 students, and 40 students (87%) passed the NCLEX-RN exam. Of the 50 students with a grade of B in the physiology course, 47 students (94%) passed the NCLEX-RN exam. Of the 40 students with a grade of A in the physiology course, 34 students (85%) passed the NCLEX-RN exam. Table 7 presents the summary of the correlation between the BSC228 (physiology grades) and the HESI Exit Exam. The correlation shows there is not a significant relationship and therefore the null hypothesis is accepted. The prerequisite physiology course is not shown to be a good predictor of success in the BSN program and passing the NCLEX-RN exam.

Table 7

Correlation between BSC228 and HESI Exit Exam

Variables		*HESI*	*BSC228*
Pearson correlation		1	-.117
HESI	Sig. (2-tailed)		.175
N		136	136
Pearson correlation		-.117	1
BSC228	Sig. (2-tailed)	.175	
N		136	187

Research Question 2

Does the HESI Exit Exam score predict success on the NCLEX-RN exam? A total of 136 students completed the HESI Exit Exam and took the NCLEX-RN exam upon graduation. This researcher showed that the correlation is significant if the p = or <

.05. The level of significance is 0.01, which is significant, therefore rejecting the null hypothesis. Of the 136 students that took the HESI Exit Exam, 121 (89%) passed the NCLEX-RN exam and 15 (11%) failed the NCLEX-RN exam on the first attempt. The lowest score achieved on the HESI Exit Exam was 607, and the maximum score achieved was 1,128. Figure 5 shows the count, or the number of students, and the frequency between the scores on the HESI Exit Exam and whether they passed or failed the NCLEX-RN licensure exam.

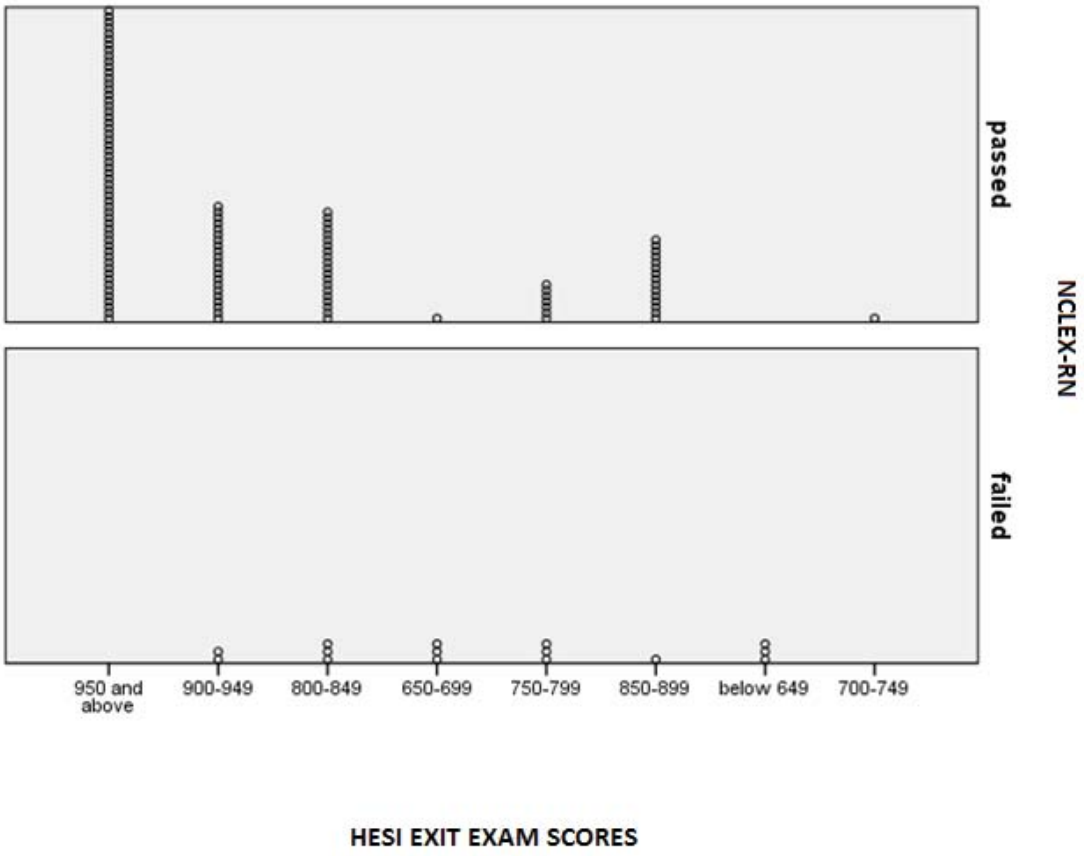


Figure 5. Scatterplot shows the relationship between scores on HESI Exit Exam and passing/failing NCLEX-RN exam on the first attempt upon graduation from the BSN program.

Figure 5 presents the relationship between the HESI Exit Exam scores and passing the NCLEX-RN exam upon graduation from the BSN program. This BSN program uses categories of HESI scores for helping to determine the probability of passing the NCLEX-RN and for remediation. This researcher coded these categories as 1 for scores of 950 or higher, with a description of an outstanding probability of passing the NCLEX-RN. The category of scores 900 – 949 was coded 2, which is described as an excellent probability of passing the NCLEX-RN. The category of scores 850-899 is coded 3, which is described as an average probability of passing the NCLEX-RN.

The category of scores of 800 – 849 are coded 4, which is described as below average probability of passing the NCLEX-RN. The category of scores of 750 – 799 are coded 5, which is described as additional preparation or remediation is needed to pass the NCLEX-RN. The category of scores of 700 – 749 are coded 6, which is described as serious preparation or remediation is needed to pass the NCLEX-RN. The category of scores of 650 – 699 are coded 7, which is described as being in grave danger of failing the NCLEX-RN. The category of scores of < 649 are coded 8, which is described as poor performance expected on the NCLEX-RN exam. The data analysis was conducted using the SPSS.

Table 8

HESI Scores and Passed NCLEX-RN Exam Crosstabulation

HESI Scores	Passed NCLEX	Failed NCLEX	Total Students
950 and above	56	0	56
900-949	21	2	23
850-899	15	1	16
800-849	20	3	23
750-799	7	3	10
700-749	1	0	1
650-699	1	3	4
Below 650	0	3	3
Totals	121	15	136

As shown in Table 8, 100% of the 56 students with a HESI Exit Exam category score of 950 and above passed the NCLEX-RN exam on the first attempt. This category has an outstanding probability of passing the NCLEX-RN, which is demonstrated with the data analysis. In the score range of 900–949, 91% passed the NCLEX, and this category has an excellent probability of passing the NCLEX-RN. In the score range of 850-899, 94% passed the NCLEX-RN, which is the category with an average probability of passing the NCLEX-RN. The level of significance is 0.01, which is significant, therefore rejecting the null hypothesis. This study's findings is consistent with a recent research study, which reported that the common benchmark score of 850 to be 97.5% accurate in predicting success, and a score of 900 or above to be 98.3% accurate in predicting success (Young & Langford, 2011).

In the score range of 800-849, 87% passed the NCLEX-RN, which showed a decrease in the pass rate compared to the higher score ranges. In the score range of 750-799, 70% passed the NCLEX-RN, which showed a significant increase in the fail rate to

30%. This category of 750-799 has a description of additional preparation needed, which is demonstrated with this data analysis. There was only one student in the 700-749 score category and this student passed the NCLEX-RN.

In the score range of 650-699, 25% passed the NCLEX-RN and 75% failed the NCLEX-RN. This category of scores 650-699 shows a probability of a grave danger of failing, which is demonstrated with this data analysis. There were three students in the category of scores below 649, and 100% of these students failed the NCLEX-RN exam. The probability of poor performance is expected in the category of scores below 649, which is demonstrated by 100% fail rate with this category in the data analysis. The findings support existing research that reported that as the HESI Exit Examination scores decreased, there was an increase in the percentage of NCLEX-RN failures (Nibert et al., 2002). This study's findings support existing research that HESI Exit scores are a good predictor of success on the NCLEX-RN Exam, which were reported to be 96.36% to 98.30% accurate in predicting success on the NCLEX-RN, using a sample of 17,342 RN students in studies conducted over four consecutive years (1996-2000) (Lauchner, Newman, & Britt, 1999; Newman, Britt, & Lauchner, 2000; Nibert, Young, & Adamson, 2002).

Secondary Research Question 1

What preprogram admission criteria best predicted completion of the nursing program and passing the NCLEX-RN exam? The preprogram admission criteria that best predicted completion of the nursing program and passing the NCLEX-RN exam was the ACT scores and the preprogram GPA. As shown in Table 4 and Table 5, the correlation

is significant ($p = 0.01$), which shows both ACT and the preprogram GPA are significant predictors of completing the BSN program and passing the NCLEX-RN exam on the first attempt.

Secondary Research Question 2

What is the HESI Exit Exam score range that predicted the first time pass rate on the NCLEX-RN? The HESI Exit Exam score range that best predicted the first time pass rate on the NCLEX-RN exam was scores 950 and above, as shown in Figure 10. Of the 56 students that achieved a score of 950 and above on the HESI Exit Exam, 100% passed the NCLEX-RN exam on the first attempt. The pass rate decreased to 91% in the score range of 900-949, and decreased to 94% in the score range of 850-899. The pass rate decreases significantly with the scores less than 850, which is the score range with below average of passing the NCLEX-RN, and it is also the score range requiring remediation in this BSN program. The findings correlate with a recent study by De Lima et al. (2011) that reported the HESI scores correlate with student success. This study's findings identified a statistically significant relationship between the scores on the HESI Exit Exam and successfully completing the BSN program as well as passing the NCLEX-RN exam.

Conclusion

Section 2 discussed the quantitative research design in this nonexperimental, correlational study using secondary data from the BSN program, from the two graduating classes of May 2010 and May 2011, to help identify variables that predict program completion and success on the NCLEX-RN exam. The purpose of this study was to

evaluate the variables of the nursing curriculum that can predict success on the NCLEX-RN licensure exam, which nursing students of this baccalaureate nursing program are eligible to take upon graduation. This quantitative research design was appropriate for this study because this researcher was unable to control or manipulate the independent variables.

Section 2 also discussed the setting and sample from which the sample was drawn, instrumentation and materials used in the study, assumptions and limitations of the study, and the importance of protection of participants as well as maintaining confidentiality. By examining and evaluating the variables of the nursing curriculum that can predict success on the NCLEX-RN, measures can be used to identify these at-risk students early on, which will help with admitting students most likely to succeed, prevent nursing student attrition, as well as promote completion of the nursing program and passing the NCLEX-RN for all students.

The data analysis findings identified a statistically significant relationship between the preprogram variables and the HESI Exit Exam scores related to completion of the BSN program and passing the NCLEX-RN exam. The implications for positive social change includes addressing the critical nursing shortage by increasing the number of nursing graduates who pass the NCLEX-RN on the first attempt, which ultimately will result in improved healthcare throughout the United States. The results of this study could contribute to the body of knowledge needed to address this problem with attrition and successfully completing the nursing program, as well as passing the NCLEX-RN exam.

Section 3 consists of an explanation of the project and a review of the literature addressing the project. After collecting and analyzing the data, I concluded that the best project to help prevent attrition and increase the number of nursing graduates that pass the NCLEX-RN exam was to develop a pre-nursing course titled Introduction to Nursing: Prep for Success. The data analysis revealed that the largest attrition occurred in the first semester of the BSN program, with the attrition of 22 (43%) out of the 51 students. The goal of the development of this pre-nursing course was to help prepare the students for the BSN program, which could help with retention of the students admitted into the BSN program, and thus increase the pass rate on the NCLEX-RN upon graduation. Section 3 outlines the course developed to address student retention and increase the number of nursing graduates who successfully complete the program.

Section 3: The Project

Introduction

High attrition rates in baccalaureate nursing programs have presented a challenge for nursing faculty to find ways to increase retention within their institutions (Jeffreys, 2012; Porter, 2008; Williams, 2010). With the critical nursing shortage worsening, it is essential to accept the students most likely to complete the nursing program, and nursing schools are poised to find ways to retain the nursing students admitted. The purpose of this project study was to investigate the factors related to retention and successfully completing the BSN nursing program, as well as first-time NCLEX-RN pass rates at a 4-year college in the eastern United States. This problem with retention and passing the NCLEX-RN exam affects not only the BSN nursing program at this college, but other nursing programs throughout the country (McLaughlin, Moutray, & Muldoon, 2008).

Based on the results of the completed research investigating the factors related to retention and completion of the BSN program, I formulated the development of a course titled Introduction of Nursing: Prep for Success. The goal of the development of this course was to raise the retention rate of those nursing students admitted into the BSN program and increase the pass rate on the NCLEX-RN exam upon graduation. The course could help with retention by preparing the students for the rigorous nursing program. The success of the prenursing course would be evaluated with a student survey and with the data collected on student retention and pass rates on the NCLEX-RN exam.

Project Description

To meet the challenges of the critical nursing shortage, it is imperative to address the problem with retention of students enrolled in nursing programs (Williams, 2010). Integrating strategies early on will help prepare students for successful NCLEX testing earlier in the curriculum and help increase the number of students who successfully pass the NCLEX-RN exam (Carr, 2011; Silvestri, Clark, & Moonie, 2013). Nurse educators are in a key position to positively influence the retention of nursing students by designing and implementing retention strategies (Jeffreys, 2012). Attrition is financially costly to the student, the colleges, and society in general, and it can also be psychologically costly to the student (Friedman & Mandel, 2010; Jeffreys, 2012; Martin & Dowson, 2009). Development of the course Introduction of Nursing: Prep for Success would be proposed to the faculty and administration of this BSN program located in the eastern part of the United States for the retention of nursing students. The goal of this prenursing course was to help prepare students for the rigorous nursing program, which could help meet the goals of retaining those students through graduation of the nursing program, passing the NCLEX-RN licensure exam on the first attempt, and ensuring the students' swift entry into the workforce as nurses.

The results of this project study revealed that data obtained from the student academic records could be used to help identify students at risk for attrition in the nursing program. Based on the results of this project study and practices shown in the literature, a prenursing course entitled Introduction of Nursing: Prep for Success was developed. This course would be offered every semester for students in the freshman year taking

prerequisite courses prior to entering the BSN program in their sophomore year. This prenursing class would be recommended for students in preparation of the rigorous BSN program.

The prenursing course could help prepare the nursing student for meeting the expectations of the BSN program by enhancing their academic skills to help prevent nursing course failure. During this course, some of the major factors that often contribute to nursing course failure would be covered, such as test taking strategies, time management, and nursing process principles. Students are more likely to take this prenursing course if it is recommended by the faculty to prepare them for successfully completing the program.

Adult learners learn better when they understand how the information presented to them in class will benefit them (Knowles, 1990). The objective of this course is to provide a supportive foundation to prepare the nursing student for success in the BSN program. Topics include discussing stressors and utilizing stress reduction techniques, clarifying expectations, identifying effective communication skills, time management strategies, and practice test taking strategies for NCLEX style test questions. Other topics covered include the roles and responsibilities of the nurse, writing nursing care plans, medical and health care terminology, the American Psychological Association (APA) guidelines in writing papers, and identifying college resources available.

Project Goals

This project has three main goals. The first goal is to help prepare students for the rigorous BSN nursing program by enhancing their academic skills and introducing

nursing foundational principles. The second goal is to improve the retention rate of the BSN program by 20% following the first year of implementing the project prenursing course entitled Introduction of Nursing: Prep for Success. The third goal is to increase the NCLEX-RN pass rate to greater than 90% after the students who completed the prenursing course graduate from the BSN program.

Rationale

Attrition in this BSN nursing program in the eastern part of the United States continues to be a problem. Finding a way to decrease the attrition rate would help meet the student's goal to become an RN and the nursing program's goal of preparing students for providing quality, competent nursing care. Peterson (2009) reported that the attrition rate was approximately 30% in a BSN program with 82% of those students leaving in the first semester of the program. Attrition is a problem that affects nursing programs across the United States and is associated with the critical nursing shortage (Hopkins, 2008; National League for Nursing, 2008; Peterson, 2009; Pryjmachuk, Easton, & Littlewood, 2009).

The results of this study identified a statistically significant relationship between the preprogram GPA, ACT scores, anatomy course grades, and the HESI Exit Exam scores related to completion of the BSN program and passing the NCLEX-RN exam. By identifying early on these students at-risk for attrition, interventions could be implemented to help with retention of these students. Completion of this elective prenursing course could help decrease the attrition rate in this BSN program by helping prepare the student for the BSN program, and could be especially beneficial for these at-

risk students in successfully completing the nursing program as well as passing the NCLEX-RN exam.

Review of Literature

A literature review was conducted to perform a focused search of the pertinent literature and gain knowledge on the main issues of student retention programs and curriculum development. The focus of this search was accessed from databases on the Walden Online Library and Google Scholar. The databases used for this study included Academic Search Premier, CINAHL Plus with Full Text, EbscoHost, Education Resources Complete, ERIC, MEDLINE, Ovid, ProQuest, PsycInfo, Sage, and the ProQuest Digital Dissertation database. Key words used in the search included *nursing student, student retention, nursing student retention, baccalaureate nursing student retention, student attrition, nursing student attrition, nursing program failure/success, NCLEX-RN success/performance, NCLEX-RN failure, nursing curriculum revision, curriculum development, prenursing programs, program planning, program planning proposal, and nursing education program planning.*

Nursing Student Retention

Advancements in the medical field have led to an increase in the competency requirements for the graduate nurse and higher passing standards on the NCLEX-RN exam (Carrick, 2011). These higher passing standards put more demands on the nursing student to be successful in completing the program and passing the NCLEX-RN exam. Trying to identify the students at risk for failure in the nursing program is an ongoing problem for nurse educators (Carr, 2011; DiBartolo & Seldomridge, 2008). The review of

the literature revealed a number of different strategies used to help with nursing student retention. The various strategies used to improve student retention included such interventions as academic policies for admission and progression, different curriculum and teaching approaches, assessment of learning, remediation, and student support (Carr, 2011; Carrick, 2011; Crow, Hartman, & McLendon, 2009; Davenport, 2007; Pryjmachuk, Easton, & Littlewood, 2009).

While some research on retention programs has focused on two or more aspects to improve retention of students, researchers have stated that the main focus should be to identify predictors early on in the nursing curriculum to allow early interventions with students at risk for not completing the program or failing the NCLEX-RN exam on the first attempt (Baker, 2010; Landry et al., 2010; McDowell, 2008). Findings from the literature review revealed a common theme for successfully retaining nursing students by implementing strategies that focused on teaching students test taking skills, study skills, and strategies for improving critical thinking skills and time management (Carr, 2011; Carrick, 2011; Bonis, Taft, & Wendler, 2007; Gardner, 2005; McDowell, 2008; Shelton, 2012). Some nursing programs have hired faculty for implementing retention strategies to improve critical thinking skills, time management, test taking skills, and to provide support for these at risk students (Gardner, 2005; Stewart, 2005). Gardner (2005) implemented a successful retention program that included hiring a retention coordinator who provided extra support for the students, held mini support group sessions to allow students to voice concerns, and met with students whenever they received lower than a C+ on an exam to review their tests and discuss test taking strategies.

Attrition of nursing students is a problem affecting programs throughout the United States and is associated with the critical nursing shortage (Buerhaus et al., 2009; Gilmore, 2008; Jeffreys, 2007; Peterson, 2009). Passing the first semester nursing courses has been shown to be a strong predictor of completing the program and passing the NCLEX-RN exam (Landry et al., 2010; Newton & Moore, 2009). The results of this study revealed that the largest attrition occurred in the first semester of the BSN program, which correlates with the results of five studies that reported the attrition rate was highest in the first semester of the program (Jeffreys, 2007; Landry et al., 2010; Newton & Moore, 2009; Peterson, 2009; Rees, 2006). This study's findings support other research studies (Colalillo, 2007; Jeffreys, 2012; Jenkins, 2006) that revealed most nursing students decide to drop out within the first semester. It is during that first semester of the nursing program that students are trying to adjust from taking the prenursing courses to meeting the expectations of the nursing program.

There is little empirical data on retention in a BSN program, as well as passing the NCLEX-RN exam, based on data on student aptitude (Newton & Moore, 2009). The results of this study revealed that the preprogram admission criteria that best predicted the completion of the BSN program and passing the NCLEX-RN on the first attempt were the ACT scores and the preprogram GPA. This study's findings show an ACT score of 24 or higher revealed a 98% pass rate on the NCLEX-RN. An ACT score of 21-23 revealed an 85% pass rate, whereas an ACT score of 20 or below revealed a high risk for failing the NCLEX-RN exam, with 42% of the 12 students failing the exam. These findings support existing research on ACT admission tests as predictors of performance

on the NCLEX-RN licensure exam (Gilmore, 2008; Grossbach & Kuncel, 2011; Higgins, 2005).The findings on the significant correlation between the preprogram GPA and passing the NCLEX-RN exam upon graduation support existing research findings that GPA is predictive of nursing program completion and passing the NCLEX-RN (Gilmore, 2008; Grossbach & Kuncel, 2011; Landry et al., 2010; Newton et al., 2007; Shirrell, 2008; Uyehara et al., 2007).

Recent studies recommend that admission committees look at required science coursework due to the fact that prerequisite science course grades are good indicators for success on completing a nursing program and passing the NCLEX-RN (Landry et al., 2010; McGahee et al., 2010). The results of this study showed the prerequisite anatomy course to be a good predictor of successfully passing the NCLEX-RN upon graduation from the BSN program. This finding supports other research findings focusing on prerequisite science course grades as predictors of success in program completion and passing NCLEX-RN (Gilmore, 2008; Landry et al., 2010; McGahee et al., 2010; McGann & Thompson, 2008).

The results of this study showed the HESI Exit Exam scores of 850 to 899 to be 94% accurate at predicting success on the NCLEX-RN exam, a score of 900 to 949 to be 91% accurate, and a score of 950 and above to be 100% accurate in predicting success. This study's findings are consistent with the results of a research study by Young and Langford (2011), revealed that the common benchmark score of 850 on the HESI Exit Exam to be 97.5% accurate in predicting success, and a score of 900 or above to be 98.3% accurate in predicting success on the first attempt at taking the NCLEX-RN exam.

This study showed the pass rate decreased significantly with scores less than 850, with a score of 750-799 to be 70% accurate in predicting success, and a score of 650 to 699 was shown to be a 25% accurate in predicting success. The findings revealed that 100% of the students with scores below 649 failed the NCLEX-RN exam on the first attempt.

This study's findings correlate with recent studies that reported a correlation between HESI scores and student success (Adamson & Britt, 2009; DeLima et al., 2011; Lavandera et al., 2011; Young & Langford, 2011). However, Spurlock and Hunt (2008) concluded that the HESI Exit Exam could not accurately predict failure on the NCLEX-RN exam and that schools should not use a required HESI Exit Exam score as a nursing school curriculum requirement in order to graduate and take the licensure exam. In some schools, students can complete all of the required coursework in a nursing program, and because of a nursing school curriculum requirement to attain a required HESI Exit Exam score, are unable to graduate or sit for the NCLEX-RN, which only adds to the critical nursing shortage (Lavandera et al., 2011). The findings from this study showed a student passed the NCLEX-RN exam on the first attempt with a score of 700 to 749, and another student passed with a score between 650 to 699 on the HESI Exit Exam. The HESI Exit Exam scores should be used as a predictor of success and used to identify these at-risk students so that remediation or interventions can be implemented to help ensure success in completing the program and passing the NCLEX-RN (Baker, 2010; DeLima et al., 2011; Greenspan et al., 2009; Harding, 2010; Nibert et al., 2006; Roa et al., 2011).

The American Nurses Association (ANA) of California in 2007 passed a resolution for implementing support groups within nursing programs to reduce stress and

reduce attrition rates. A nursing program in California implemented a weekly support group that met in groups of 10 for 90 minutes a week, and the attrition rate dropped from 20% to 5% in the first year (Alvy, 2010). Prior to starting the support groups, the students signed confidentiality consent forms, were reassured of the confidentiality of the group discussions, and that what was discussed would not affect their standing in the nursing program. The group facilitators were licensed marriage or family therapists and the costs for the support group were minimal due to receiving a grant to fund the salaries for the director and therapists (Alvy, 2010). Implementing support groups for the nursing students could be used as a retention strategy to help students deal with the added stress of nursing school and help decrease attrition.

Another theme of successful retention programs emphasized the importance of faculty support, faculty availability, timely feedback on test and clinical performance, and creating an environment conducive to learning (Baker, 2010; Freitas & Leonard, 2011; Gardner, 2005). Faculty support perceived by students has been shown to be related to academic performance and persistence in completing the program until graduation (Shelton, 2012). The lack of faculty and student interaction or unsatisfactory interactions has been reported by several studies to produce a negative effect by causing academic boredom or poor academic performance (Shelton, 2003, 2012; Tinto, 2005). Studies have indicated that classes that promote active student participation motivated the students to engage in other interactions outside of the classroom, whereas classes that did not promote active student participation had the opposite effect (Tinto, 2006). A sense of belonging is very important for student success, and anxiety produced by a lack of sense

of belonging can produce a short-term impairment in academic performance (Lathlean, 2008). Providing a learning environment that is supportive and receptive to asking questions without fear of embarrassment has been shown to enhance the confidence level and allow the student to focus on their self-directed learning (Elliot, 2012; Lathlean, 2008).

It is the responsibility of the faculty, staff, and administration to assist students in their education and help them be successful in meeting their educational goals. Analyzing students' needs can help faculty and staff identify student concerns and issues that can affect the student achieving success in their educational pursuits, whether they are academic or psychosocial concerns. Many students are dealing with factors that can affect their performance in the clinical and classroom setting, such as psychological stress, test taking anxiety, juggling family obligations, work responsibilities, health issues, and economic instability. Through discussion, these needs can be addressed and students can be provided with resources and community support with early identification of problems by faculty, which can greatly impact the student's chances for achieving academic success and facilitating student retention. Faculty and staff should recognize when there is a problem and refer students to the appropriate resources because otherwise this may put the student at risk for attrition (Freitas & Leonard, 2011).

Tinto (2006) developed a theory to help predict student attrition and focused mainly on the longitudinal process of the interaction between students, faculty, and their particular education system. Tinto's theory insists that there is not just one factor that is responsible for student attrition, but that many factors that contribute to the problem with

attrition, and this theory is broad enough to include both student and institutional factors that contribute to attrition. Commitment to an educational institution has been shown to be a significant factor influencing a student to persist in continuing their education, even when there are less than satisfactory conditions (Tinto, 2005). In order to be successful in college, Tinto (2005, 2006) discussed how students need to have both social and academic integration, and that the higher the degree of integration, the odds of commitment to the educational institution and to the goal of graduating from the institution greatly increases. Baker (2010) concluded that positive faculty-student interaction is the most compelling strategy used for retention, and other studies established that students viewed faculty advisement as supportive and vital to their success in nursing programs (Higgins, 2005; Jeffreys, 2012; Shelton, 2003).

A third theme of successful retention of nursing students reported in the literature was the implementation of strategies to maintain the student's mental and physical health and well being. Research showed that educating students about stress reduction techniques, exercise, adequate rest, eating healthy, belonging to nursing associations, and being involved in social activities can help students cope with barriers that can contribute to successful completion from nursing programs (Freitas & Leonard, 2011; McDowell, 2008; Sayles & Shelton, 2005). The use of social gatherings, such as pot luck dinners where the student's family is encouraged to come and show support for the student, has been a successful retention strategy (Gardner, 2005). Gardner encouraged the use of health care seminars to discuss healthy eating and other personal wellness strategies.

Creating a mentoring network with working RNs in the community and nursing students in the program has been shown to promote success by providing role models, friends, and a support system (Gardner, 2005). Student mentoring and tutoring has been shown to improve retention rates in nursing programs also (Stewart, 2005; Sutherland et al., 2007). However, Baker (2010) concluded that organized study groups and peer mentoring were not used much, or were not very effective retention strategies. Research has identified three subcategories for student support: professional networks that includes colleagues and mentors, social networks that includes family and friends, and academic networks that includes both tutors and peer groups (Dearnley & Matthew, 2007). These three networks interact and work together to support the student, and when one support network fails then another support network must be activated to help the student succeed. Support within the nursing program and outside the program is essential to successfully completing the nursing program and passing the NCLEX-RN exam. Nonacademic variables such as competency in critical thinking skills, lack of anxiety or emotional distress, and lack of family or work demands can have a positive impact on student success and retention (Landry et al., 2010; McLaughlin, Moutray, & Muldoon, 2008).

Nursing Curriculum Development

Nursing curriculum development is a dynamic process, where evaluation of the curriculum can identify gaps and overlaps in content based upon an assessment of the content taught, and revision is needed to meet state and national standards (Carr, 2011; NLN, 2005; Shelton, 2012). Nursing programs are dictated by accrediting standards, and nursing programs are required to include learning resources and technology that are

current and include alternative methods of delivery of teaching (Shelton, 2008). Evaluation of nursing program curriculum by accrediting standards can provide data to identify a nursing program's strengths and areas where improvements are needed.

The passing standard for the NCLEX-RN exam was raised on Dec. 17, 2012 by the National Council of State Boards of Nursing, Inc. (NCSBN) Board of Directors (BOD). Raising the passing standard was in response to changes in U.S. health care and nursing practice, due to the higher acuity of clients seen by entry-level RNs. The passing standard was raised from the current -0.16 logits to 0.00 logit with the new 2013 NCLEX-RN Test Plan, starting April 1, 2013. The NCSBN BOD determined that the entry level RN practice requires a greater level of knowledge, skills, and abilities than was required in 2009 when NCSBN implemented the current standard (NCSBN, 2013).

The NCSBN evaluates and determines the passing standard every three years to protect the public by ensuring minimal competence for new RNs. These changes will affect nursing school's curriculum development to include varied teaching strategies and collaborative learning experiences to improve critical thinking skills to prepare the entry level nurse in providing competent care for these higher acuity clients. The goals and measureable outcomes of the project should be established and should also be in alignment with the mission and goals of the educational institution. Any proposed curriculum revision or changes in teaching must be based on a comprehensive literature review using evidence based research (Forbes & Hickey, 2009; Kalisch & Begeny, 2010).

Nursing curriculum development is a process that takes time and commitment from the faculty. Change in curriculum is inevitable due to the need to meet the workforce and community needs in this rapidly changing health care environment. Faculty must provide curricula that will produce graduates with the necessary skills as a successful, competent nurse in the workforce (Billings & Halstead, 2008; Carr, 2011). Due to the massive changes in technology, economics, and the adult population becoming more diverse than ever, changes in curriculum is inevitable to maintain high quality education standards and help at-risk students achieve these academic standards (Billings & Halstead, 2008). Effective leadership, along with administrative support, is vital for making curriculum changes. An open discussion among the faculty as to how the changes will affect them, as well as how the curriculum changes will improve the program will help with the faculty buy-in and implementation of the curriculum changes (Billings & Halstead, 2008; Shelton, 2012).

Nurses are expected to perform their job as RNs with safe and competent care upon entering the workforce. The use of the human patient simulator as a teaching strategy can help to prepare nursing students by exposing them to a variety of learning situations which can foster development of critical thinking skills and practice clinical skills. Educators are aware that there is often a lack of clinical placements, due to a variety of reasons, which makes it difficult to fully develop their clinical competencies needed to enter the workforce as an RN (Berragan, 2011; Kalisch & Begeny, 2010; Waldner & Olson, 2007). Utilizing a variety of teaching and learning strategies have been shown to promote active student participation, such as case studies, small group projects,

simulation, practicing clinical computer documentation, journaling, reflection and self evaluation (Billings & Halstead, 2008; Brown, Kirkpatrick, Mangum, & Avery, 2008; Kalisch & Begeny, 2010).

This second literature review provided key strategies shown to be successful in retention of nursing students. In summary, implementing successful nursing retention programs includes focusing on assisting the nursing student achieve their academic goals, the responsibility of the faculty, staff, and administration to assist students in their education, and the development of the curriculum to achieve student success.

Project Planning for Prenursing Course

A prenursing course entitled Introduction of Nursing: Prep for Success was developed to help prepare students for the BSN nursing program and increase the retention rates. This course will be offered every semester for students in the freshman year taking prerequisite courses prior to entering the BSN program. Students in this BSN program take prerequisite courses in the freshman year prior to starting the nursing program in the sophomore year. The course will be taught in the classroom to engage students, facilitate discussions and encourage student interactions. The course will also have an online classroom using the asynchronous Blackboard technology as a supplement for purposes of ongoing communication, such as discussions, e-mails, assignment submissions and grading, recording grades, and posting documents with the class.

This elective course will focus on test taking strategies, study skills, time management strategies, discussing the role and responsibilities of the nurse, nursing process principles, nursing care plans, using APA guidelines for writing papers, and

identifying college resources available. By discussing stressors, utilizing stress reduction techniques, and clarifying expectation of the nursing student in the BSN program, this course will provide the student with tools to succeed once they enter into the nursing program.

Providing informative material regarding both the challenges and rewards of studying to be a nurse and working as a nurse could also guard against a wrong career choice for students (Pryjmachuk, Easton, & Littlewood, 2009). Many students are not completely sure that nursing is the perfect career choice when they apply for the nursing program. Some students may be persuaded to become a nurse because of another family member's advice or having known someone who is a nurse. Completion of this prenursing course could help students make an informed decision about a future career as a nurse, which could save the student time and resources if they decide nursing is not the best career for them before starting the BSN program. If a student decides that a career in nursing is not what they want to pursue, it will also create an open slot for another qualified student competing for entry in the BSN program. Guest speakers will be invited to come to the prenursing class to share their experiences as staff nurses, school nurses, nurse educators, nurse practitioners, and other nursing careers, which will provide informative material about their nursing education, career, work challenges and rewards.

Course Topics

Introduction. The first unit is an introduction to nursing, the role and functions of the nurse, characteristics and expectations of undergraduate and graduate nursing programs, and continuing education requirements.

Course content. The first unit of the course content will introduce the nurse's role in the current health care practice, foundational nursing principles, discuss the purpose of nursing theory, explain the components of the nursing process, and the legal and ethical issues involved in nursing. The course requirements, policies, and expectations of the BSN program will be discussed. This unit will also describe and differentiate the educational programs for becoming an RN, and describe advanced degrees in nursing. The roles of the registered nurse and the career opportunities will be discussed also.

The second unit will discuss the steps for applying the nursing process and the theoretical foundations of the nursing practice. The role of the nurse in health promotion, wellness, and illness will be discussed. The American Nurses' Association Standards of Nursing Practice and how it affects nursing practice will be explained in this unit. This unit will describe the assessment step of the nursing process and the methods of assessment used for comprehensive data collection in developing the client database. The difference between a medical diagnosis and a nursing diagnosis will be explained, and will discuss how critical thinking will be used to analyze the data in identifying the client's needs. The importance of the nursing plan of care and how the nurse identifies measurable goals that are individualized for the client will be explained. The ethical and legal concerns regarding interventions used in comprehensive nursing care will be discussed, along with the need for documentation and communicating the client's condition. This second unit will describe evidence-based practice and explain how nursing research can improve nursing practice.

The third unit will cover strategies for success in the nursing program and in the profession of nursing. This unit will help students identify their individual learning style and discuss activities to improve critical thinking skills. Ways to develop a positive mental attitude and achieve a feeling of empowerment, which will help students succeed in test taking and in stressful situations, will be discussed. Time management techniques and identifying barriers to productivity will be explained. Overcoming procrastination, which is postponing something until a later time, can help students maximize the time spent studying for nursing exams. Students will practice test-taking techniques to promote success when challenged by a variety of testing formats. In this third unit, other topics covered include medical and health care terminology, and the use of American Psychological Association (APA) guidelines in writing papers.

Learning resources. This course has a list of required and recommended textbooks needed for completion of this course. A list of credible websites, books, and other resources will also be available on the online course home using asynchronous Blackboard technology, which is used as a supplement for purposes of ongoing communication, such as discussions, e-mails, assignment submissions and grading.

Implementation and Timetable

The implementation of this project will begin with presenting the project and the results of the project research to the faculty and administration of the school of nursing. The project will be presented in a professional manner and will explain the rationale for the implementation of the project so that the key stakeholders will see the benefits of the project. In order to receive buy in from the key stakeholders, it is important to explain

what is expected of everyone, a discussion of the steps involved in implementing the project, and the benefits from the project (Boland, 2009; Kumm & Fletcher, 2012).

The project will include clear evidence for the need of the new course and data to support it, program content, and a plan for periodic evaluation of the course. The presentation will also discuss any necessary resources and support for the project, and the projected enrollment and student costs. A possible barrier for implementing this project would be lack of support from the key stakeholders and from administration. Including these key stakeholders in the planning of the project and understanding the overall benefits can increase the potential for implementation. For any project to be successful, it is essential to ensure support from the key constituent groups and other stakeholders (Boland, 2009; Keating, 2010, Kumm & Fletcher, 2012). A written plan for the approval of the prenursing course will be given to the dean of the college and the chairperson for the school of nursing to take to the curriculum committee meetings and administrative meetings to discuss the approval of this project. An adequate sized classroom would be reserved for the lecture portion of the class. An instructional course designer will assist with graphics design for the asynchronous online course used to communicate to the students, email the students, submit assignments, and post grades. The development and approval of the prenursing course will take approximately three to four months.

Once the administration and faculty members at the college approve of the project, the implementation of the prenursing course entitled Introduction of Nursing: Prep for Success will start the following semester. This prenursing course will then be offered every semester for prenursing students to prepare them for the BSN program.

Changes to the course will be made based on recommendations and from the evaluations of the course.

Resources and Support

Adequate classroom space is available for the traditional classroom portion of the Introduction of Nursing: Prep for Success course. Instructional designers are available to assist faculty members in the design of their courses regardless of the mode of delivery, whether synchronous or asynchronous. The students would register for the course online and would be able to access the course online using their student identification number and password. The students would need to have internet access and a computer to submit assignments, check email, and communicate with the course coordinator. The course coordinator's contact information would be listed on the online portion of the course.

Computer and internet access is available for students in the university's library. Technology support is provided to students and faculty through the IT Services Desk, which is available at the ground floor of library as well as via internet and telephone. The IT support is available 24-hours from Monday through Friday. On weekends, the service is available by phone and computer, where calls and messages are returned within four hours. Books and other supplies are available in the university's bookstore or can be ordered online. Books can also be checked out from the library for the students to use. Several research librarians are also available at the library to assist nursing students find research articles, and electronic databases are readily available to all students at library and also via the library website.

The university provides a resource center for students which supports and enhances their professional, academic, and personal goals. The center has resource specialists that can assist students with financial aid questions, general academic advising, and career services. Tutoring services is available to all students at no charge by individual appointment or by just dropping by the tutoring services center. The university also provides a writing center, located in the library, which is a free tutoring assistance available for all students wanting help with their writing.

Faculty have verbalized a concern about retention of nursing students in the BSN program, and several faculty have shown an interest in implementing new retention strategies. The faculty who have shown an interest in retention will be the first key stakeholders asked to help implement the project. The administration's plan is to seek resources to support the mission and goals of the university. Because funding is affected by student enrollment, the administration has an interest in retention, which helps provide adequate funding for the university's various programs. In order to reach this objective, the president of the university plans to initiate the necessary measures to increase retention and graduation rates.

Roles and Responsibilities

The purpose of this prenursing course is to increase the retention rates of the students in the BSN nursing program and the NCLEX-RN pass rates upon graduation. The students enrolled in this course increase will be responsible for attending the classroom and actively engaging in classroom discussions, small group activities, and other assignments. The course coordinator for the prenursing course will be responsible

for ensuring the course contents meets the course objectives and meets best practices based on evidence based research. The course coordinator will also be responsible for teaching the prenursing course in the traditional classroom setting. An instructional online course developer will assist the course coordinator in making any changes and maintaining the asynchronous Blackboard online course, used as a supplement in conjunction with the traditional classroom setting to submit assignments, discussion postings, post grades, and communicate through email. Any questions by students or others, regarding the content or the expectations of the course, will be encouraged to contact the course coordinator. It is anticipated that the nursing faculty will be supportive of the implementation of this prenursing course and the administration will help provide any resources needed for the course.

Project Evaluation

A program evaluation provides useful feedback to the planners, participants, instructors, and other stakeholders. The evaluation data helps determine whether a program is effective or not and helps in making decisions to improve the program (Caffarella, 2010). The key stakeholders for this project include the nursing students, the faculty, the administration, nursing employers, and the community. The type of evaluation used for this project is a summative evaluation, which is an evaluation completed at the end of a program. A summative evaluation "focuses on the results or outcomes of a program" (Caffarella, 2010, p. 328). The data of the summative evaluation is used to evaluate the outcomes of the program and determine its success.

The first overall evaluation goal for this prenursing course is to prepare students for the BSN program, as evidenced by an increase in the retention rate of the BSN student by 20% following the first year after implementing the project prenursing course Introduction of Nursing: Prep for Success. The second overall evaluation goal is to increase the NCLEX-RN pass rate to greater than 90% after the students who complete the prenursing course graduate from the BSN program. The retention rates of the students and the NCLEX-RN pass rates will be analyzed every year to see if the overall goal for this course is being met and make changes to the course as needed. The findings of the data will be shared with the curriculum committee, faculty, and administration to evaluate if the course is meeting the two overall goals of the project.

Surveys that have been shown to be successful are the online computer surveys because of the ease of use (Story et al., 2010). Online course surveys will be sent to all class participants for summative evaluation of the course. Likert scale evaluations completed by course participants will be used to evaluate the prenursing course. Story et al. (2010) concluded that paper and pen surveys can be inefficient and usually do not yield sufficient response rates. The course evaluations by students and the retention rates will be reviewed each semester. The curriculum committee for the BSN program will monitor the course to see if it is meeting the overall goals and make suggestions for improving the course.

Project Implications Including Social Change

A prenursing course is intended to prepare the student for the rigorous BSN nursing course and help increase the retention rate of students. The implications of this

project could have a positive impact on the students, the nursing program, the local community and state, and could have far reaching implications throughout the United States. By increasing the retention rate of the students completing the BSN nursing program, and increasing the success rate of passing the NCLEX-RN licensure exam, this project could have lasting social implications at the local level by increasing the number of qualified RNs entering the health care workforce.

The success of this project could have far reaching implications if other nursing programs throughout the country implement replication of this prenursing course to help retain students, which would increase the number of RNs entering the workforce. According to the U.S. Bureau of Labor Statistics, the nursing shortage throughout the United States is projected to grow to more than 260,000 RNs by the year 2025 (AACN, 2011). Peterson (2009) concluded that nursing student attrition affects the number of nursing graduates entering the workforce, and by increasing the number of nursing graduates it could help alleviate the nursing shortage. When students are not successful in completing the nursing program, it is a waste of time and resources for the student (Gilmore, 2008; Landry et al., 2010). A study by Peterson (2009) showed that the attrition rate was 30% in a BSN program, and a program with a prenursing course could help address the problem with attrition in the first year of the nursing program.

The implications for positive social change include addressing the problem with attrition of nursing students and the nursing shortage by implementing the project prenursing course to prepare students for the rigorous BSN program. Research shows that there is a link between higher levels of nursing education and better patient outcomes,

and studies indicate increasing the number of baccalaureate prepared nurses will lead to less medication errors and a lower patient mortality rate (AACN, 2011; ANA, 2010). In order to meet the needs in our complex healthcare environment, the National Advisory Council on Nursing Education and Practice recommended that two-thirds of the nursing workforce hold baccalaureate degree in nursing or higher degrees (AACN, 2011). The analysis of the findings in this study could be utilized by other nursing educators to help identify variables predictive of nursing program completion and passing the licensure exam. These positive social changes will not only help with the nursing student retention, but may also increase the number of RNs to meet the nursing shortage crisis.

Section 4: Reflections/Conclusions

Introduction

As the United States struggles to find solutions to the nursing shortage, one strategy to address this crisis is for nursing schools to strengthen their efforts with student retention and students successfully passing the NCLEX-RN exam upon graduation to facilitate entering the workforce. Nursing schools should focus on facilitating success by building and maintaining confidence, and developing the critical thinking skills needed to transition into nursing programs and succeed academically (Carr, 2011; Silvestri, Clark, & Moonie, 2013). Promoting retention and improving BSN graduation rates is a social change initiative of the AACN (2011) to help alleviate the current and future nursing shortage.

The results of this project study may help identify students at risk for attrition, help improve admission practices, and help in implementing interventions to improve the student retention rate for this BSN nursing program. I developed a prenursing course titled Introduction of Nursing: Prep for Success as a strategy to help with student retention and preparing student for transitioning into the rigorous BSN nursing program. In section 4, this project's strengths and limitations are discussed, along with recommendations for addressing limitations. A discussion of what I have learned about myself as a scholar, practitioner, and project developer are also included in section 4. The project implications for possible social change, applications for nursing education, and future research are presented.

Project Strengths

This project's research findings identified variables that could predict successfully completing the BSN nursing program and passing the licensure exam. Based on those findings, as well as evidence-based research that showed successful strategies for increasing retention, the idea for this project's prenursing course was developed (Carr, 2011; Carrick, 2011; Crow, Hartman, & McLendon, 2009; Garner, 2005; McDowell, 2008; Pryjmackuk, Easton, & Littlewood, 2009; Shelton, 2012). The main goals of the project are to increase the retention rate of students 20% within the first year of implementing the program and increase the overall student pass rate to greater than 90% on the NCLEX-RN exam. The project strengths includes preparing the student for entering the BSN program by improving critical thinking and test taking skills, discussing time management strategies, practicing nursing care plans, discussing the fundamental of the nursing process, and using APA guidelines in writing papers.

Evidence shows that making prospective students aware of expectations of the program, and making students aware of the benefits and basic challenges of nursing as a profession, is related to higher performance and lower attrition (Crow, Hartman, & McLendon, 2009; Gilmore & Lyons, 2012). Other strengths of the prenursing course include increasing the student's self-efficacy, decreasing anxiety by discussing stressors and utilizing stress reduction techniques. Self-efficacy is the belief in one's ability to carry out actions to achieve the required results (Shelton, 2012). In a nursing program, self-efficacy can affect whether a student admitted to the nursing program will persist in completing the program (McLaughlin, Moutray, & Muldoon, 2008; Shelton, 2012).

This project can have a positive social impact on the nursing student by helping them achieve their educational goal of becoming an RN. The quality of life for students can also be positively impacted by the abundance of employment opportunities, as a result of the nursing shortage. This project can also have a positive social impact on the community because it helps increase the number of baccalaureate prepared nurses. This project could also be adopted by other nursing schools, including associate degree programs, hospital based nursing programs, and others to increase student retention. Research shows that baccalaureate prepared nurses are linked with better patient outcomes, and the Institute of Medicine (2010) called for 80% of the nurses to attain at least a bachelor's degree by 2020, to make it a national priority to prepare entry level nurses at this level (AACN, 2011).

Project Limitations

There are two limitations identified in implementing this project. The first limitation identified is resistance by the key stakeholders to buy in and accept the change in curriculum to include a prenursing course to help with retention in the BSN program. It is much easier for stakeholders to continue teaching as has been done in the past, as any types of change in curriculum are often difficult to get approved by the committees and administration.

A second limitation is getting the student who is most at risk for not completing the program to elect to take this prenursing course. This will be an elective course, so the student who is not motivated to learn or prepare for the nursing program, may not elect to take the prenursing course. It is not enough for nursing programs to admit qualified

applicants, but programs should be designed to provide support to these students at risk for not completing the program (Shelton, 2012).

Recommendations for Addressing Limitations

It is often difficult to gain support of all the key stakeholders in making any type of change. One way to address the first limitation of resistance in implementing this project involves talking with the stakeholders that have expressed an interest in trying new strategies for increasing retention. If these key stakeholders can be included in the planning of implementing this project, then it may be easier to facilitate the change in curriculum. Collaboration of other key stakeholders who have a vested interest in the planning phase or the results of the program can increase the potential of implementing this change (Caffarella, 2010; Kumm & Fletcher, 2012). The implications of social change are dependent upon the willingness of educators to participate in collaborative teams in identifying and adopting a plan of change to meet the needs of the students and the institution.

In addressing the second limitation, the advisors of these prenursing students could encourage students to complete this prenursing course prior to starting the BSN program in their sophomore year. By completing this course, it would prepare them for the nursing program, as well as increase their chance for successfully completing the BSN program and passing the NCLEX-RN exam. Some students are unaware of the challenges and expectations of the BSN program when they are accepted into the nursing program. Completion of this prenursing course could also help guard again a wrong

career choice by informing the student of the role of the nurse and the challenges of completing the necessary coursework (Pryjmachuk, Easton, & Littlewood, 2009).

What I Learned as a Scholar, Practitioner, and Project Developer

Scholarship

Scholarship is a broad term that includes the conduct of research. The American Association of Colleges of Nursing (AACN) 1999 position statement defined "nursing scholarship as the activities that advance the teaching, research, and practice of nursing" (Scheetz, 2000, p. 49). I have gained knowledge in teaching and research during the past four years at Walden University from my chairs, faculty, and classmates. As a nurse educator, completing my doctoral study and actually conducting research has greatly increased my understanding of how research is conducted. My confidence as a nurse educator has increased significantly and I am well prepared to continue with these scholarly activities in the future.

Project Development

The development of the project for a prenursing course to prepare students for the BSN program came from the identification of a problem with retention of the nursing students. The research revealed a large percentage of the attrition occurred within the first year of the program. Retention has been a problem affecting not just this BSN program, but also other nursing programs throughout the United States. By designing and developing this prenursing course, I have learned the importance of using best practice and evidence-based data when developing this course. Evaluation of this course will be conducted at the end of each course and changes will be made based on the results of

these evaluations. This prenursing course should have a positive social impact by preparing students for successfully completing the BSN program, which should as a result increase the retention rates and the number of competent graduate nurses entering the workforce.

Leadership and Change

A leader is someone who can help others achieve their goals and reach their highest potential. "Leadership, like nursing, is an art and a science that is optimized through education and experience" (Scott & Yoder-Wise, 2013, p. 2). Research shows that approximately 50% of nurses hold baccalaureate degrees in nursing or higher and 50% hold associate degrees or diploma in nursing (Scott & Yoder, 2013). The nursing profession will have to increase the number of doctorally prepared nurses and educators to meet the Institute of Medicine's (IOM; 2010) goal of 80% of nurses holding a baccalaureate degree or higher by the year 2020.

Leadership is an expectation of the baccalaureate prepared nurse as set forth by nursing program accreditation standards. The nursing faculty shortage is making it more difficult for advancements in scholarship and research in nursing that could lead to better health care for patients, families, and communities. As an educator in a BSN nursing program, I think that I am well prepared in my leadership role after completing my doctoral study and designing the prenursing course to help with retention in the program. My long-term goal is to provide educational leadership and engage in research activities that can make a difference in our educational and health care systems.

Analysis of What I Learned About Myself

Scholar

A self-analysis helps to identify what I have learned and identify ways to improve my skills as a scholar and educator. The decision to continue on with my education in completing my doctorate degree was based on the encouragement and support of my husband and family in reaching my higher education goals. This was a very difficult decision to make, considering I had just completed my master's degree in nursing education from Walden University. I have always been interested in research and synthesizing evidence-based research completed by others to guide nursing practice as well as nursing education. This doctoral program has enabled me to conduct research and provided me with the knowledge to conduct research that will have a positive social impact on nursing, nursing education, and healthcare in the future.

Practitioner

I have had the privilege of having two careers as a nurse and as a nurse educator that I consider have been very rewarding. I started out working as an RN helping care for patients, advocating for their needs, and educating the patients, family, and others. I soon realized how much I enjoyed educating others and sharing my knowledge as a registered nurse, so I started teaching in a nursing program. As a lifelong learner, I have continued on with my education so that I could better prepare myself as a nurse educator. After completing my master's degree in nursing, I decided to go on with my education to complete my EdD in Higher Education from Walden University. As a nurse educator, I

have gained much knowledge in completing the research on academic variables predictive of successfully completing the BSN program and learning the process in undertaking a research project. I have also learned how to organize and develop a course used to address the problem with nursing student attrition by preparing them for the nursing program.

Project Developer

A project developer must be very organized and used evidence-based research to guide the development of the project. In completing this project, I have learned how to be very organized in collecting data and current evidence-based research to develop my project. My knowledge and experiences as a nurse educator, as well as the research data from this project has helped guide me in developing this project. I have also learned that as the sole project developer, it is important stay focused on the goal of a project and persistence will help you reach your goals.

Reflection of Project Importance

I felt unprepared when I started my associate degree nursing (ADN) program, even though I had completed all of the prerequisite courses and had a very high GPA. I think that a prenursing course, such as the one I developed, could have helped prepare me for the rigors of completing a nursing program. I have made a positive social change through the development of the project prenursing course by preparing students for the nursing program, as well as increasing their chance for successfully completing the BSN program and passing the NCLEX-RN exam.

There is little empirical data regarding using student aptitude data to predict retention in a BSN program and successfully passing the NCLEX-RN exam (Newton & Moore, 2009). This project's research result supports the importance of academic variables, such as preprogram GPA, anatomy and physiology grades, and ACT scores used as predictors for success in completing the BSN program and passing the NCLEX-RN exam. The data supports the use of these academic variables when trying to select the best applicants to a nursing program. The results also showed a significant relationship between the HESI Exit Exam scores and passing the NCLEX-RN exam, so the HESI Exit Exam scores can be used as a reliable predictor of passing the NCLEX-RN exam on the first attempt. The data also revealed that the highest attrition occurred in the first year of the BSN program. The results of this project led to the development of a prenursing course for students prior to entering the BSN program as a strategy to increase retention and success in the program. This elective course will be offered every semester prior to starting the program and could help prepare students for the rigorous BSN program by empowering them with knowledge, thus increasing the student's self-efficacy.

Implications, Applications, and Directions for Future Research

The development of this project's prenursing course is in alignment with the social change initiative of the AACN (2011), which promotes the retention and improving of BSN graduation rates in order to address the current and future nursing shortage. The purpose of this project study was to address the problem with student retention and successfully passing the NCLEX-RN exam in this BSN program. The development of the prenursing course titled Introduction of Nursing: Prep for Success

was a result of the findings from this study and current evidence-based research. This course will be used as a strategy to help with student retention and preparing for successfully completing the BSN program and passing the licensure exam.

This project's prenursing course could be used by other nursing schools as a retention strategy to help address the problem with retention, and could also address the critical nursing shortage affecting our country. Studies have shown that nursing schools should empower students by building self-efficacy and developing critical thinking skills needed to succeed in completing nursing programs (Carr, 2011; Silvestri, Clark, & Moonie, 2013). Because this course would be completed prior to starting the nursing program, this could be implemented by other nursing schools, including hospital based diploma nursing schools, ADN programs, and other BSN programs. An added bonus of completing this prenursing course is that it could help guard against a wrong career choice by a student by informing the student of the challenges in completing the nursing program (Pryjmachuk, Easton, & Littlewood, 2009). Through presentations and publications of the results of the project study, the project study's strategy for retention and success could be discussed and implemented by other nursing schools.

Future research could include interviewing students after completing the prenursing course. The study could seek to find if the students felt it helped prepare them for the nursing program. Further studies need to be completed with other nursing schools, as this study is limited to a BSN program located in the eastern part of the United States. This BSN program lacks ethnic diversity, as it is made up of 96% Caucasian students, so the results of this study may be difficult to generalize to other nursing school student

populations with more diversity located throughout the United States (Creswell, 2008). Studies of other nursing programs with more diversity within the nursing student population would provide more research data that may be applicable to other programs throughout the United States.

Conclusion

This journey along my educational path to complete my doctorate degree in higher education has come to an end. I have achieved many goals in this journey. One goal I have achieved includes completing research in this project study to identify academic variables that may predict students most likely to complete the BSN program and pass the NCLEX-RN exam. The purpose of this project study was to address the problem with student retention and passing the NCLEX-RN exam in this BSN program, which led to the development of a prenursing course as a retention strategy based on this project study's research results and evidence-based research. The results of this study could be useful in identifying at-risk students early on by this BSN program and in other nursing programs throughout the United States, so that early interventions could be implemented to help these at-risk students achieve their educational goals.

Another goal I have achieved during this journey was the development of a prenursing course, titled Introduction of Nursing: Prep for Success, as an innovative way to prepare the student for the rigorous BSN nursing course and to help increase the retention rate of students. The implications for positive social change of this project includes having a positive impact on the students, the nursing program, the local community and state, and could have far reaching implications throughout the United

States by addressing the problem with nursing student attrition and the critical nursing shortage affecting our country. Completing this journey in my doctoral program has empowered me as a scholar-practitioner to conduct research and provided me with the foundation of knowledge to continue with future research endeavors that will have a positive social impact on nursing, nursing education, healthcare, and patient outcomes in our community and beyond.

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Appendix A: Letter of Cooperation

To: Walden University IRB

From: XXXXXXXXXX
Chair, School of Nursing
XXXXXXXX University

Date: 3-14-2012

This is to inform you that I have granted Nancy Elkins permission to conduct the study entitled " Predictors of Retention and Passing National Council Licensure Examination for Registered Nurses" within the four year BSN program at the XXXX University School of Nursing. As part of this study, I authorize Nancy Elkins to access all necessary files and records needed to obtain data for this research project. These records and files include, but are not limited to, student academic records, annual reports to the Board of Nurse Examiners for Registered Professional Nurses, NCLEX-RN reports, HESI Exam reports, and others deemed necessary for data collection. I confirm that I am authorized to approve research in this setting. I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

XXXXXXXXXXX
Chair, School of Nursing
XXXXXXXX University

Appendix B: Introduction to Nursing: Prep for Success Course Syllabus

Course Syllabus

COURSE TITLE/NUMBER: NUR 120: Introduction of Nursing: Prep for Success

COURSE DESCRIPTION:

The focus of this course is an introduction to the concepts and processes basic to the nursing profession and to prepare students for the expectations of the baccalaureate nursing program. Topics include the history and legal aspects of nursing practice, exploration of nursing process principles and nursing care plans, medical and health care terminology, discussing the role and responsibilities of the nurse, applying critical thinking and test taking techniques, assessment of learning style, and developing time management techniques. Completion of this course does not guarantee admittance into the baccalaureate nursing program. Applicants to the baccalaureate nursing program must follow the application process.

CREDIT HOURS: 3 Semester Credit Hours

FACULTY: Nancy Elkins, MSN, RN
Course Coordinator

COURSE OBJECTIVES:

1. Describe the professional nurse's current roles, functions, and practices within the framework of the current health care system.

2. Explain the use of the nursing process and the interactions of the five steps of the nursing process.

3. Identify ways in which the nursing process relates to critical thinking and problem solving in nursing practice, and how the process promotes active involvement of the client.

4. Describe the assessment step of the nursing process and the methods of assessment used for comprehensive data collection in developing the client database.

5. Differentiate between a nursing diagnosis and a medical diagnosis.

6. Explain the second step of the nursing process, analyzing the data to determine the nursing diagnosis, and using critical thinking in identifying the client's needs.

7. Identifies the importance of the nursing plan of care and explains how the nurse identifies measurable goals that are individualized for the client.

8. Discusses the ethical and legal concerns regarding interventions used in comprehensive nursing care, and the need for documentation and communicating the client's condition.

9. Demonstrate knowledge of medical and health care terminology.

10. Identify individual learning style and discuss activities to improve critical thinking skills used in the decision making process.

11. Discuss ways to develop a positive mental attitude to achieve a feeling of empowerment to help succeed in test taking and in stressful situations.

12. Discuss time management techniques, identify barriers to productivity and advantages for implementing corrective actions.

13. Apply test-taking techniques to promote success when challenged by a variety of testing formats.

14. Discuss the use of American Psychological Association (APA) guidelines in writing papers.

CONTENT OUTLINE:

UNIT I. Professional Nursing

Historical Perspectives of Nursing
Professional Nurse Roles, Functions, and Practices
Nurse on the Interdisciplinary Health Team
Ethical, Legal, Cultural, & Spiritual Considerations
Certifications and Continuing Education Requirements

UNIT II. Process for Professional Nursing Practice

ANA Standards
Applying the Nursing Process and Nursing Theory
Communication in Nursing
Teaching and Learning Process
Research in Nursing

UNIT III. Strategies for Success in Nursing

Identifying Individual Learning Styles
Positive Mental Attitudes
Improving Critical Thinking Skills
Time Management Techniques
Test-Taking Strategies
Medical and Health Care Terminology
APA Guidelines for Writing Papers

REQUIRED TEXTBOOKS:

Black, B. P. (2014). *Professional nursing: Concepts and challenges* (7th ed.). St. Louis, MO: Saunders

Doenges, M. E., & Moorhouse, M. F. (2013). *Application of nursing process and nursing diagnosis: An interactive test for diagnostic reasoning.* (6th ed.). Philadelphia: Davis

Ehrlich, A., & Schroeder, C. L. (2009). *Medical Terminology for Health Professions* (6th ed.). Clifton Park, NY: Cengage Learning.

Nugent, P. M., & Vitale, B. A. (2012). *Test success: Test-taking techniques for beginning nursing students*. (6th ed.). Philadelphia: Davis

CLASS HOURS:

Tuesday, 0900-1150 AM

METHODS OF TEACHING-LEARNING:

1. Lecture
2. Reading as assigned
3. Discussion
4. Audio-visual aids

5. Individual and small group exercises
6. Test review opportunities
7. Evaluation of reading & lectures.

COURSE REQUIREMENTS:

1. Minimum of "C" average for all course work.
2. Participation in class, small group discussions and activities.

METHOD OF EVALUATION:

1. Three tests- 20% each (total of 60%)
2. Comprehensive final examination - 30%
3. Nursing Care Plan assignment - 10%

Grading Scale:

90 - 100 = A
80 - 89 = B
75 - 79 = C
65 - 74 = D
64 and below = F

All unit tests will be 50 questions with each question worth 2 points. The comprehensive final will be 100 questions with each question worth 1 point. All test grades will be posted on Blackboard Online Grade Book.

Students must obtain a C average (75%) on course exams in order to pass the course. The average will be calculated based on the weight of each exam. If

students obtain less than a C average (75%) on exams, the final grade (D or F) will be derived solely from exam averages. Tests and final scores will NOT be rounded up. Small group review sessions will be offered, by appointment, after each unit test.

LATE ASSIGNMENTS AND LATE EXAMINATION POLICY:

Late Assignments:
It is the prerogative of the instructor to accept or reject late assignments. If late assignment is accepted, the instructor may cut the grade for that assignment by one letter grade for each day it is late, and result in a zero if more than three days late.

Late Examination:
All late examinations will be cut one letter grade unless the coordinator is notified ahead of time of the serious reason for missing the examination.

INDIVIDUAL CONFERENCES:

Students are expected to initiate conferences with the course coordinator concerning any questions or problems related to the classroom, i.e., reading assignments, course requirements, grades, etc.

ATTENDANCE POLICY:

Classroom Attendance:
It is expected that students will attend classes on time and regularly to achieve the expected educational objectives for the course. Students are responsible for all material, exams and assignments for any missed class. Students are expected to initial the attendance sheet each week.

NUR 120 IMPORTANT DATES:

Week 1	First Day of Class – Review syllabus & course requirements. Introduction lecture.
Week 2	History of Nursing Practice lecture
Week 3	Legal and Ethical Issues in Nursing Practice lecture
Week 4	Foundational Nursing Principles & Theories
Week 5	**Test I** Nursing Process lecture
Week 6	Assessment Step of Nursing Process lecture
Week 7	Nursing Plan of Care lecture
Week 8	Evidence Based Research & Nursing Practice lecture
Week 9	**Test II** **Nursing Care Plan Assignment Due** Identifying Individual Learning Styles lecture
Week 10	Positive Mental Attitudes lecture Improving Critical Thinking Skills Time Management Techniques
Week 11	Test-Taking Strategies lecture Medical and Health Care Terminology
Week 12	Medical and Health Care Terminology lecture
Week 13	Medical and Health Care Terminology lecture
Week 14	APA Guidelines For Writing Papers
Week 15	**Test III** Content Review
Week 16	**Final Exam**

CONTENT OUTLINE AND CLASS SCHEDULE:

Dates	Class Hrs	Content	Assign -ment
		Unit I Professional Nursing OBJECTIVES 1. Describe the historical perspectives of nursing. 2. Describe the professional nurse roles, functions, and practices. 3. Compare roles of members on multidisciplinary health team. 4. Explore potential ethical, legal, cultural, & spiritual considerations in nursing. 5. Identify the major modern definitions, philosophies, conceptual models, frameworks, and theories of nursing practice. 6. Identify certifications and continuing education requirements in nursing.	
Week 1	3	First Day of Class – Review syllabus & course requirements. Introduction lecture on historical perspectives of nursing.	Black Ch1,2, 3,4,5 6,7
Week 2	3	History of Nursing Practice lecture	
Week 3	3	Legal and Ethical Issues in Nursing Practice lecture	Black Ch 8,9,10, 12, 13
Week 4	3	Foundational Nursing Principles & Theories lecture	
Week 5	1 2	**TEST I – COVERS UNITS I OBJECTIVES** Nursing Process lecture	Doenges & Moor-house Ch 1,2,3 Nugent & Vitale

			Ch.6
		Unit II. Process for Professional Nursing Practice OBJECTIVES 1. Describe the ANA Standards of nursing care. 2. Define nursing terms used during patient assessments. 3. Describe steps in applying the nursing process. 4. Identify nursing theories utilized. 5. Describe therapeutic communication in nursing. 6. Describe the teaching and learning process. 8. Identify evidence-based research in nursing. 9. Describe how research is utilized in nursing care.	
Week 6	3	Assessment Step of Nursing Process lecture	
Dates	**Class Hrs**	**Content**	**Assignment**
Week 7	3	Nursing Plan of Care lecture	Doenge & Moor-house Ch. 4,5,6,7,8
Week 8	3	Evidence Based Research & Nursing Practice lecture	Black, Ch.11
Week 9	1 2	**TEST II- COVERS UNIT II OBJECTIVES** **NURSING CARE PLAN ASSIGNMENT DUE** Identifying Individual Learning Styles lecture	
		Unit III. Strategies for Success in Nursing OBJECTIVES 1. Identify individual learning styles. 2. Identify strategies utilized to increase positive mental attitudes. 3. Identify strategies to manage stress. 4. Describe activities to improve critical thinking skills used in the decision making process.	

		5. Demonstrate test-taking strategies. 7. Apply various stress reduction techniques to cope with stress. 8. Demonstrate knowledge of medical and health care terminology. 9. Discuss the use of American Psychological Association (APA) guidelines in writing papers.	
Week 10	3	Positive Mental Attitudes lecture & Improving Critical Thinking Skills Time Management Techniques	Nugent &Vitale Ch.1,2,3,4,5,7,8
Week 11	3	Test-Taking Strategies lecture & Medical and Health Care Terminology	Ehrlich & Schroeder Ch. 1,2,3,4
Week 12	3	Medical and Health Care Terminology lecture	Ehrlich & Schroeder Ch. 5,6,7,8
Week 13	3	Medical and Health Care Terminology lecture	Ehrlich & Schroeder Ch.9,10,11, 12, 13, 14
Week 14	3	APA Guidelines for Writing Papers	
Week 15	1 2	**TEST III- COVERS UNIT III OBJECTIVES** Content Review	
Week 16	2	**FINAL EXAM** Tuesday 9-11 AM	

Curriculum Vitae

Nancy Elkins, RN, BSN, MSN, EdD

Education:

Doctor of Education: Higher Education and Adult Learning
Walden University, Minneapolis, Minnesota, Expected 2013
Masters of Science in Nursing: Nursing Education
Walden University, Minneapolis, Minnesota, 2008
Bachelors of Science in Nursing
Ohio University, Athens, Ohio, 2003
Associate of Science in Nursing
University of Kentucky, Ashland, Kentucky, 1999

Professional Positions:

Academic

2011 to Present	Assistant Professor Baccalaureate of Science Nursing Program University School of Nursing College of Health Professions
2009 to 2011	Clinical Instructor Baccalaureate of Science Nursing Program University School of Nursing College of Health Professions
2007 to 2009	Clinical Support Supervisor Associate of Science Nursing Program University School of Nursing
2004 to 2007	Clinical Instructor Associate of Science Nursing Program University School of Nursing

Professional

1999 to 2010	Registered Nurse Staff Nurse and Charge Nurse Regional Medical Center

2003 to 2006	Nurse Manager/Facility Coordinator Regional Health Care Facility

Licensures and Certifications:

1999 to Present	Registered Nurse, licensed in Ohio, West Virginia, and Kentucky
1999 to Present	Certified in Basic Life Support for Healthcare Providers

Professional Memberships:

2003 to Present	Sigma Theta Tau International Honor Society of Nursing
2003 to Present	American Association of University Women, Treasurer
1999 to Present	American Nurses Association