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Predictors of Success on the National Council Licensure Examination for Registered Nurses Among Transfer BSN Students

Dissertation

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ABSTRACT

This quantitative research study (N=175) examined predictors of first time success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) among transfer students in a baccalaureate degree program (BSN). The predictors were chosen after an extensive literature review yielded few studies related to this population. Benner's theory of novice to expert was used as a guiding framework, as it applies and supports the educational success of the transfer nursing student. This research identified demographic and academic variables: age, gender, pathophysiology, adult nursing I, final GPA and the TEAS examination as an admission criteria and their relationship to NCLEX-RN success on the first attempt. The academic variables of pathophysiology and adult nursing I were chosen as these are entry level courses and taken when the transfer BSN students are in the novice stage of their educational journey. Findings of this research study, using logistic regression, revealed that final GPA was the strongest predictor of NCLEX-RN success. These research results will lead to the enhancement and modification of admission policies, remediation and mentoring and curriculum development in the nursing program.

DEDICATION

I dedicate my dissertation to my family, my husband, Ray, our children, Danny, Bridget, and Kaitlin.

Ray, your love supported me throughout my journey, the one constant I could count on, your ability to organize dinners, schedules, and laundry, not so much. We survived.

Danny, you inspire me. You see the world in a positive light. Your "you can do it, mom" kept me going.

Bridget, my little taber! Your work ethic and drive set the standard high and your belief that I would achieve my goal gave me more than you will ever know.

Kaity, as your brother and sister went off to college, you were left standing alone and at times without lunch money or a ride home from school. Your love of life is contagious and I know I was one of your "pet projects;" your "little college student."

Ray, Danny, Bridget, and Kaity, you made this possible with your love and support.

Mom, thank you, your love, your prayers, and your ability to keep me grounded made the journey interesting. Mom, contrary to your belief, it really did take me this long to finish my degree.

To my sisters, brother, nieces, and nephews: thank you for keeping life going - marrying and adding children to mix. I have been blessed. Thank you.

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If it takes a village to raise a child, then I need to state it takes an academic village to raise a doctoral student. I have been fortunate to have had the support of some of the finest and brightest villagers known to academia.

I would like to thank, Dr. Eunyoung Kim, my chair, for her support throughout the process.

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I need to thank many other villagers from academia, who without their input, support, and direction; I may have taken a wrong turn or lost the way to my dissertation completion goal. Thank you.

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Chapter I
INTRODUCTION

Healthcare in the United States is undergoing rapid changes economically and technologically. Today's climate of economic uncertainty, technological advancement and societal influences are exerting great pressure upon the healthcare system and the education of its members. The nursing profession has evolved and adapted to meet the ever changing needs of the society it serves. There exists a greater demand for a number of registered nurses (RN) and in particular, a demand for more baccalaureate educated and prepared nurses (AACN, 2005). The latest assessment by the American Hospital Association (AHA) revealed that there will be approximately, 126,000 vacancies for RN's in the hospital setting alone by the year 2010. Rosseter (2004) cites the AHA as calling this shortage the "most critical manpower problem facing hospitals across America" (p.5).

Registered nurses may enter the professional setting via three educational venues: (a) the three year Diploma Program, (b) the two year Associate Degree Program, or (c) the four year Baccalaureate Degree Program. The employment opportunities for the graduates of these nursing programs will vary greatly depending upon their educational foundation. Graduate nurses from all three educational pathways take the same National Council Licensure Examination for Registered Nurses (NCLEX-RN). The NCLEX-RN sets the standard for the minimum safe entry into the practice of nursing. Those students who pass the NCLEX-RN are considered to have the knowledge base that will allow them to practice safely and competently at the minimum entry level of nursing practice set by the State Board of Nursing. Those students who do not pass the NCLEX-RN do not receive a license and

therefore are unable to practice as a registered nurse (RN), suffering not just the loss of employment, but a loss of time, emotion, and money invested in their nursing education.

Historically, the Diploma School Program of nursing education was common prior to the 1970's. The Associate Degree (AD) Program of nursing education was designed to be the entry point, not for professional nursing practice but for technical nursing practice and is often viewed as a stepping stone to the Bachelor of Science in Nursing (BSN). The baccalaureate degree program of nursing education is viewed as the entry point for professional nursing practice. Despite these different pathways for entering the nursing profession, there are no distinctions in practice among the diploma program prepared, the AD prepared and the BSN prepared nurse. There is no national curriculum for any type of nursing program. Nursing education lacks standardization. Hence, graduates, from all programs, take the same NCLEX-RN and, if successful, they are licensed to practice as registered nurses.

However, the baccalaureate nursing degree program graduate is presented with more career advancement opportunities and career mobility than the AD or the diploma nurse graduate. The baccalaureate degree is required as the minimum for nursing research, case management, public health and leadership positions in the healthcare setting and is preferred by most nursing leaders and healthcare institutions. Given the professional opportunities that the baccalaureate prepared nurse is afforded, many community college nursing students are advised to transfer into four year baccalaureate nursing programs, which allows these students to continue on to advanced practice roles. However, due in part to the lack of seamless articulation agreements between community college nursing programs and

baccalaureate nursing programs, "transfer" nursing students encounter a host of issues once they transfer to the baccalaureate program educational arena (Benner, Sutphen, Leonard, & Day, 2010). Frequently questioned are academic issues as they relate to the content and academic rigor of the courses that the transfer students seek to transfer into the baccalaureate nursing program, questions of grade inflation, differences in grading scales, and questions about the meaning of grades that have been earned five or more years previously to the transfer (Goodyear & Lampe, 2004).

Adding to the concern that the community college educational foundation is often viewed as somewhat less than that of a four year college or university; is the financial burden encountered by the transfer student. A four year college or university education is expensive, often with the burden of the loans being placed on the students themselves (Christina, 2006). Additionally, credit hours earned at the community college level may not be readily transferred into the four year university, resulting in not only financial hardship but more importantly a delay in degree completion (Birritteri, 2007). These factors place the transfer student in an "at-risk" category even before they begin to continue their education at a four year college or university.

The American Association of Colleges of Nursing (AACN) (2005) supports the belief that education has a strong impact on a nurse's ability to practice, and that patients deserve the best educated nursing workforce possible. A growing body of research reaffirms this belief and shows a strong association between baccalaureate nursing education and lower patient mortality rates (Aiken, Clarke, Cheung, Sloane, & Silber, 2003). In addition, the AACN is in support of articulation agreements that support the educational mobility and

facilitate the transfer of academic credits between associate degree and baccalaureate nursing programs (American Association of Colleges of Nursing, 2005).

New Jersey passed legislation in September of 2007, which in theory would allow some credits earned at two-year community colleges to be transferred to four-year universities statewide, with the educational goal of decreasing the barriers and hurdles transfer students have faced over the years when moving from a community college to a four-year university. The bill #A3968/S2535, known as the New Jersey Statewide Transfer Agreement, requires that all public four-year institutions in the state, accept all credits from those community college students, who have received their AD. It became effective as of September 2008. Private four-year institutions' participation in the program remains voluntary and the credits that they accept are at their discretion (Birritteri, 2007).

This bill has created an influx of new students, who have attained their associate degree, and now have the opportunity to continue their education at the bachelor's level and in some instances at the master's level. Taken together, the current economic conditions, career opportunities, and educational transfer agreements have created a large number of transfer students in the field of nursing education and a new pathway to a baccalaureate education for many nursing students.

Education of future nurses is once more center stage in the public eye, with the recommendation that the BSN be the entry level into professional practice. Recommendations for achieving this goal include the development and enhancement of articulation programs that would allow for a smooth and timely transition from AD nursing programs into BSN nursing programs, and the development of AD to Master of Science in

Nursing (MSN) programs (Benner et al., 2010). Educational changes, economics, and the aging of our population will increase the demand for qualified nursing both at the bedside and at podiums in lecture halls; these proposed recommendations will only increase the already increasing population of transfer students into BSN programs.

Statement of the Problem

There is a critical need to prepare registered nurses at the baccalaureate level. Baccalaureate nursing education provides a broad foundation in the physical, social, and behavioral sciences, preparing new practitioners who are capable of problem solving, thinking critically, communicating and analyzing data. Patient outcomes are greater, medication errors are fewer, and procedural breaches are less in hospitals with higher percentages of baccalaureate prepared registered nurses in their employment (Aiken et al., 2003).

Traditionally, transfer nursing students' success in baccalaureate programs have been based upon the students' transfer grade point average (transfer GPA), and grades earned in the sciences such as pathophysiology, anatomy, microbiology, and chemistry (Beeson & Kissling, 2001b; Campbell & Davis, 1990; Seldomridge & DiBartolo, 2004). Transfer students choose to begin their postsecondary education at a community college for a variety of reasons; open admission, lower tuition costs, proximity to their homes and the ability to maintain part-time employment while pursuing their degree (Ropelewski-Ryan, Hess, & Bartow, 2008). The increasing prestige of the local community college, the development of better articulation and transfer agreements between two and four-year institutions, and the high tuition costs of attending four-year institutions have spurred the growth of the

community college population and, therefore, increased the transfer student population in nursing baccalaureate programs (Ropelewski-Ryan et al., 2008). Colleges continue to study admission criteria in order to fine tune their selection processes and to enhance the students' academic success (Goodyear & Lampe, 2004; S. E. Newton, Smith, & Moore, 2007; Stuenkel, 2006). Due to the nursing shortage and the advancing age of practicing nurses, predicting applicants' successful completion in a nursing program is crucial (Allen, 2008).

The issue of how to gauge and apply academic indicators as specific college predictors for transfer nursing students' who are "at-risk" for failure is an area that requires further research. As stated, traditional indicators of transfer GPA's and science grades alone do not predict the success of a transfer nursing student in a BSN program. These educational indicators have been used to predict the success of traditional BSN students (Sayles, Shelton, & Powell, 2003). Studies have demonstrated that there is a strong correlation between high school GPA and pre-nursing GPA and success on the NCLEX-RN, with a higher pass rate among those BSN students with higher GPA's (Beeson & Kissling, 2001; Campbell & Davis, 1990; Seldomridge & DiBartolo, 2004). Furthermore, the populations of transfer students, today, come from diverse ethnic and socio-economic backgrounds. Milliron and Wilson (2004) have reported that almost half of the community college students are first generation students of minority backgrounds. Despite this growing population of transfer nursing students in four-year institutions, only scattered attention has been paid to addressing the challenges and issues faced by this unique population. The population, transfer nursing students who have graduated from a baccalaureate nursing program has been understudied. This study was able to fill a gap in the existing literature and provide insights into the ways in which the nursing educational community can serve the transfer nursing student population's

needs and improve the education of nurses. The literature supported the variable selection for this study as these have been utilized to determine the success on the NCLEX-RN of generic baccalaureate nursing students. This study was to identify if the variables drawn from the literature were strong predictors of NCLEX-RN success in the transfer nursing student population.

Theoretical Framework

The theoretical framework that was drawn upon to frame this research study was Benner's (2001) theory of novice to expert. Benner utilized the Dreyfus model of skill acquisition in education and operation research and applied this model to nursing. The Dreyfus model assumes that in the acquisition and development of a skill, a learner passes through five distinct stages of proficiency: novice, advanced beginner, competent, proficient, and expert.

Likewise, Benner's model; novice to expert, postulates that the nurse progresses through five levels of proficiency: novice, advanced beginner, competent, proficient, and expert. These progressions reflect changes in three general aspects of skilled performance and acquisition. The first is the movement from reliance on abstract principles to the use of past concrete experience as paradigms. Here the novice has no life experience in the application of rules and relies on a "just tell me what I need to do and I'll do it" mindset. The second is a change in the learner's perception of the demand situation, where the situation is viewed less as a compilation of equally relevant bits, and more as a complete whole in which only certain parts are relevant. Here principles to guide actions begin to be formulated and these principles are based on experience. The third is the passage from detached observation

to involved performer, with the performer no longer standing on the outside but is now engaged in the situation. At this point in educational process the plan is based on considerable conscious, abstract, analytic contemplation of the problem (Benner, 2001).

Benner's (2001) model of novice to expert was applied to the experiences of the transfer nursing student as they began their educational journey into the profession of nursing. The first three levels of Benner's model - novice, advanced beginner, and competent, can be and have been applied to transfer BSN nursing students as they began their educational journey into the practice of professional nursing and their new roles.

In the first level - the novice - the transfer BSN student has no experience of the situation in which they are expected to perform. At this level the transfer BSN students are taught the rules to help them perform. Novice learning is contingent on concept formation and assimilation. Learning at the novice level is framed by the feelings the novices' experience in the context of their practice. At the novice level, the transfer nursing student begins their educational journey with science and nursing theory courses that lay the educational foundations for their future problem solving in the clinical setting. The theory and skills at this level are independent of each other, done step by step as outlined in practice manuals. Therefore, at the novice level, the rules are universal and the behavior exhibited by the transfer BSN student is inflexible and limited.

As the transfer BSN student move through their education, they acquire new knowledge and skills that assist in their progression to level two; the advanced beginner. In this stage, the transfer nursing students can demonstrate marginally acceptable performance in their roles as student nurses. They have been exposed to real situations in the clinical

setting under the guidance of their clinical faculty. It is at this point in their education that principles to guide their actions begin to formulate. These principles are based on clinical experience. It is at this level - the advanced beginner - that the transfer BSN student begins to connect the theory that they have learned with the clinical experiences they have been experienced in the clinical setting. Here the theory and skills do not exist as separate principles, they are related. The clinical experience brings meaning to the theory they have been taught. No longer does the transfer BSN student exhibit inflexible and limited behaviors in the clinical setting.

The third level of Benner's theory, competent, can be theorized as the last level for the transfer BSN student and occurs at the completion of the transfer BSN student's graduation from the nursing program. Benner defines this third level – competent - as the level at which the nurse has been in the same or similar situations for at least two years. It is at this intersection in their educational journey that the transfer BSN student begins to view his/her actions in terms of long range goals of which they are consciously aware. The goals are based on conscious, abstract, analytical contemplation to the problem. At this point in the educational journey, the transfer BSN student begins to feel mastery and an ability to cope with and manage the many contingencies of clinical nursing. At the competent level the transfer BSN nursing students' thought process is one which uses active concept integration. What they lack, at this point in their educational journey, is the speed and flexibility of the proficient professional nurse. The competent transfer BSN student is ready to practice, but does not have enough experience to recognize a situation in terms of an overall clinical picture. At each of these levels – beginner, advanced beginner, and competent – the transfer

BSN students' performance should be evaluated on both their theory grade and clinical performance.

Benner's theory of novice to expert is based on incremental learning and the refinement of both reasoning processes and domain learning. Over the past decade, the profession of nursing and its practice has progressed from a reliance on empirical theory applied to practice to recognition that experience develops knowledge that can guide the actions of practitioners. Reflection is a means of surfacing experiential knowledge, and students may begin to use reflection as their experience of nursing accumulates. Benner's last two stages of professional skill acquisition: proficient and expert cannot be applied to the transfer BSN student, as they are unable to comprehend clinical situations in terms of a whole or without the reliance on analytical principles. These levels will be reached after three or more years of professional practice in the clinical setting. In the last two stages, the professional nurse has a vast background of experience and an intuitive grasp of clinical situations (Benner, 2001).

Purpose of the Study

The purpose of this quantitative research study and its analysis was to identify the relationship between certain demographic and academic criterion and NCLEX-RN success on the first attempt among transfer nursing students who have graduated from a baccalaureate nursing program. The study examined the predictive relationship among selected demographic and academic characteristics of transfer nursing students who have graduated from a baccalaureate program and their success on passing the NCLEX-RN, on the first attempt.

Research Question

This quantitative study intended to identify predictors of success on NCLEX-RN among transfer nursing students. The overarching research question and subsidiary questions that guided this inquiry were as follows:

What factors contributed to passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN), on the first attempt, among transfer nursing students who graduated from a baccalaureate nursing program?

Subsidiary Questions

1. To what extend did the student demographic variables of age and gender predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN), on the first attempt, among transfer students who graduated from a baccalaureate nursing program?

2. To what extent did the following academic variables - final grade point average (final GPA), science grade (pathophysiology), and clinical course grade (adult nursing I theory) - predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt, among transfer students who graduated from a baccalaureate nursing program?

3. To what extent did the scores on the test of essential academic skills examination (TEAS), designed by the Assessment Technologies Institute, LLC (ATI), predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt, among transfer students?

Significance of the Study

The media spotlight on the RN shortage has highlighted nursing as a lucrative and secure field, providing practice opportunities beyond traditional roles. Government analysis data projects more than 587,000 new nursing positions will be created through 2016 (Allen, 2008) (Health Resources and Services Administration, Bureau of Health Professions, 2006). This makes nursing the nation's top profession in terms of projected job growth as reported by the Health Resources and Services Administration (Health Resources and Services Administration, Bureau of Health Professions, 2006). Improving recruitment, retention, and graduation rates of the transfer nursing student is critical for closing the gap in the nursing shortage and meeting the healthcare needs of society. Early diagnosis of "at-risk" transfer nursing students is particularly important in that it will allow nursing educators to intervene in a timely manner, conserving both fiscal expenditures and student and faculty resources.

Transfer nursing students bring a unique set of challenges to the academic environment of a four-year baccalaureate nursing program. Given the limited literature on the transfer nursing student population and their challenges, this study contributed to the better understanding of their success on the NCLEX-RN and identified factors that that may facilitate or hinder their success on the NCLEX-RN.

The findings of this study provided an understanding of this new and growing population of nursing students – transfer nursing students - and their educational needs as they relate to NCLEX-RN success and professional advancement. The findings are of significant interest to the faculty who advise and mentor these students, academic

institutions, future employers and the public who will the recipients of their professional nursing care.

Definition of Terms

Academic Benchmarks. Identified in this study as: final GPA, pathophysiology grade, adult nursing I theory grade, and the TEAS scores. All are defined within definitions of terms.

Adult Nursing I Theory Course. This entry level, 5-6 credit clinical nursing course provides the beginning student with the knowledge base to assess a client's ability to function independently, intervene to maximize function, and to help the client to identify coping and establish realistic outcomes. Clients with chronic disease states are examined. The nursing process is viewed as the framework to guide the students to think critically when interacting with clients in need of assistance to maintain or improve their level of health.

American Association of Colleges of Nursing (AACN). The American Association of Colleges of Nursing is a national agency for university and four-year college education programs in nursing with approximately 600 schools of nursing in its membership. The primary mission of the AACN is to establish quality standards for baccalaureate and graduate-degree nursing education. Strong emphasis is placed on improving healthcare, and the promotion of public support of baccalaureate and graduate nursing education, research, and practice.

American Nurses Association (ANA). The American Nurses Association (ANA) is the only full-service professional organization representing the nation's 2.9 million registered

nurses (RNs). The ANA fosters high standards of nursing practice, promotes the rights of nurses in the workplace, and lobbies congress and regulatory agencies on healthcare issues affecting nurses and the public (http://www.nursingworld.org).

Assessment Technologies Institute, LLC (ATI). Assessment Technologies Institute (ATI) is an educational company whose mission is to partner with nursing institutions in all 50 states to improve graduate nurses' pass rates on the NCLEX® by providing innovative solutions in nursing education by providing the consistently reliable delivery of high-quality assessment, remediation, and educational products (http://www.atitesting.com).

Associate Degree in Nursing (ADN). The associate degree is earned in nursing at the end of a two year course of study in Nursing at a Community College.

At-Risk Transfer Nursing Student. Transfer students, who have demonstrated a negative relationship(s) between one or more of the academic benchmarks and have not passed the NCLEX-RN on the first attempt.

Baccalaureate of Science in Nursing (BSN). The degree in nursing earned at the end of a four year course of study in nursing at a college or university.

Commission on Collegiate Nursing Education (CCNE). The CCNE is a national accreditation agency recognized by the US Secretary of Education. The CCNE ensures the quality and integrity of baccalaureate and graduate education programs.

Computerized Adaptive Testing (CAT). An examination that is assembled as the individual is being tested. Each examination is unique, tailored to the student's ability while

fulfilling the NCLEX-RN test plan requirements (Computerized Adaptive Testing (CAT Overview, 2006).

Final or Cumulative Grade Point Average (GPA). A measure of a student's academic achievement. An average of a student's grades with the grades converted to a 4.0 numerical scale.

Health Education Systems Incorporated (HESI). Health Education Systems Incorporated (HESI) in conjunction with Elsevier is one of the leading providers of exams that predict how students will perform on the NCLEX examination providing testing and remediation needs for nursing students (http://portals2.elsevier.com).

Health Resources and Services Administration (HRSA). The Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services is the primary Federal agency for improving access to health care services for people who are uninsured, isolated or medically vulnerable (http://www.hrsa.gov).

Mosby Assess Test. The Mosby Assess test is a practice exam product that simulates the NCLEX-RN experience and is used by schools of nursing to predict success on the NCLEX-RN.

National Council Licensure Examination for Registered Nurses (NCLEX-RN). This examination is required for all graduates of accredited nursing program for entry into practice. The NCLEX-RN is scored as pass/fail.

National Council of the State Boards of Nursing (NCSBN). The NCSBN is a non-profit organization whose purpose is coordinating the regulatory powers of the various state and

territorial boards of nursing in the United States. The NCSBN is the professional body that is responsible for developing the licensure examination for nurses: the NCLEX-RN.

National League for Nursing (NLN). The National League for Nursing is the accrediting body for nursing education. The National League for Nursing is nationally recognized by the U.S. Department of Education as the accrediting agency for postsecondary and higher degree nursing programs. The NLN provides accreditation for all types of nursing education programs (clinical doctorate, master's, baccalaureate, associate, diploma, and practical).

NCLEX-RN Success: Passing the NCLEX-RN on the first attempt.

New Jersey State Board of Nursing (NJSBN). The New Jersey State Board of Nursing is a state agency created to safeguard the public's health by the regulation the practice of nursing, ensuring the safety and welfare of the public by adopting and enforcing professional and legal standards for the education and practice of nursing.

Pathophysiology. This required 3 credit science course focuses on human response patterns to specific disease states, common to all ages, and to internal and external stresses that result in physiological alterations.

Registered Nurse (RN). A registered nurse is an individual who has been licensed to practice nursing.

Test of Essential Academic Skills (TEAS). This is a 100-question tool designed to assess Math, Science, Reading, and English and Language skills. The TEAS assessment is provided by Assessment Technologies Institute, LLC (ATI).

Transfer Student: A student who has transferred college course credits into the baccalaureate nursing degree program from either an associate (two-year) degree granting institution or another baccalaureate (four-year) degree granting institution.

Summary

The purpose of this study was to examine the predictive value of selected academic and demographic student characteristics on NCLEX-RN success of transfer nursing students who have graduated from a baccalaureate nursing program. The study findings added to the limited research that has been documented for this particular population of nursing students and will be of great importance for that faculty who advise and mentor these students. The results of the study can shed insights on admission policies, curriculum plans and policies, identify those students who may be "at-risk" for failing the NCLEX-RN, and strengthen the foundations of remediation and intervention plans of success for transfer nursing students. Chapter I has provided the introduction, the statement of the problem, the purpose of the study, the research questions, as well as, the significance of the study and the definition of terms as they related to transfer nursing students. Chapter II will address the literature that pertains to the study.

Chapter II

REVIEW OF THE LITERATURE

Nurse researchers have performed many studies in the last three decades in an attempt to predict success in nursing students. The most visible outcome for measuring success in nursing students is the passing of the NCLEX-RN on the first attempt. The outcome, student success on the NCLEX-RN, is also a measure of success for the school of nursing from which the student has graduated. Each State Board of Nursing sets a required NCLEX-RN passing rate. The National League for Nursing (NLN) Accrediting Commission and the Commission on Collegiate Nursing Education (CCNE) sets the standards which accredited nursing schools must follow. These standards include graduation rates, NCLEX-RN pass rates, program satisfaction, and job placement (American Association of College of Nursing (AACN)) Therefore, it is in the interest of nursing programs to admit students who will have the best chance of completing the program and passing the NCLEX-RN. Given the current trends in health care that demand increasingly better prepared registered nurses, it is imperative that accredited nursing programs provide well-educated, knowledgeable, and skilled nurses who can make well-informed decisions (Waterhouse & Beeman, 2003).

Prior studies in the literature have identified several factors that affect the BSN students' success on the NCLEX-RN including academic and non-academic factors and scores on standardized nursing assessment examinations. However, few of these studies addressed the unique and growing population of transfer BSN nursing students and factors that would ensure their success on the NCLEX-RN. Transfer student refers to any student who has transferred college course credits into the baccalaureate nursing degree program

from either an associate degree granting institution or another baccalaureate degree granting institution. These students have been understudied in the field of nursing education.

This chapter has explored the existing literature that was relevant to the study, primarily academic factors that can be attributed to the success on the NCLEX-RN examination in BSN nursing students and their relevance to the transfer nursing student population. The chapter is organized by the following themes: NCLEX-RN examination and success, non-academic and academic factors as predictors of success, and the use of standardized testing as a predictor of success.

NCLEX-RN Examination and Success

Passing the NCLEX-RN examination awards the student who has graduated from a nursing program the credentials to practice as a registered nurse; students most often take the examination soon after graduation. Schools of nursing are accredited based on their annual NCLEX-RN pass rate. In addition, state and national rankings are also greatly influenced by NCLEX-RN passing rates. A nursing program's NCLEX-RN first time pass rate is consistently used as the major criterion of program quality and eligibility for accreditation (Griffiths, Papastrat, Czekanski, & Hagan, 2004).

In 1994, the National Council of State Board of Nursing's (NCSBN) implemented computerized adaptive testing (CAT) for nationwide licensure examination. The CAT testing format creates an examination that is tailor-made for the individual examinee with the test being assembled as the individual is being tested. Since the pass/fail decision is based on criterion-referenced standards, the examination program can establish a point that represents

safe entry-level competence as defined by the NCSBN for the examinee (Computerized Adaptive Testing (CAT) Overview, 2008).

Uyehara, Magnussen, Itano, and Zhang (2007) define NCLEX-RN success as receiving a passing score on the NCLEX-RN on the first attempt. Other researchers have also utilized this definition, as do many of the students who take the examination, and the faculty who teach and mentor those students (Beeson & Kissling, 2001; Crow, Handley, Shaw, Morrison, & Shelton, 2004; Sayles et al., 2003). The majority of studies on academic success of nursing students have used passing the NCLEX-RN as the criterion variable. Passing the NCLEX-RN awards the student who has graduated from a nursing program the credentials to practice as a registered nurse; students most often take the exam soon after graduation. Schools of nursing are accredited according to their annual passing rates. In addition, state and national rankings are also greatly influenced by NCLEX-RN passing rates. A nursing program's NCLEX-RN first time pass rate is consistently used as the major criterion of program quality and eligibility for accreditation (Griffiths, Papastrat, Czekanski, & Hagan, 2004).

Morris and Hancock (2008) conducted a study on nursing program success at the University of North Carolina-Charlotte. These researchers compared the NCLEX-RN success rates between nursing students who graduated from the old curriculum and those nursing students who graduated from the new curriculum. They found no significant distinction between the two groups as related to their first time pass rates on NCLEX-RN success. Interesting to note, is that these researches used the HESI exit exam to evaluate if learning under the new curriculum had an impact on the groups' HESI exit exam scores. No

significance was found ($n = 134$, t = .564, p = .574). Using the HESI as a benchmark for readiness for the NCLEX-RN for both groups, these researchers did find a significant relationship between the HESI exit exam and first time pass rates (r = +.283, n = 134, $p < .01$, one tail, $R^2 = .08$) (Morris & Hancock, 2008).

Crow, Handley, Morrison, and Shelton (2004) conducted a national study in an attempt to identify requirements and interventions used by BSN programs to predict success on the NCLEX-RN. Utilizing survey methodology, their descriptive study collected data from over 500 participating BSN programs. The data gathered was based on how these BSN programs predicted success on the NCLEX-RN. The results of the study indicated that cumulative college GPA was used over 86 % of the time as criteria to predict student success on the NCLEX- RN examination for the BSN programs in their study. Additional freshman admission criteria were as follows: ACT/SAT scores were used over 38 % of the time, high school GPA used over 36 % of the time, and letters of recommendation were used over 28 % of the time. Only 26 of the participating programs, in their study, reported they used any type of admission testing to determine freshman student readiness for their program (Crow et al., 2004). In addition, the findings were specific to traditional BSN students with limited generalizability to other student populations, such as transfer BSN students.

Non-academic and Academic Factors as Predictors of Success

Traditionally, nursing students' success on the NCLEX-RN has been predicted on high school GPA, American College Test (ACT)/Scholastic Aptitude Test (SAT) scores, pre-nursing science grades, grades earned in clinical nursing courses and recently on scores achieved on commercial testing packages. Non-academic factors such as; test anxiety,

family support systems, and socio-economic status, have also been cited as predictive of a nursing student's success on the NCLEX-RN (Beeson & Kissling, 2001; Campbell & Davis, 1990; Daley, Kirkpatrick, Frazier, Chung, & Moser, 2003; Griffiths et al., 2004).

Daley, Kirkpatrick, Frazier, Chung, and Moser (2003) reported that family responsibilities and need for employment were determined to be common factors in students at risk in nursing courses. In a study by Sayles, Shelton and Powell (2003), high stress levels and negative money and time issues were associated with decreased probability of passing the NCLEX-RN. Low self-esteem has been cited as predictive of difficulty with nursing course work and subsequent failure on the NCLEX-RN (Griffiths et al., 2004). In addition, test anxiety, poor study skills and lack of motivation have been identified as predictors of NCLEX-RN failure (Beeson & Kissling, 2001; Campbell & Davis, 1990).

According to Seldomridge and DiBartolo (2004) gender, age, ethnicity and number of years between first degree and enrollment in nursing were factors indicative of potential success on NCLEX-RN among second degree students in a BSN program. Beeson and Kissling (2001) sampled 505 graduates of a baccalaureate nursing program in the southeastern United States to determine predictors of success on the NCLEX-RN examination. The independent variables used by Beeson and Kissling (2001) included gender, type of student (freshman admission, second degree, and transfer), age at time of taking the NCLEX-RN, grades in selected pre-nursing courses, grades in all junior, and senior level nursing courses, and cumulative GPA upon graduation from high school. Results of logistic regression analysis showed that students who passed the NCLEX-RN had significantly higher biology and sophomore nursing grade point averages and higher scores

on the Mosby Assess Test. Beeson and Kissling's (2001) most significant finding was the negative relationship between NCLEX-RN success and the number of C's, D's, and F's earned during the junior year. Age was positively correlated with NCLEX-RN success, with non-traditional age students having a higher pass rate. The investigators defined traditional students as those less than 23 years of age and non-traditional as older than 23 years of age at the time of sitting for the NCLEX-RN (Beeson & Kissling, 2001).

Some researchers have shown that a pre-nursing GPA was more indicative of success in a nursing program, especially when natural science and introductory psychology grades were included (Davenport, 2007; Hereford, 2005). Seldomridge and DiBartolo (2004) suggested the use of science course GPA rather than overall GPA for admission criteria to nursing programs. These researchers identified a pattern of performance in science courses and NCLEX-RN pass rates.

A retrospective descriptive study was conducted at a rural, BSN program (n=186) to determine variables that best predict NCLEX-RN success. The data was collected over the course of four years and included entry as a traditional or transfer student, preadmission GPA, GPA after completing one semester of nursing courses, final GPA, grades earned in prerequisite and core nursing courses, test averages in beginning and advanced medical/surgical nursing courses, and performance on the National League for Nursing Comprehensive Achievement Test for Baccalaureate Students (NLNCATBS). A logistic regression analysis was performed and revealed that a combination of test average in advanced medical/surgical nursing and percentile score on the NLNCATBS predicted 94.7 percent of NCLEX-RN passes and 33.3 percent of failures. The combination of

NLNCATBS score and pathophysiology grade predicted 93.3 percent of NCLEX-RN passes and 50 percent of failures (Seldomridge & DiBartolo, 2004). They found for each increase in letter grade in pathophysiology, the likelihood of passing the NCLEX-RN increased fivefold (Seldomridge & DiBartolo, 2004).

Nursing is based heavily in the sciences and BSN programs require basic anatomy, pathophysiology, microbiology, and chemistry as part of their curriculum. Many studies found that it took more than good grades in nursing classes to pass the NCLEX-RN with the research showing that study groups, committed faculty, and the use of standardized testing having an effect on the outcome of NCLEX-RN success (Crow, Handley, Morrison; Shelton, 2004; Seldomridge & DiBartolo, 2004; Uyehara et al., 2007; Yin & Burger, 2003). In addition, several researchers found that prerequisite course grades in the sciences (e.g. biology, chemistry, anatomy, and pathophysiology) contributed to NCLEX-RN success (Alden, 2008; Uyehara et al., 2007). The issue of how to successfully gauge and apply academic indicators as specific predictors for nursing students' success remains an area of research potential, in particular as it relates to the population of transfer BSN students

Despite the abundance of the literature that has identified academic predictors of NCLEX-RN success, there have only been a few studies conducted on the transfer nursing student population. For example, Lewis and Judith's (2000) research on 168 transfer nursing students found the type of transferring institution (community college, four-year college or university) and number of prior anatomy/physiology courses as two areas found to be moderately predictive for identifying students at-risk. More specifically, they found that students who took all of the required anatomy and physiology courses prior to transferring

into the school of nursing were more likely to be successful in the nursing sequence. The results of their study also indicated that students transferring from a two-year institution were less likely to be successful in the nursing program. One explanation hypothesized for this outcome was in the academic area of instruction, that the expectations and requirements at the two-year institution were different than those at the four-year institutions. Interestingly, they found that transfer students who passed the NCLEX-RN did not differ from traditional students in their NCLEX-RN pass rates. One would expect instruction to be comparable between similar institutions. The researchers concluded that regardless of the institution of origin, the findings were a result of behavioral or environmental variables and not traditional academic variables as they relate to the student's ability to succeed in a nursing program and on the NCLEX-RN (Lewis & Judith, 2000).

Standardized Testing

Prior researchers have identified non-academic and academic factors that have potential to predict student success on the NCLEX-RN but have failed to adequately address specific interventions or strategies that would be most effective. This void has led to the development of commercially prepared review programs or standardized exit examinations made specifically for the nursing student population. The Mosby Assess Test and National League for Nursing Achievement Tests have been available for many years. The HESI and ATI Assessment packages are comparatively new to the market of nursing assessment examinations and self-review packages. These commercially prepared tests, especially the newest ones, have little research to support their validity.

Utilization of these commercially prepared nursing pre-entrance, course content assessments, and exit examinations are done according to the needs of the college or university and their students. The implementation is either throughout a program or upon the exit from the program. Some colleges or universities utilize these examinations as part of a progression policy specific to the needs of their institution (Mosser, Williams, & Wood, 2006; Spurlock 2006). Mosser et al(2006) and Spurlock (2006) agreed that the utilization of the exit examinations solely as progression criteria was educationally unsound, when the research has demonstrated that there exists other predictors of NCLEX-RN success.

The Mosby Assess Test has been utilized as an exit examination at the end of nursing educational programs and has been reported in the literature to be an accurate predictor of NCLEX-RN success (Morin & Michel, 2006). In general, nurse researchers have found that the Mosby Assess Test is a moderate to strong predictor of success on the NCLEX-RN for nursing students (Morin & Michel, 2006; Morris & Hancock, 2008; Sayles et al., 2003). Unfortunately, the Mosby Assess Test is a paper and pencil examination, whereas the NCLEX-RN is computerized examination. The turnaround time in obtaining the results of the Mosby Assess Test can be as long as four weeks. This time delay makes implementing a remediation plan difficult.

Recent to the market is the Mosby CAT test that may be purchased by nursing students individually to prepare for the NCLEX-RN. It is marketed as an assessment test designed to give potential NCLEX-RN applicants a detailed analysis of their results. The on-line examination is timed with 265 questions presented in the NCLEX-RN format. The probability of passing the NCLEX-RN is based on a normative sample of 4000 students who

took the MOSBY Assess test in 2001 and subsequently passed the NCLEX-RN on the first attempt.

Waterhouse and Beeman (2003) have explored the issue of identifying nursing students as successful or not successful on the NCLEX-RN on the first time in a number of research articles. The first research produced by these researchers utilized the Risk Appraisal Instrument (RAI) modified for the nursing student population in an attempt to identify those students who would be successful and those who would not be successful on the NCLEX-RN on the first attempt. Their research in this area proved that those students identified as "at-risk: were not necessarily accurate. This "false" positive created more anxious nursing students, with greater decreased self-confidence levels than their counterparts who were identified as not at-risk for failing the NCLEX-RN on the first attempt. In addition, the faculty perceived this identification of "at-risk" students to be draining, emotionally and fiscally, as they had invested much time and energy into the remediation of the falsely identified at-risk students (Waterhouse & Beeman, 2003). The researchers did identify that the students who has grades of C or less were more likely to be at-risk than those students with higher grades. Recommendations of their research included that faculty at schools of nursing: require a grade of C or better in all nursing courses and establishment the use of an exit examination; such as the MOSBY Assess Test (Waterhouse & Beeman, 2003). Waterhouse and Beeman (2003) recommended future research to identify academic and non-academic variables that would assist or impede NCLEX-RN success of the BSN student.

Waterhouse and Beeman (2003) in later research again identified the lack of strong predictors of NCLEX-RN success and attempted to identify "best practices" in NCLEX-RN

readiness for BSN students. The researchers looked at faculty/student ratios, utilizing the Health Education Systems Incorporated examination (HESI), the Mosby Assess Test, study groups, and weekly mentoring sessions for the students in their senior semester. The investigators found science and math grades to be predictive of NCLEX-RN success in nursing programs. The nursing schools in Waterhouse and Beeman's (2003) study instituted mentoring, study cohorts and standardized tests, which resulted in a higher pass rate on the NCLEX-RN on the first attempt than in previous graduating cohorts. The limitations were identified as having the entire faculty agree on the remediation plan, distributing the students evenly among faculty mentors, and the expense of the HESI materials and the faculty required to support the plan (Waterhouse & Beeman, 2003)

Kilcullen (2004) did a retrospective archival study on graduates from 2000 – 2004, (n = 87) who were enrolled at one of the four universities that comprise the Connecticut State University (CSU) system. The purpose of her retrospective study was to examine differences in nursing courses and standardized testing between students who passed NCLEX-RN and those who failed. Kilcullen (2004) studied 87 transfer and traditional nursing students (as one group) who completed all their clinical nursing courses at the researched university and found nursing graduates who passed the NCLEX-RN had significantly higher nursing GPAs and higher Mosby Assess Test scores than those graduates who failed the NCLEX-RN. Both independent group t tests and point-biserial correlations identified significant differences/relationships on these measures for the baccalaureate nursing graduates who passed the NCLEX-RN examination and those who failed this licensing examination. Specifically, the nursing graduates who passed the NCLEX-RN had significantly higher nursing GPAs and higher Mosby Assess Test scores than those graduates who failed the

NCLEX-RN examination. Likewise, point-biserial correlations also supported these differences. The nursing graduates who passed the NCLEX-RN examination also tended to have significantly higher scores on the Mosby Assess Test. Based on these findings, recommendations for future nursing research were discussed. In her study she found both, independent group t tests and point-biserial correlations identified significant differences/relationships in nursing GPA and Mosby Assess Test scores for the baccalaureate nursing graduates who passed the NCLEX-RN and those who failed this licensing examination. Specifically, the likewise, point-biserial correlations also supported these differences. She also found the nursing graduates who passed the NCLEX-RN also tended to have significantly higher scores on the Mosby Assess Test (Kilcullen, 2004). From Kilcullen's (2004) study one cannot draw any conclusions about transfer or traditional students as they were treated as one group.

Health Education Systems, Inc. originally offered only the HESI Comprehensive Exit examination and has recently added an admission examination, as well as, nursing content review examinations to be utilized throughout the nursing program's curriculum. The HESI comprehensive exit examination closely resembles the NCLEX-RN, following the blue-print as published by the National Council of the State Boards of Nursing (NCSBN) every three years and updating their comprehensive examination to reflect those changes. The HESI exit exam was developed to assess the nursing students' knowledge and identify their strengths and weaknesses in association with the nursing curriculum content as outlined on the NCLEX-RN blueprint. The HESI comprehensive exit examination consists of 150 questions, designed to be administered at the end of the nursing curriculum. The goal of the HESI exit examination is to measure the nursing student's readiness for the NCLEX-RN and

identify content areas that may possibly require remediation. Each HESI exam is reported as a conversion score based on the average weight of all the test items on the exam and the average weight of the test items correctly answered. The parameter HESI uses to judge the quality of test items includes a cumulative difficulty level of no less than 40% and point biserial correlation coefficient of 0.15 or above. HESI reports an estimated reliability coefficients range from 0.86 to 0.99. It is reported, in the literature, that the HESI exit examination is highly predictive of NCLEX-RN success at 98% (Nibert, Adamson, Young, & Lauchner, 2006).

Morin and Michel (2006) commented on the use of HESI Exit Examination in schools of nursing. Among other things, these researchers cite that there seems to be a lack of clarity about what it is that the faculty wishes to predict: student success or student failure. They states in their article that the HESI Exit Examination is valid at predicting student success and notes that there is much to be done when nursing students do not achieve the predetermined grade as set by their institutions. Some recommendations for remediation are test taking strategies and identification of weak and strong nursing content areas.

Spurlock and Hanks (2004) in their research found that the HESI exit examination was valid as an exit examination, when utilized with other predictors of NCLEX-RN success. These researchers were careful to explain that as criteria for predicting NCLEX-RN success, the HESI exit examination should not be the sole predictor. These researchers explained that the HESI exit examination is good at excluding those students who would pass but the examination cannot accurately identify those who would fail (Spurlock & Hanks, 2004). Reviewing the data collected from the annual HESI exit examination validity studies and

from the current literature, they concluded that other predictors of NCLEX-RN success exist and must be incorporated into potential progression policies. The identified predictors of NCLEX-RN success include: nursing course grades, grade point averages, science course grades, and the Mosby Assess test scores. In addition, the researchers point out that what is lacking in these studies is the effect of remediation, which is defined as any type of additional study used by the students in preparation for retesting with the HESI (Spurlock & Hanks, 2004).

Stalf (2006) evaluated the HESI Exit examination as a valid predictor of NCLEX-RN success in her investigative project and found that the benchmark of a score of 850 or greater as a valid predictor of NCLEX-RN success. Stalf (2006) analyzed the data using logistic regression, with a sample size of 200 students from a diploma school of nursing in a Midwestern city. Results supported that those students who scored 850 and higher were more likely to pass the NCLEX-RN on the first attempt. Morrison (2005) studied the use the HESI Exit exam scores as a basis for progression to graduation. This project was conducted at five schools of nursing, representing a total of seven programs: three ADN programs and four BSN programs. Chi-square test revealed that there was a significant difference in NCLEX-RN pass rates between individual schools prior to and after the implementation of the HESI Exit exam in 6 of the 7 programs that participated in her project (Morrison, 2005).

The ATI is another company that provides computerized testing packages for nursing schools, specializing in an assessment-driven review (ADR) program, which is designed to increase the success on the NCLEX-RN. The company offers examinations that are designed to assess the nursing student's knowledge and comprehension and at the same time

afford the nursing faculty the opportunity to evaluate the nursing student's knowledge in relationship to the nursing process, critical thinking, and competency skills products include an entrance/orientation profile for the entering nursing student. The examinations at this level include: the TEAS (Test of Essential Academic Skills), Self-Assessment, Critical Thinking Entrance/Exit exams, the Quest of Academic Success tool, as well as, content mastery examinations and a comprehensive predictor examination (Assessment Technologies Institute).

The TEAS exam is designed to predict the academic readiness of the nursing student and to be utilized as pre-admission tool. The four major areas of assessment are math, reading, science, and English (Assessment Technologies Institute). This examination, as noted by ATI, should not be the only source of information about the potential applicant for his/her admittance into a nursing program. It is to be used only as one source of applicant information along with additional application criteria such as SAT/ ACT scores, GPA in science, and pre-nursing GPA.

In 2006, the nursing faculty at Georgetown University presented the findings of their multifaceted NCLEX-RN success program (Norton et al., 2006). The researchers identified and studied the problems specific to their nursing program: low NCLEX-RN pass rates, lack of a remediation plan, lack of academic regulations and the lack of competency testing. Utilizing the ATI content mastery examinations and the comprehensive predictor examination, they designed a plan of success for their BSN nursing students that also included remediation throughout the BSN curriculum, education of the faculty and the requirement that the BSN students achieve a "C" or better in all nursing courses. The case

study analysis of their plan reported positive outcomes with the faculty seeing an increase of their students' pass rates on the NCLEX–RN examination in the first attempt. The study sample size was small (n=62). Additionally, the methodology (case study) made it impossible to decipher which implemented strategy - the remediation plan, academic regulations, or ATI content and comprehensive predictor examinations - contributed to the success of the study. Norton and her colleagues (2006) reported the total success of the plan as a cumulative effect. Georgetown University used the literature findings along with the results from the ATI examinations to implement a plan of remediation for all of their "at-risk" students. The success of the plan was not just related to the ATI testing and academic regulations changes that the nursing faculty made, but to the inclusion of "non-academic" factors that frequently are omitted because of the inability to assign values to these variables. The variables of faculty development and test-anxiety as perceived by the nursing student were accounted for by offering one-day seminars in these areas for the appropriate populations (Norton et al., 2006).

Jacobs and Koehn (2006) reported on the implementation of a standardized testing program to prepare nursing students for the NCLEX-RN using the following ATI assessments: the ATI content mastery examinations and the Comprehensive Predictor examination. The research was a descriptive study presenting the process in which this large Midwestern University decided on the computerized program, how they implemented the changes in their curriculum and how they have kept their faculty up to date on the ATI practices and changes. Interesting, in this study is that the faculty incorporated their students into the process, by explaining the concept of computerized testing, the benefits, the costs, and the expected outcomes. At the time of print, this piece of literature did not have data nor

did it identify the methodology of how that data had been collected and analyzed. The study was supported in part by the ATI Company (Jacobs & Koehn, 2006).

Jacobs and Koehn (2006) also, utilized an exploratory descriptive design to examine whether scholastic aptitude and nursing aptitude were predictive of early achievement in a BSN program. Their study utilized the ATI TEAS Exam as their nursing aptitude examination. The final sample size was 164; predominately white females, making the study difficult to generalize to other populations. The profile of the nursing student is changing, the population includes older adults, an increase in minorities, and gender shifts (Jacobs & Koehn, 2006). Significant findings in this study were that nursing aptitude is a significant predictor of early academic achievement in a BSN program.

Newton, Smith, Moore and Magnan (2007) conducted an exploratory descriptive study on whether scholastic aptitude and nursing aptitude were predictive of early academic achievement in a baccalaureate nursing program. The study indicated that scholastic aptitude, defined as pre-nursing GPA and nursing aptitude, as measured by the TEAS examination, together were predictive of early academic achievement, with scholastic aptitude accounting for 15.4% of the variance (Newton et al., 2007).These researchers showed that nursing aptitude is a significant predictor of early academic achievement in a baccalaureate nursing program, but this may have been a result of timing. The TEAS examination was administered at the end of the sophomore year when a student may have the necessary skill sets to be successful in a BSN program. Additional limitations with this study by Newton (2007) and her colleagues were the underrepresentation of minority and male nursing students; the homogenous sample consisted of 164 Caucasian females in their

sophomore year of a BSN program. Recommendations of their research included administering a standardized nursing aptitude test as a program admission requirement.

Studies addressing the reliability and validity of the TEAS examination as a predictor of nursing student success are limited. In addition, much of the research regarding the TEAS examination that is published and available has been sponsored by the developer of the test, the ATI Company. Given this fact, one may raise the question of the reliability and validity of the data and its potential for bias. In ongoing content validation, review, and evaluation process, ATI reported that the TEAS examination demonstrated acceptable psychometric properties that justify its use on a national basis as a standardized criterion for admission to nursing programs (ATI, n.d.b.). Additional independent validation studies are needed so nurse educators can assess the TEAS ability to predict student success.

The lack of literature on transfer BSN students and the inability to successful advise and mentor these students led to the selection of the academic variables used in this study: pathophysiology, adult nursing I, TEAS examination, and final GPA. Pathophysiology is a required, intense science course that all transfer BSN students must take at the university to which they transfer. Adult nursing I is the first clinical nursing course that the transfer BSN students will take and they do so concurrently with pathophysiology, making the academic requirements in their first semester extremely challenging. The TEAS examination is used an initial assessment of the students' academic ability and is administered in the first semester. Final GPA was data that was available, desired was the transfer GPA but that data is not stored in the electronic student database. Non-academic variables selected: age and gender, were selected as they were available. Age may have influenced the outcomes as

younger students are more acquainted with the academic environment than their older counterparts. Gender was selected as little research reflects the gender shift that is occurring in the profession of nursing.

This specific population of transfer nursing students is a population that continues to grow. The literature is now coming to light on the accelerated BSN student, male students in a BSN program, minority students in a BSN program, and second degree BSN students. Little research has addressed the transfer BSN nursing student, their learning styles and educational needs. Sample size in the literature tends to be small, as low as 30 to a high of 203. In addition, these samples do not reflect the changes in demographics and are not truly reflective of the diverse transfer BSN student population that we see in our programs, today. It was noted that when a surplus of job exists in any field, the number of applicants who want to pursue that field increases, supporting the need to establish admission criteria (Braden, 2006). Admission criteria may be viewed as discriminatory, but the literature strongly supports that schools of nursing create and implement admission and progression policies (Bonis, Taft, & Wendler, 2007; Jacobs & Koehn, 2004; Lea, 2006). Additionally, the research published about the ATI content mastery examinations and the comprehensive predictor examination has been supported in part by the ATI Company. The studies are descriptive and lack the statistical foundation for replication.

Summary

This literature search discussed the research available on the topics of; NCLEX-RN success, non-academic and academic factors as predictors of success, and the use of standardized testing and the BSN nursing student. Limitations in the literature in regards to

the transfer BSN students are as follows; the lack of literature specific to the population, the limited sample size of the studies that have been done, the lack of consensus on the utilization of admission criteria, the retrospective manner in which the data has been collected and the lack of statistical foundations. Chapter III addresses the methodology of the study.

Chapter III

METHODOLOGY

The purpose of this study was to identify predictors that contributed to passing the NCLEX-RN, on the first attempt, among transfer nursing students who had graduated from a baccalaureate program. The study examined the predictive value of selected cognitive and demographic characteristics of transfer nursing students who had graduated from a baccalaureate program and their success on passing on the first attempt the NCLEX-RN. Assessing the predictive values of the various factors might assist faculty in identifying transfer students who are at risk of failing the NCLEX-RN. Chapter III includes research design, research questions, the setting for the study, the sample, data collection, data analysis, and ethical considerations.

A retrospective quantitative design was chosen to identify predictors for NCLEX-RN success on the first attempt among transfer nursing students who graduated from a baccalaureate nursing program. The study included the following independent variables: age, gender, pathophysiology final grade, adult nursing I final grade, final GPA, and TEAS examination scores. The dependent variable was the NCLEX-RN pass/fail on the first attempt. This research study determined the relationships among the aforementioned independent variables on the dependent variable: NCLEX-RN success pass/fail on the first attempt among transfer nursing students who had graduated from a baccalaureate degree program. The researcher did not attempt to establish causality to NCLEX-RN success pass/fail on the first attempt but rather predicted relationships among many factors that

contribute to NCLEX-RN success. In this quantitative, nonexperimental research study, the research was conducted in order to predict a phenomenon, without regard for cause and effect (Burns & Grove, 2005).

Research Questions

The following research questions guided this study. This quantitative study intended to identify predictors of success on NCLEX-RN among transfer nursing students. The overarching research question and subsidiary questions that guide this inquiry were as follows:

What factors contributed to passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN), on the first attempt, among transfer nursing students who graduated from a baccalaureate nursing program?

Subsidiary Questions

1. To what extend did the student demographic variables of age and gender predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN), on the first attempt, among transfer students who graduated from a baccalaureate nursing program?

2. To what extent did the following academic variables; final grade point average (final GPA), science grade (pathophysiology), and clinical course grade (adult nursing I theory), predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt, among transfer students who graduated from a baccalaureate nursing program?

3. To what extent did the scores on the test of essential academic skills examination (TEAS) designed by the Assessment Technologies Institute, LLC (ATI) predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt, among transfer students?

Setting

The setting for this research study was a medium sized Mid-Atlantic baccalaureate nursing program. This baccalaureate nursing program admits on average 30 to 45 transfer students per year. The sample included all transfer students who graduated from this medium sized Mid-Atlantic baccalaureate nursing program from the years 2004 to 2009. This institution was chosen because it admits 30 to 40 transfer students per year with a required transfer GPA of 3.0 or greater.

Sample

The sample included only those transfer students who had taken the TEAS examination, pathophysiology, and adult nursing I at the university where the data was collected. Burns and Grove (2005) define a convenience sample as subjects being included simply because they happen to be in the right place at the right time. Cases with missing data were eliminated from the sample. Of the total 214 transfer student records that were available from 2004 to 2009, 175 student records were included in this study for data analysis as they were comprehensive and included all variables as defined in the study (N = 175).

Data Collection

This retrospective study involved a secondary analysis of data collected from an electronic student database belonging to the medium sized Mid-Atlantic baccalaureate nursing program and from the public records maintained by the New Jersey State Board of Nursing (NJSBN) from the years 2004 to 2009. This data was obtained from the electronic academic student records maintained by this Mid-Atlantic baccalaureate nursing program from the years 2004 to 2009. Verification of licensure was confirmed and retrieved from public records available on line and archived by the NJSBN between the years 2004 and 2009.

Study Variables

Independent Variables

Cognitive Variables

The independent variables for this research study were categorized as cognitive and demographic. The cognitive variables included: pathophysiology final grade, adult nursing I, final grade, final GPA and the TEAS examination score.

Pathophysiology is a rigorous required nursing science course that lays the educational foundation for the nursing student to understand the disease process and the physiological changes associated with specific disease states. This required nursing science course focuses on human response patterns common to all ages, to internal and external stresses that result in physiological alterations. Subsequent nursing courses will focus upon the nursing component integrating the student's knowledge of the physiological alterations.

Pathophysiology final grades were coded as: A/A- (5), B+/B (4), B-/C+ (3), C (2), C-/ D (1) and F/WD (withdrawal) (0).

Adult nursing I is the entry nursing course into the profession of nursing. In this course the nursing student will learn beginning clinical skills that will assist with the translation of lecture material, including pathophysiology, into the clinical setting. This nursing course provides the beginning student with the knowledge base to assess a client's ability to function independently, intervene to maximize function, and to help the client to identify coping and establish realistic outcomes. Clients with chronic disease states are examined. The nursing process is viewed as the framework to guide the students to think critically when interacting with clients in need of assistance to maintain or improve their level of health. Adult nursing I final grades were coded as: A/A- (5), B+/B (4), B-/C+ (3), C (2), C-/ D (1) and F/WD (withdrawal) (0).

These two courses, pathophysiology and adult nursing I, were chosen because they are required, academically rigorous courses and are benchmarks for progression in the nursing program. Pathophysiology final grade and adult nursing I final grade were also cited in the literature as related to the dependent variable of NCLEX-RN pass/fail (Davenport, 2007).

Final GPA is defined as the measure of a student's academic achievement at completion of the baccalaureate nursing program. An average of a student's grades with the grades converted to a numerical scale, usually 4.0. Final GPA was recorded as they appeared in the electronic student database.

Final GPA was selected as an independent variable as is was an available, cumulative and objective measure for the transfer student. The majority of students who transfer from a community college do not hold SAT and ACT scores as they are not required for admission to a community college in the state of New Jersey. Final GPA was chosen as it reflected the student's overall academic achievement earned at the baccalaureate level. Final GPA is an average of the student's grades with the grades that has been converted to a numerical scale. Crow, Handley, Morrison and Shelton (2004) conducted a national study in an attempt to identify requirements and interventions used by BSN programs to predict success and their findings showed that cumulative college GPA was used over 86 % of the time for admission criteria to their BSN programs supporting the use of Final GPA in this study.

The ATI TEAS examination was used to measure basic essential skills in reading, mathematics, science, and language and these academic attributes have been shown to be important indicators of nursing program success. The TEAS examination is designed to provide nursing students and nursing educators with entry-level nursing program data to assess a nursing student's potential for success or failure in the nursing program (Assessment Technologies Institute). The literature supported the fact that some schools of nursing utilize the ATI TEAS examination score as an admission criteria; as ATI technologies reports the TEAS score as a benchmark for academic readiness to enter a baccalaureate nursing program (Jacobs & Koehn, 2006). The Mid-Atlantic university which provided the transfer nursing student population in this research does use ATI TEAS examination for their entering

nursing students. The TEAS examination is based on a 100-point scale and was recorded as numerical scores and the actual scores were used.

Demographic Variables

The independent demographic variables for this research study were: age and gender. Student characteristics of age and gender have been cited in the literature as related to the dependent variable and therefore were included in this study and reported in a descriptive format (Seldomridge & DiBartolo, 2004). Descriptive statistics included the frequencies, means and standard deviations of the data. The statistical significance level selected for data analysis was $p = 0.05$. The standard alpha value of 0.05 is most often used by researchers and is the minimal level of significance acceptable for nursing research (Lo-Biondo-Wood & Haber, 2006).

Age is a continuous demographic variable and was defined as the student's chronological age in years. This was self-reported data and was obtained from the electronic database maintained by the medium sized, Mid-Atlantic baccalaureate nursing program.

Gender as a demographic variable, was self-reported data and obtained from the electronic database maintained by the medium sized, Mid-Atlantic baccalaureate nursing program. Gender was coded as 1 = male and 0 = female

Dependent Variable

The dichotomous dependent variable in this study was NCLEX-RN pass/fail on the first attempt, by the transfer nursing student. NCLEX-RN success was defined as passing the

NCLEX-RN on the first attempt by the graduate/candidate. The pass/fail attempt was retrieved from public records and archived by the New Jersey State Board of Nursing (NJSBN), and from the College of Nursing administrator who oversees the NCLEX-RN records of the baccalaureate students in the population, who had graduated from this accredited nursing program from the years of 2004 through 2007. The dependent variable, NCLEX-RN success was categorized as successful (passing NCLEX-RN on the first attempt) or unsuccessful (failing NCLEX-RN on the first attempt). (See table 1 for study variables; definition, and coding).

Table 1. *Description of Study Variables.*

Variable	Definition of Variable	Code
Pathophysiology final grade	Pathophysiology final course grade. This required science course focuses on human response patterns common to all ages, to internal and external stresses that result in physiological alterations.	Coded as: 5 = A/A- 4 = B+/B 3 = B-/C+ 2 = C 1 = C-/ D 0 = F/WD (withdrawal)
Adult Nursing I final grade	Adult Nursing I Final course grade. This nursing course provides the beginning student with the knowledge base to assess a client's ability to function independently, intervene to maximize function, and to help the client to identify coping and establish realistic outcomes. Clients with chronic disease states are examined. The nursing process is viewed as the framework to guide the students to think critically when interacting with clients in need of assistance to maintain or improve their level of health.	Coded as: 5 = A/A- 4 = B+/B 3 = B-/C+ 2 = C 1 = C-/ D 0 = F/WD (withdrawal).

Variable	Definition of Variable	Code
Final GPA	Final GPA is defined as the measure of a student's academic achievement at completion of the baccalaureate nursing program. An average of a student's grades with the grades converted to a numerical scale: usually 4.0.	Recorded as actual GPA recorded in the electronic database. Based on 4.0 grading scale.
TEAS Scores	TEAS Score will be recorded as the grade that the transfer student earned. The ATI TEAS examination is used to measure basic essential skills in reading, mathematics, science, and language	Test scored in a range from 1 to 99.
Age	Reported age in years.	Self reported in years, obtained from the electronic database.
Gender	Self reported data obtained from the electronic database	Coded as: 0 = female 1 = male
NCLEX-RN Success	NCLEX-RN Success was defined as passing the NCLEX-RN for licensure as an RN.	NCLEX-RN Success coded as: Passing = 1 Failing = 0

Data Analysis

The data was analyzed with SPSS 17.0 software and the alpha level was set at $p = .05$. SPSS 17.0 was used to analyze both the descriptive and inferential statistics. The descriptive statistics included means, standard deviations and frequency distributions.

The chi square test was used to determine if the frequency in each category is different from that which would be expected by chance. Correlational analysis was performed to determine if there are any significant relationships between the variables, using a Spearman rho correlation and a Pearson-r to determine the strength of the relationship among the criterion variables and NCLEX-RN success (LoBiondo-Wood & Haber, 2006).

Logistical regression was selected in an attempt to examine the relationships between multiple criterion variables and the dichotomous criterion variable of NCLEX-RN success. The assumptions of logistic regression are as follows:

1. Since logistic regression assumes that P(Y=1) is the probability of the event occurring, it is necessary that the dependent variable is coded accordingly. The dependent variable must be dichotomous and coded as a value of 0 or 1.

2. The model should have little or no multicollinearity. That is that the independent variables should be independent from each other.

3. Logistic regression requires each observation to be independent and mutually exclusive.

4. The model must contain all relevant predictors and no irrelevant predictors.

5. Logistic regression requires a sufficient sample size. Because maximum likelihood estimates are less powerful than ordinary least squares (e.g., simple linear regression, multiple linear regression); whilst OLS needs 5 cases per independent variable in the analysis, ML needs at least 10 cases per independent variable, some statisticians recommend at least 30 cases for each parameter to be estimated (Adlrich & Nelson, 1984; Agresti, 2007). Logistic regression includes the use of several statistics to report and interpret the data. The following statistics are reported in Chapter IV:

The omnibus test of models coefficients were reported for the research questions and reported in the following manner: Chi-square (X^2), df (degrees of freedom), and Significance (p).

Chi-square (X^2) is a statistical calculation used to test how well the distribution of a set of observed data matches a theoretical probability distribution. The calculated value is equal to the sum of the squares of the differences divided by the expected values.

The maximum likelihood were reported as the likelihood-ratio test ($\text{logit}(p) = \log(p/(1-p))$), this test reports the likelihood or odds, which maximizes the probability of getting the observed results given the fitted regression coefficients.

The odds ratio is a way of comparing whether the probability of a certain event is the same for two groups. Therefore, an odds ratio of 1 implies that the event is equally likely in both groups; an odds ratio greater than one implies that the event is more likely in the first group and an odds ratio less than one implies that the event is less likely in the first group.

The Wald is a sequential hypothesis test used to test the joint significance of several coefficients.

Cox and Snell R Square is method used for fitting a statistical model to data, and providing estimates for the model's parameters.

Nagelkerke R Square (R^2) is used in the context of statistical models whose main purpose is the prediction of future outcomes on the basis of other related information. It is the proportion of variability in a data set that is accounted for by the statistical model. It provides a measure of how well future outcomes are likely to be predicted by the model.

Logistic regression is an appropriate statistical analysis technique because it calculates an odds ratio which is the probability of occurrence over non-occurrence for each predictor (Burns & Grove, 2005). Both enter method and backward stepwise regression methods were used. Enter method allows all predictive variables to enter into the model whether or not they are significantly related to the dependent variable. This method is preferred when selecting a model based on a theoretical basis. However, this method is not to test a theory (Garson, 2002). Backward stepwise regression was also performed to compare its results with those of enter method. Backward stepwise regression method is used to analyze all variables and test them one by one for statistical significance. However, stepwise procedures run the risk of modeling noise in the data and are considered useful only for exploratory purposes. Thus, in this study both methods were used to obtain more accurate results (Menard, 2009).

Validity and Reliability

The research was confined to examining the electronic records of transfer nursing students who have graduated from a baccalaureate nursing program in a medium sized Mid-Atlantic university from the years 2004 to 2009. The focus of this research was to identify any relationships between the ATI TEAS examination, pathophysiology final grade, Adult nursing I final grade, final GPA, and the first time pass rates on the NCLEX-RN among the transfer nursing student population. Only those transfer nursing students who have taken the ATI TEAS examination and who have sat for the NCLEX-RN in New Jersey were included in the research due to data access availability. The validity of the research data collected was limited to the reliability of the shelved data derived from ATI, the New Jersey State Board of Nursing, the registrar, and the program director in charge of outcomes. Factors, such as time of day the NCLEX-RN and ATI TEAS examination was taken and the ethnicity of the transfer student population may have influenced the first time pass rates. Time of day for both examinations could not be controlled. Ethnicity of the transfer nursing students was omitted as this data was unavailable to the researcher and the standards for completion of a BSN program and sitting for the NCLEX-RN are not dependent upon the ethnicity of the student or applicant.

Human Subjects Considerations

The study used a retrospective or ex-post facto design examining the data from the electronic data base at the medium sized Mid-Atlantic baccalaureate university and from the public records maintained by the New Jersey State Board of Nursing (NJSBN) from the years 2004 to 2009. Institutional Review Board approval (IRB) was obtained through the

University, after which access was initiated and data collection began. Data was collected and coded to maintain confidentiality, and kept within a locked file cabinet. Participation in this study posed no anticipated risks or discomfort on the part of any individuals. No subjects in this study received any form of payment for participation in this study. There was no contact with subjects.

Summary

Chapter III has provided a review of the methodology that was used to complete the proposed study including: research design, sample description, sampling procedure, variable selection, data sources, data collection, analysis, coding, reliability, confidentiality, and IRB consideration.

Prediction of NCLEX-RN success continues to be an important issue in nursing programs. The need for qualified, baccalaureate educated nurses has been well documented and will continue to grow as the population at large ages (Aiken et al., 2003; Kuehn, 2007). The data collected in this study provided insight for nursing educators and leaders to identify early on, the transfer nursing students who may be at risk for failing the NCLEX-RN, and in turn impact their admission criteria, curricular decisions, and remediation plans for this specific population. The insights gained by this study will impact on the fiscal expenditures and the emotional drain incurred by both the schools of nursing and the transfer nursing student population.

Past research has been focused on the traditional nursing students who have passed the NCLEX-RN on the first attempt but little is known about the predictors of NCLEX-RN

success on the first attempt with the transfer nursing students who have graduated from a baccalaureate nursing program. This is where the literature gap lies and where this study will bridge the divide, providing hypothesis for future research. Study findings have provided insight into those factors that are predictive of NCLEX-RN success so early educational interventions can be developed by nurse educators.

Chapter IV

RESULTS

The purpose of this quantitative research study and its analysis was to identify the relationship between certain demographic and academic criterion and NCLEX-RN success on the first attempt among transfer nursing students who have graduated from a baccalaureate nursing program. The transfer students were admitted into this BSN program, upon completing an associate degree at a community college, and/or had transferred in from a four year college or university and in some cases a combination of both. The study population included only those transfer students who had taken the TEAS examination, pathophysiology, and adult nursing I at the medium sized Mid-Atlantic University where the data was collected. Chapter IV presents a summary of the data collected, including relevant statistical information and results. Descriptive statistics of the variables include frequency distributions, means, and standard deviations. Chi-square was used to examine relationships among the study variables. Logistic regression was performed to determine the predictive value of the independent variables. Statistical analysis was accomplished using the SPSS 17 software.

Descriptive Analysis

Age and Gender of Study Participants

The data collected was from the years: 2004 to 2009. The transfer students who were admitted in 2007 met the academic requirements making them eligible to take the NLCEX-RN examination in 2009 (See Figure 1). Transfer student admissions for this research population were as follows: 2004: 42 admissions; 2005: 44 admissions; 2006: 41 admissions;

and 2007: 47 admissions. Of the total number of 214 transfer students, 175 transfer students were included in the sample as they had complete data sets. The transfer students (both male and female) included in the study ranged in age from 21 to 46 years with a mean age of 24.5. More than half of the students (n=139) were between the ages of 22 and 23, with the majority (79%) of the students being 24 years of age or younger.

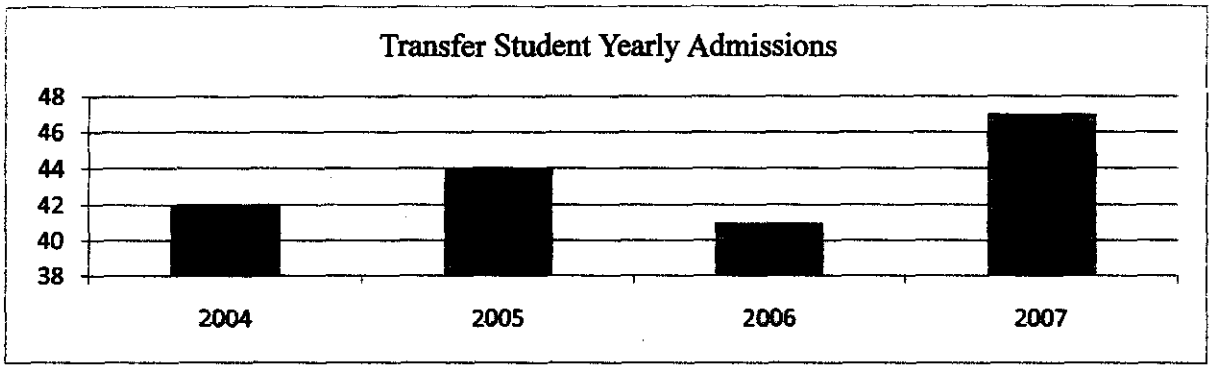

Figure 1. Transfer student yearly admissions.

Gender composition of the study population was predominately female (n = 162), which is consistent with current demographic literature (American Association of College of Nursing (AACN)). The AACN (2008) reported that male students accounted for 9.7% of students in pre-licensure baccalaureate nursing programs in the United States. Thus the number of males in this study is somewhat below the national average reported for BSN programs; females, 92.6% (n = 162) and males, 7.4% (n = 13).

Pathophysiology Grade, Adult Nursing I, Final GPA and TEAS Examination

Pathophysiology was one of the science courses most discussed in the literature as a predictor of NCLEX-RN success for traditional BSN students, (Waterhouse & Beeman, 2003a) there is no literature that relates pathophysiology as a predictor of NCLEX-RN

success for transfer BSN students. The pathophysiology course displayed a significant relationship to NCLEX-RN success on the first attempt with this group of transfer BSN students, ($df = 5$; $X^2 = 12.778$; $p = .026$). The pathophysiology grades for this population of transfer BSN students ranged from a grade of A to grade of F and/or withdrawal (WD); grades of C- and below are considered to be failing grades in this program and are recorded in the same manner. The highest percentage of transfer BSN students ($n = 50$) had achieved an A/A- (28.6%). Those transfer BSN students ($n = 43$) who received a grade of C comprised the second highest percentage (24.6%) within this study population. Grade percentages were as follows for the transfer BSN students: B-/C+ ($n = 28$, 16%); B+/B ($n = 42$, 24%); C-/D ($n = 11$, 6.3%) and F/WD ($n = 1$, .6%) with a mean of 3.42 and a SD of 1.328 (See Figure 2).

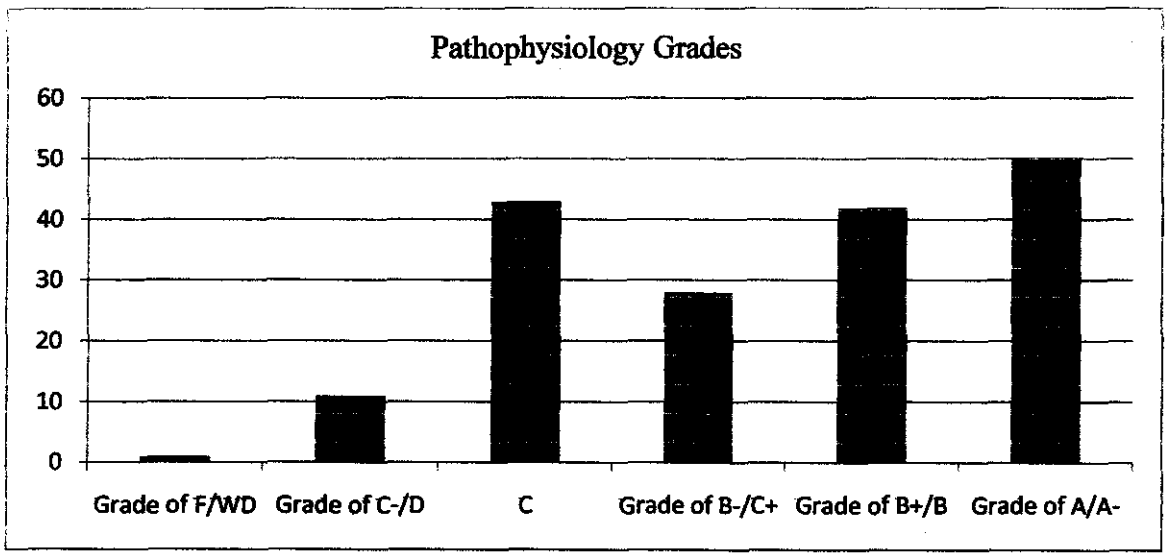

Figure 2. Pathophysiology grades of the transfer BSN students.

The adult nursing I course was included in this study as it is the first clinical nursing course that the transfer BSN students complete. The adult nursing I grades ranged from A to

F/WD, grades of C- and below are considered to be failing grades in this program and recorded in the same manner. The highest percentage of transfer BSN students received grades of B+/ B (n = 64, 36.6%), with 35.4% of the transfer BSN students (n = 62) earning a grade of B-/C+. Percentages for the remainder of this population are as follows: A/A- (n = 18; 10.3%), C (n = 28; 16%), C-/D (n= 1; .6%) and F/WD (n = 2; 1.1%) with a mean of 3.37 and a SD of .967 (See Figure 3).

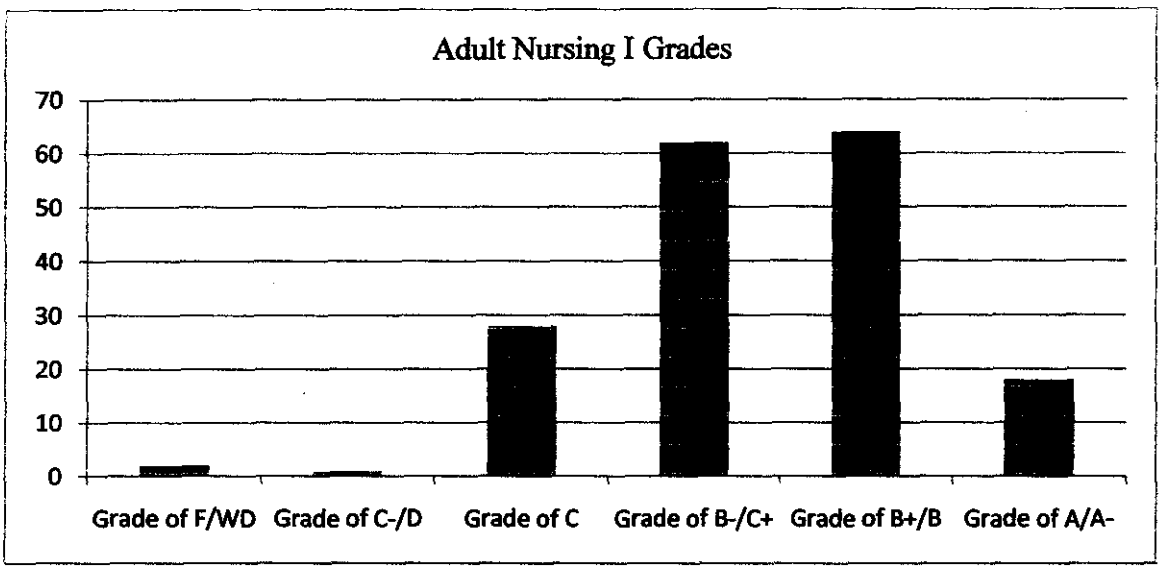

Figure 3. Adult Nursing I nursing grades of transfer BSN students.

The TEAS examination scores ranged from 1 to 99, with a mean of 57.43, and a SD of 30.467. The TEAS examination at this medium sized mid-Atlantic BSN program is not utilized as admission criteria, although it is administered to all BSN students prior to entering or during their first semester in the nursing program. A benchmark grade has not been established for the TEAS examination at this medium sized mid-Atlantic BSN program. The TEAS examination is designed to predict the academic readiness of the nursing student testing areas of math, reading, science, and english. The TEAS examination is used as one

source of applicant information along with SAT/ ACT scores, science GPA, and pre-nursing GPA and evaluated in this context. Almost half of the transfer BSN students (n = 76; 43.4%) in this study scored 75 or higher on the TEAS examination.

The final GPA for this transfer BSN student population ranged from 2.580 to 3.908, with a mean of 3.235, with a SD of .294. The findings indicated that 50% of the transfer BSN students (n = 88) had a final GPA greater than 3.226.

The NCLEX-RN first attempt pass rate for this transfer BSN student population was 77.7% (n = 136). The NCLEX-RN fail rate on the first attempt for this transfer BSN student population was 22.3% (n = 39).

Table 2. *Age, Pathophysiology Final Grade, Adult Nursing I Final Grade, TEAS Examination, Final GPA, and NCLEX-RN Results* (N = 175).

Variable	M	SD	Range
Age	24.58	4.70	21 to 46 years
Pathophysiology Final Grade	3.42	1.32	A to F/WD
			A/A- (n = 50)
			B/B+ (n = 42)
			B-/C+ (n = 28)
			C (n = 43)
			D/C- (n = 11)
			F/WD (n = 1)
Adult Nursing I Final Grade	3.37	.96	A to F/WD
			A/A- (n = 18)
			B/B+ (n = 64)
			B-/C+ (n = 62)
			C (n = 28)
			D/C- (n = 1)
			F/WD (n = 2)
Teas Examination	57.43	30.46	Scores ranged from 1 to 99
Final GPA	3.23	.29	Final GPAs ranged from 2.580 to 3.908

Bivariate Analysis

Chi-square Test for Independence

A chi-square test of independence was used to determine if the frequency in each category is different from what would be expected by chance. The chi-square indicates whether a frequency distribution fits the predicted distribution but does not predict the direction of that relationship (Lo-Biondo-Wood & Haber, 2006). As shown in Table 3, there is no statistically significant relationship between the variables; gender, pathophysiology, adult nursing I, and NCLEX-RN, indicating that these variables are independent of each other (Lo-Biondo-Wood & Haber, 2006).

Table 3. *Summary of Chi Square Tests Results.*

Variable	Variable	*df*	X^2	*P*
NCLEX-RN	Gender	1	.005	.943
Adult Nursing I	Pathophysiology	25	32.579	.142
Adult Nursing I	Gender	5	4.755	.447
NCLEX-RN examination	Adult Nursing I	5	14.481	.013
NCLEX-RN examination	Pathophysiology	5	12.778	.026

$p = .05$

The dependent variable of NCLEX-RN had statistical significance with both adult nursing I and pathophysiology with adult nursing I being more significant. There was a

statistically significant relationship between NCLEX-RN and adult nursing I variables (X^2 = 14.481, df = 5, p = .013) indicating that these variables are dependent on each other. There was a statistically significant relationship between NCLEX-RN and pathophysiology variables (X^2 = 12.778, df = 5, p =.026) indicating that these variables are dependent on each other.

Correlational Analysis

A Spearman rho was run on the variables to see the direction and magnitude of the association between the ranked variables prior to running a logistic regression. The Spearman rho was used to determine the degree of association between two sets of ranked variables. The results indicate that pathophysiology and adult nursing I had a positive statistically significant correlation, weak in magnitude with passing the NCLEX-RN examination. The correlation indicates that the students who did not pass the NCLEX-RN examination on the first attempt tended to have lower pathophysiology grades (r = .194, p = 0.05). The positive correlation indicates that the students who did not pass the NCLEX-RN examination on the first attempt tended to have lower adult nursing I grades (r = .200, p = 0.01) (See Table 4).

Table 4. *Bivariate Correlations between Predictor Variables and NCLEX-RN* (N = 175).

Variable	Age	Gender	Patho-physiology	Adult Nursing I	TEAS	Final GPA	NCLEX-RN
Age	1	0.89	.166*	.152*	.375**	.274**	.003
Gender	0.89	1	.115	.147	.007	.234**	.005
Patho-physiology	.166**	.115	1	.273**	.175*	.567	.194*
Adult Nursing I	.152*	.147	.273**	1	.283**	.657**	.200**
TEAS	.375**	.007	.175*	.283**	1	.450**	.229**
Final GPA	.274**	.234**	.567	.657**	.450**	1	.367**

*denotes *r* is significance at the 0.05 level (2 tailed).
**denotes *r* is significance at the 0.01 level (2 tailed).

Biserial correlation was used to examine the relationship between a variable that is continuous and quantitative and a dichotomous variable. The results indicate that TEAS scores and final GPA had positive significant correlations with passing the NCLEX-RN on the first attempt. This positive correlation indicates that students who did not pass the NCLEX-RN on the first attempt tended to have lower TEAS scores than those who passed the examination ($r = -.249, p = 001$). The results indicate that final GPA and NCLEX-RN had positive significant correlations with passing the NCLEX-RN on the first attempt. This statistically significant positive correlation, displaying moderately weak magnitude indicates

that students who did not pass the NCLEX-RN on the first attempt tended to have lower final GPA than those who passed the examination ($r = .371, p = .000$) (Lo-Biondo-Wood & Haber, 2006) (See Table 5).

Table 5. *Point-Biserial Correlations between Predictor Variables and NCLEX-RN* (N = 175).

Variable	*r*	*p*
Age	.141	.062
TEAS	.249**	.001
Final GPA	.371**	.000

Logistic Regression Analysis

Logistic regression was selected to analyze the relationship between the multiple independent variables (continuous and/or categorical) and the dependent variable (dichotomous categorical) to yield a predictive equation model (Lo-Biondo-Wood, 2006). After completing the chi square, Pearson r, and Spearman rho analysis, this researcher wanted to conduct logistic regression analyses to identify which variables contributed to the variance of the dependent variable, NCLEX-RN success on the first attempt among transfer nursing students in a BSN program, and to what degree the independent variables had predictive values.

Overarching Research Question:

What factors (age, gender, TEAS scores, pathophysiology, adult nursing I, and final GPA) contribute to passing the National Council Licensure Examination for Registered

Nurses (NCLEX-RN examination), on the first attempt, among transfer nursing students who graduated from a baccalaureate nursing program?

Logistic regression was used to determine the predictability of passing the NCLEX-RN examination on the first attempt. First, all independent variables (age, gender, pathophysiology, adult nursing I, TEAS scores, and final GPA) were entered into a logistic regression using the enter method. The predictive logistic regression model for this logistic regression using the enter method was not statistically significant, X^2 (27.783). Expressed in terms of the variables used in model, the logistic regression equation is as follows:

log(p/1-p) = 9.78 + .025*age + .410)*gender - .004*TEAS + 22.966*patho + 20.899*nursing -3.76*GPA

The -2 Log Likelihood value was 146.82 for the overall evaluation of this model. The final GPA variable was the only significant variable in this model with an odds ratio .024. The following variables were not significant: age: p = .071; gender: p = .947; pathophysiology: p = .894; and adult nursing I: p = .834. This model explained between 25.6% (Cox and Snell R square = .256) and 45.8% (Nagelkerke R square) of the variance in passing the NCLEX-RN. The model predicted 25.6% of the students who failed the NCLEX-RN and successfully predicted 97.8% of those who passed. This model correctly classified 81.7% of students overall (See tables 6 and 7). The omnibus tests of coefficients

was significant ($X^2 = 38.856$, $df = 14$, $p = .000$), indicating that the predictive model for this logistic regression was significant.

Table 6. Logistic Regression Results for Age, Gender, Adult Nursing I, Pathophysiology, and GPA.

	B	S.E.	Wald	df	Sig.	Exp(B)	95%C.I.for EXP(B) Lower	Upper
Age	.061	.034	3.252	1	.071	1.063	.995	1.137
Gender	.046	.691	.004	1	.947	1.047	.270	4.054
Adult Nursing I	.053	.255	.044	1	.834	1.055	.640	1.739
Pathophysiology	-.023	.175	.018	1	.894	.977	.693	1.378
GPA	-3.660	1.053	12.071	1	.001	.024	.003	.203
Constant	10.208	2.710	14.190	1	.000	27111.383		

Table 7. Total Model of Predicted Outcomes for NCLEX-RN Success.

		Predicted NCLEX-RN Results		
Observed		Pass	Fail	Percentage Correct
NCLEX-RN Results	Pass	133	3	97.8
	Fail	29	10	25.6
	Overall Percentage			81.7

a. The cut value is .500

Next, all independent variables were entered into backward stepwise logistic regression model. Logistic regression was used to determine the predictability of passing the NCLEX-RN examination on the first attempt. First, all independent variables (age, gender, pathophysiology, adult nursing I, TEAS scores, and final GPA) were entered into a logistic regression using the backward stepwise logistic regression model. Final GPA was significant ($X^2 = 20.860$, $df = 6$, $p = .002$). The final predictive logistic regression model (step 6) was statistically significant (See table 8).

Table 8. Predicted Outcomes for NCLEX-RN Success (Backward Stepwise Regression).

Observed		Predicted NCLEX-RN Results Pass	Fail	Percentage Correct
NCLEX-RN Results	Pass	129	7	94.9
	Fail	31	8	20.5
Overall Percentage				78.3

a. The cut value is .500

Research Question 1

To what extent do the student demographic variables of age and gender predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt, among transfer students who graduated from a baccalaureate nursing program?

The logistic regression equation for gender and race as demographic independent variables is as follows: Probability of passing the NCLEX-RN examination log(p/1-p) $\beta_0 + \beta_1 x_1 (age) + \beta_2 x_2 (gender)$. The analysis examined the contributions of age and gender to the outcome of passing on the first attempt the NCLEX-RN among transfer BSN students. The omnibus tests of model coefficients was not significant, ($X^2 = 3.094$, $df = 2$, $p = .213$), indicating that the predictive model for this logistic regression was not statistically significant. The -2 Log Likelihood valve was 182.581 for the overall evaluation of this model. The model predicted 0% of the students who failed the NCLEX-RN examination and successfully predicted 99.3% of those who passed. The overall percentage of cases correctly classified was 99.3% which is reasonable. The Wald ratio for the coefficient associated with age was not statistically significant, $X^2(df = 1) = 3.252$, $p = .071$. The Wald ratio for the

coefficient associated with gender was not statistically significant, $X^2(df = 1) = .004, p = .947$ (See table 9).

Table 9. Logistic Regression Output for the Variables: Age and Gender.

	B	S.E.	Wald	df	Sig.	Exp(B)	95%C.I.for EXP(B)	
							Lower	Upper
Age	.061	.034	3.252	1	.071	1.063	.995	1.137
Gender	.046	.691	.004	1	.947	1.047	.270	4.054
Constant	-2.783	.880	10.015	1	.002	.062		

Research Question 2

To what extent do academic variables (i.e., final grade point average (final GPA), science grade (pathophysiology), and clinical course grade (adult nursing I Theory), predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt for transfer students?

This analysis examined the contributions of Adult nursing I, pathophysiology, and final GPA to the outcome of passing on the first attempt the NCLEX-RN among transfer BSN students. The omnibus tests of model coefficients was significant, $X^2 = 26.291$, $df = 3$, $p = .024$. The overall percentage of cases correctly classified was 78.9%.

Logistic regression was used to determine the predictability of passing the NCLEX-RN examination on the first attempt. First, the independent variables (pathophysiology, adult nursing I, TEAS and final GPA) were entered into a logistic regression using the enter method. The predictive logistic regression model for this logistic regression using the enter method was not statistically significant, X^2 (26.291).

Expressed in terms of the variables used in model, the logistic regression equation is as follows:

$$\log(p/1-p) = 9.78 + 22.966*\text{patho} + 20.899*\text{nursing} + -3.76*\text{GPA}$$

The -2 Log Likelihood value was 159.384 for the overall evaluation of this model. The final GPA variable was the only significant variable in this model with an odds ratio .024. The following variables were not significant: age: pathophysiology: $p = .894$; and adult nursing I: $p = .834$. This model explained between 20.5% (Cox and Snell R square = .139) and 21.3% (Nagelkerke R square) of the variance for passing NCLEX-RN. The model predicted 20.4% of the students who failed the NCLEX-RN and successfully predicted 95.6% of those who passed. This model correctly classified 81.7% of students overall.

Adult Nursing I and pathophysiology were not significant in the logistic regression; adult nursing I: $p = .834$ and pathophysiology: $p = .894$. Whereas both adult nursing I and pathophysiology both proved significant in the Chi Square analysis (Adult nursing I: $df = 5$, $X^2 = 14.418$, $p = .013$; pathophysiology: $df = 5$, $X^2 = 12.778$, $p = .024$). Final GPA was the significant contributing variable in the logistic regression equation: $p = .001$; with a CI of 95%. The Wald ratio for the coefficient associated with pathophysiology was not statistically significant, $X^2(df = 1) = .018$, $p = .894$. The Wald ratio for the coefficient associated with Final GPA was significant, $X^2(df = 1) = 12.071$, $p = .001$ (See Table 9). The Wald ratio for the coefficient associated with adult nursing I was not statistically significant, $X^2(df = 1) =$

.044, $p = .834$. This finding showed holding all other variables constant as the student's Final GPA increased so did the student's chances for passing the NCLEX-RN on the first attempt, as is indicated by B = 3.660 (See Table 10).

Table 10. Logistic Regression Output for the Variables: Adult Nursing I, Pathophysiology, and GPA.

	B	S.E.	Wald	df	Sig.	Exp(B)	95%C.I.for Lower	EXP(B) Upper
Adult Nursing I	.053	.255	.044	1	.834	1.055	.640	1.739
Pathophysiology	.023	.175	.018	1	.894	.977	.693	1.378
GPA	3.660	1.053	12.071	1	.001	.024	.003	.203
Constant	10.208	2.710	14.190	1	.000	27111.383		

Research Question 3

To what extent does the standardized achievement test of essential academic skills examination (TEAS) predict passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN examination) on the first attempt for transfer students?

Logistic regression was used to determine the predictability of passing the NCLEX-RN examination on the first attempt. The independent variable of TEAS scores was entered into a logistic regression using the enter method. The predictive logistic regression model for this logistic regression using the enter method was statistically significant ($X^2 = 10.550$, $df = 1$, $p = .001$). Expressed in terms of the variables used in model, the logistic regression equation is as follows: log(p/1-p) = 9.78 + - .004*TEAS

The -2 Log Likelihood value was 175.125 for the overall evaluation of this model. This model explained between 5.9% (Cox and Snell R square = .256) and 8.9% (Nagelkerke

R square) of the predicted variance. The model predicted none of the students who failed the NCLEX-RN and successfully predicted 100% of those who passed. This model correctly classified 77% of students overall.

This analysis examined the contributions of the TEAS examination to the outcome of passing on the first attempt the NCLEX-RN among transfer BSN students. The omnibus test of models coefficients was significant, $X^2 = 10.550$, $df = 1$, $p = .001$. The overall percentage of cases correctly classified was 100%. The Wald ratio for the coefficient associated with the TEAS was significant, $X^2(df = 1) = 10.249$, $p = .001$. This finding showed holding all other variables constant as the student's TEAS scores increased so did the student's chances for passing the NCLEX-RN on the first attempt, as is indicated by B = .019 (See Table 11).

Table 11. Logistic Regression Output for the Variable: TEAS Examination Scores.

	B	S.E.	Wald	df	Sig.	Exp(B)	95%C.I.for Lower	EXP(B) Upper
TEAS	.019	.006	10.249	1	.001	.981	.970	.993
Constant	.242	.334	.495	1	.482	.785		

Chapter V

DISCUSSION

This chapter provides a summary of the study including a discussion of the findings and their significance, limitations of the study, conclusions, implications for practice, and recommendation for further research.

Summary of the study

The purpose of this study was to identify factors that contributed to the passing of the NCLEX-RN on the first attempt, among transfer nursing students who graduated from a baccalaureate program. This research study explored the predictive relationships among selected academic and available demographic characteristics of transfer nursing students who have graduated from a BSN nursing program and their success at passing the NCLEX-RN on the first attempt. The transfer students were admitted into this BSN program, upon completing an associate degree at a community college, and/or transferred in from a four year college or university. The study sample (N=175) included only those transfer students who had taken the TEAS examination, pathophysiology, and adult nursing I at the medium sized Mid-Atlantic university, from 2004 to 2009. Study findings indicated only final GPA proved significant as an independent variable in the logistic regression model ($p = .001$). No other independent variable (age, gender, pathophysiology, adult nursing I, TEAS scores) were found to be predictive of passing the NCLEX-RN examination on the first attempt. The final GPA demonstrated a degree of accuracy in the prediction of NCLEX-RN examination success (95.6%).

Several researchers have investigated predictors of NCLEX-RN success in traditional BSN students but few factors were identified as predictive in all studies (Crow et al., 2004; Daley et al., 2003; Waterhouse & Beeman, 2003a) and none addressed the transfer BSN student population. The results of this research suggested that there are differences between academic criteria and subsequent success on passing the NCLEX-RN on the first attempt for this transfer BSN student population. In addition, there are other possible academic and nonacademic predictor criteria not researched in this study, due to the lack of availability of archived data, such as, transfer GPA, number of previous college attempts, English as a second language, first generation to attend college in the family of origin, and student status (commuter or non-commuter). It would be important to include these criteria and their impact on transfer nursing students and their NCLEX-RN success in future studies.

Age and Gender

The transfer students (both male and female) included in the study ranged in age from 21 to 46 years with a mean age of 24.5. More than half of the students (n=139) were between the ages of 22 and 23, with the majority (79%) of the students being 24 years of age or younger. Gender composition of the study population was predominately female (n = 162), which is consistent with current demographic literature (AACN, 2008). The AACN (2008) reported that male students accounted for 9.7% of students in pre-licensure baccalaureate nursing programs in the United States. Thus the number of males in this study is somewhat below the national average reported for BSN programs; females, 92.6% (n = 162) and males, 7.4% (n = 13).

Age and gender were not found to be significant as predictor criteria for this population of transfer BSN students in passing the NCLEX-RN on the first attempt in this research. In passing, an explanation for the nonsignificance of age and gender may have been the majority of the transfer BSN students in this research were between the ages of 22 and 23 and female.

Pathophysiology Final Grade, Adult Nursing I Final Grade, Final GPA and TEAS Examination

Pathophysiology final grade ($p = .894$) was not significant as a predictor of NCLEX-RN success in the logistic regression model (CI of 95%). Pathophysiology and other science courses have been reported as predictive of NCLEX-RN success in the traditional BSN student population (Seldomridge & DiBartolo, 2004; Uyehara et al., 2007; Waterhouse & Beeman, 2003b).

Adult nursing I final grade ($p = .843$) was not significant as a predictor of NCLEX-RN success in the logistic regression model (CI of 95%). Adult nursing I and other first level nursing courses have been reported as predictive of NCLEX-RN success in the traditional BSN student population (Beeson & Kissling, 2004; Daley et al., 2003).

This research yielded the final GPA was the strongest predictor of NCLEX-RN success in the transfer BSN student population, whether combined with pathophysiology, Adult nursing I, or the TEAS examination alone or in combination. This finding is consistent with the literature that has been done with the traditional BSN students (Crow et al., 2004; Sayles et al., 2003).

The TEAS examination score ($p = .001$) were statistically significant as a predictor of NCLEX-RN success in the logistic regression model but not meaningful educationally as the odds ratio was close to 1 (.981). The younger transfer BSN students performed better than their older counterparts on the TEAS examination. This finding may be related to the fact that they were recent high school graduates and were accustomed to the standardized testing format. Of importance to note the TEAS examination test scores have not been studied for a correlation with pass – fail by ATI (ATI, n. d.). This research may be one of the first to study the relationship between the entry level TEAS examination and the NCLEX-RN and nursing program successes. Davenport (2007) researched the ATI Comprehensive 2.0 predictor examination and NCLEX-RN results and reported a significant difference in the mean predictor scores between those students who passed and those students who failed the NCLEX-RN and recommended that nursing faculty take a proactive approach to nursing student success early in their programs. An other study focused on the ATI testing as a strategy to prepare for NCLEX-RN rather than as a predictor of first time NCLEX-RN success (Wray, Whitehead, & Treas, 2006).

Significance of the Study

The university and nursing academic communities stand to benefit from the results of this research which identifies the transfer BSN students who are more likely to be successful in completing ((Benner, 2001) the nursing program. Therefore, the results of this research will and can impact the classroom space limitations, fiscal demands of faculty, clinical agencies, and hospitals. Benner wrote extensively about the experiential journey of professional nurses and their transformation and growth in their professional role at the bedside. She defines this professional growth process as occurring in five separate stages;

novice, advanced beginner, competent, proficient, and expert. Benner's theory was utilized to stage and understand the educational experience of the transfer nursing student. As implied by Benner's theory (Benner, 2001) of novice to expert, students who are able to assimilate the first semester (pathophysiology and adult nursing I information will be able to complete the second and subsequent semesters of a nursing program, therefore providing more registered nurses to decrease the nursing shortage. This research about transfer nursing students and their ability to be successful on the NCLEX-RN on the first attempt, filled a small fissure in the literature, providing evidence based outcome research.

Limitations of the Study

Limitations of this study included the lack of archived data such as transfer GPA, number of previous college attempts, English as a second language, first generation to attend college in the family of origin, socioeconomic status, and student status (commuter or non-commuter) as academic and nonacademic predictor criteria. Limitations related to the transfer students' test taking ability and testing anxiety were not investigated and can vary greatly from student to student impacting on NCLEX-RN success on the first attempt. Furthermore, the size of the sample may have influenced the outcomes as well as the homogenous composition of the population, mostly female (n = 162; 92.6%).

The limitations related to the transfer students' pre-transfer attributes; such as transfer GPA, number of college attempts, and the transfer institution of origin, would have benefited this study greatly. Transfer GPA, number of college attempts, and the type of institution that the student had transferred from could have identified early predictors of NCLEX-RN, which is an area of research that is not available on transfer BSN students. These attributes would

have shed light and added strength to the research as they would have identified early academic predictors of success on the NCLEX-RN on the first attempt among transfer students.

The limitations related to the transfer students requirements; required courses (pathophysiology and adult nursing I) and the TEAS examination were as defined in the following paragraphs.

Course catalogues were inconsistent with stating the requirements for the transfer BSN student. In 2004 there was no formal written statement in the course catalogue for transfer student (See Appendix B). In the catalogues for 2005 – 2007 and 2007 -2008, there was a formal written requirement for the transfer BSN student (See Appendix B), with the requirement of a transfer GPA of 3.0 or higher. In the catalogue for 2008– 2009, there was a formal written requirement for the transfer BSN students (See Appendix B), with an increase in the requirement of a transfer GPA of 3.2 or higher.

Pathophysiology during this study utilized different textbooks and the sections at the time of the data collection were taught by faculty from either the Biology department or the Nursing department concurrently at this medium sized Mid-Atlantic university. The frame of reference, whether medical or nursing, of the course faculty may have affected the students' perceptions as to which content was more or less significant. Course description did not change nor did course competencies and the status as a required science course for the transfer BSN students. This study did not take into account if the transfer BSN student had repeated pathophysiology or the number of attempts; it only considered the final grade as recorded by the university and available to the researcher.

The adult nursing I courses were taught by college of nursing faculty with all sections of this course utilizing the same textbook and syllabus. From the years 2004 to 2009, the course description and course competencies for adult nursing I remained the same, but the course number (NUTC 3013, and NUTC 3118) and credit (6 credits - 5 credits) allocation changed (See Appendix B). Again, this study did not take into account if the transfer BSN student had repeated adult nursing I or the number of attempts; it only considered the final grade as recorded by the university and available to the researcher.

Administration of the TEAS examination was another limitation. Directions for the examination, the purpose, the time/length of the examination and the proctor were not controlled, as administration of the examination is scheduled and administered by an available administrative staff and or faculty member. Inability to control internet access and loss of access during scheduled testing times was another limitation. All these factors may have influences the results of the TEAS scores.

The data available related to the TEAS examination was limited and occurred in clusters with the bulk of the examinations administered during the years 2004 and 2006. The administration of the examination was inconsistent thus limiting the research population, as not all of the transfer students, within the research time frame, were required to take the TEAS examination as formal admission criteria. This inconsistency limited the sample size to less than half of the potential population of transfer students admitted to this medium sized Mid-Atlantic BSN program.

Results for the TEAS examinations taken by the transfer students were difficult to interpret as no set cut off score had been established by this university. Furthermore, the

research results examined did not address or explain if the students lost the internet connection while testing; resulting in their low scores. Additionally, it is not documented if the students were aware that the TEAS examination would be utilized as an admission criteria, therefore the examination was not taken in a serious manner. Test fatigue may have been accountable for the lower scores, as the TEAS examination is a four hours in length. This was evident by the wide range (1 to 99) in scores recorded for this research population.

A study including additional entry level nursing courses (pharmacology and health assessment) may have provided supplementary predictive information about this population. This research, also, did not investigate the number of repeated science and nursing courses and their effect on being successful on NCLEX-RN the first attempt for the transfer BSN student population.

Furthermore, most of the studies, this one included, were limited to the fact the methodology was retrospective and the research results were presented as a paper and not a scientific inquiry (Bonis, Taft, & Wendler, 2007; Jacobs & Koehn, 2006). It is easy to correlate who will pass and fail the NCLEX-RN after all the data has been collected. What is really needed is a methodology that would predict which nursing student, prior to entering their first clinical nursing course or at the very least after their first clinical nursing course, would be successful at completing the program and ultimately passing the NCLEX-RN. These limitations limit the ability to generalize this data to other nursing programs, but is does provide the foundations for thought and future inquiries in the transfer BSN student population.

Implications for Practice

This study revealed the positive nature of academic predictors of future success on the NCLEX-RN as defined as a first time pass for the transfer BSN students. It demonstrated that final GPA was a very strong predictor using logistic regression. Success on the TEAS examination was positively correlated to the success in entry level nursing courses such as pathophysiology and adult nursing I. The question remains: is the TEAS examination an accurate predictor of which transfer BSN students will be successful in subsequent nursing courses and ultimately on the NCLEX-RN.

These findings support the utilization of the empirical data found in this study, especially in regards to the transfer BSN student population. Recommendations guided by the empirical data collected by this study include the following; the establishment of transfer requirements, the establishment of cut off scores for the TEAS examination as well as the establishment of standard administration guidelines for the TEAS examination, requiring a grade of C or greater in all required nursing and science courses and most importantly the creation of a transition model to address the educational needs of the transfer BSN student.

Studies have demonstrated factors that are predictive of success in both nursing programs and on the NCLEX-RN in the traditional BSN student population (Mosser, Williams & Woods, 2006; Newton, Smith, Moore, & Magnan, 2007; Sayles, Shelton, & Powell, 2003). Many colleges and universities rely on high school GPA and ACT/SAT scores, but these scores are not available in the transfer BSN student population and therefore cannot be utilized as admission criteria. The TEAS examination can provide valuable admission information, but should not be used as an exclusive admission criterion.

Identification of predictors for this population is critical, especially, at the entry level. The identifications of "at-risk" transfer BSN students would enable remediation to begin early in a program, decreasing fiscal expenditures by both the university and the student. The current nursing shortage makes it imperative that colleges and universities facilitate the transfer BSN students' progress throughout the nursing program to build the ranks of practicing professional nurses both locally and throughout the country. Improving recruitment, retention, and graduation rates of the transfer BSN student is critical in closing the gap in the nursing shortage and meeting the healthcare needs of society.

The overall goal of this research was to identify predictors of first time pass success on the NCLEX-RN for transfer BSN students in a baccalaureate nursing program. The results can be generalized to other baccalaureate nursing programs, which admit transfer students. This research will provide the foundations for future research in this area of nursing education that is, at this time, deficient. These research results will lead to the enhancement and modification of admission policies, remediation and mentoring, curriculum development in nursing programs and the foundations for transition/articulation agreements among community colleges and four year colleges and universities. Additional research on the determination of better predictor criterion for the identification of "at-risk" transfer BSN students needs to be explored and this research provides a foundation.

This retrospective, quantitative study begins to lay a foundation for future studies in relationship to the growing population of transfer students in BSN nursing programs and their success on the NCLEX-RN. Determining predictive criteria for transfer students' success in four-year institutions is extremely significant to nurse educators and leaders. The

study findings will assist nurse educators in the evaluation of their admission policies, their curriculum plans and policies, reducing the costs incurred by faculty in time and money due to attrition, and increase the sorely needed population of qualified, educated baccalaureate nurses.

Conclusions

The findings of this research are most relevant for the medium sized Mid-Atlantic university at which the research was conducted and the results have pertinent pragmatic values for the nursing educational community, faculty, administrators, and transfer BSN students. The results of this research established that age and gender did not make significant contributions to first time success on the NCLEX-RN. This may be related to the population of transfer BSN students, who were predominately young and female in composition.

The results of this research demonstrated that final GPA remained the strongest predictor variable for passing the NCLEX-RN on the first attempt among this transfer BSN student population. More important, the results of this research established that educational interventions designed to increase transfer BSN student success on the NCLEX-RN should begin at the entry level courses. Pathophysiology lays the foundations of physiological responses to diseases and internal and external stressors that create alterations in humans and their response patterns. This foundation is supported and built upon in Adult nursing I which utilizes this knowledge and builds upon it with the nursing process as its framework.

The TEAS examination proved to be statistically significant as a predictor of NCLEX-RN success in the logistic regression model but was not meaningful educationally as the odds ratio was close to 1. Students who scored higher on the TEAS examination tended

to do better in pathophysiology and adult nursing I. It would benefit the nursing faculty to develop and implement a "cut-off" score for this examination, so the TEAS examination could be better utilized as one admission criteria for the transfer BSN student. Davenport (2007) in her research, using the ATI comprehensive 2.0 predictor exit examination with traditional BSN students, found this to be true and recommended that nursing faculty take a proactive approach to preparing student for NCLEX-RN success when they entered as freshmen students.

Recommendations for Future Research

Strongly recommended for future research are both qualitative and quantitative studies in regards to this growing population of students, transfer students, in the field of nursing education. Future qualitative studies should included pre-transfer attributes, such as; transferring institution, English as a second language, socioeconomic status and test anxiety, as they relate to NCLEX-RN success. Future quantitative studies need to focus on early academic attributes, such as; transfer GPA, admission testing, early science courses (pathophysiology) and early nursing courses (fundamentals, first clinical nursing course, pharmacology) as they relate to NCLEX-RN success. This study was an initial attempt to determine if predictors of NCLEX-RN success could be identified for the transfer BSN student population. If such predictors could be identified early and supported statistically with success on the NCLEX-RN, administrators and faculty could rest easier in regards to their NCLEX-RN pass rates and devote additional time to the more important areas of scholarship, teaching, and service to their institutions.

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APPENDIX A

Request for Approval of Research, Demonstration or Related Activities Involving Human Subjects.

REQUEST FOR APPROVAL OF RESEARCH, DEMONSTRATION OR RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS

All material must be typed.

PROJECT TITLE: _____ *Predictors of Success on NCLEX-RN among Transfer BSN students.*

CERTIFICATION STATEMENT:

In making this application, I(we) certify that I(we) have read and understand the University's policies and procedures governing research, development, and related activities involving human subjects. I (we) shall comply with the letter and spirit of those policies. I(we) further acknowledge my(our) obligation to (1) obtain written approval of significant deviations from the originally-approved protocol BEFORE making those deviations, and (2) report immediately all adverse effects of the study on the subjects to the Director of the Institutional Review Board, Seton Hall University, South Orange, NJ 07079.

Mary E. Fortier Ed.D(c) MA RN CNL

_____ November 17, 2009

RESEARCHER(S) OR PROJECT DIRECTOR(S) DATE

**Please print or type out names of all researchers below signature.
Use separate sheet of paper, if necessary.**

My signature indicates that I have reviewed the attached materials and consider them to meet IRB standards.

Kim Eun Young 11-17-2009

RESEARCHER'S ADVISOR OR DEPARTMENTAL SUPERVISOR DATE

Eunyoung Kim, Ph.D.

Please print or type out name below signature

The request for approval submitted by the above researcher(s) was considered by the IRB for Research Involving Human Subjects Research at the _____meeting.

The application was approved ___ not approved ___ by the Committee. Special conditions were _____ were not _____ set by the IRB. (Any special conditions are described on the reverse side.)

_____ _____

DIRECTOR, DATE
SETON HALL UNIVERSITY INSTITUTIONAL
REVIEW BOARD FOR HUMAN SUBJECTS RESEARCH

REQUEST FOR APPROVAL OF RESEARCH, DEMONSTRATION OR RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS

All material must be typed.

PROJECT TITLE: ____ *Predictors of Success on NCLEX-RN among Transfer BSN students.*

CERTIFICATION STATEMENT:

In making this application, I(we) certify that I(we) have read and understand the University's policies and procedures governing research, development, and related activities involving human subjects. I (we) shall comply with the letter and spirit of those policies. I(we) further acknowledge my(our) obligation to (1) obtain written approval of significant deviations from the originally-approved protocol BEFORE making those deviations, and (2) report immediately all adverse effects of the study on the subjects to the Director of the Institutional Review Board, Seton Hall University, South Orange, NJ 07079.

Mary E. Fortier Ed.D(c) MA RN CNL

_____ November 17, 2009

RESEARCHER(S) OR PROJECT DIRECTOR(S) DATE

**Please print or type out names of all researchers below signature.
Use separate sheet of paper, if necessary.**

My signature indicates that I have reviewed the attached materials and consider them to meet IRB standards.

Kim Eun Young 11-17-2009

RESEARCHER'S ADVISOR OR DEPARTMENTAL SUPERVISOR DATE

Eunyoung Kim, Ph.D.

Please print or type out name below signature

The request for approval submitted by the above researcher(s) was considered by the IRB for Research Involving Human Subjects Research at the _____meeting.

The application was approved ___ not approved ___ by the Committee. Special conditions were _____ were not _____ set by the IRB. (Any special conditions are described on the reverse side.)

_____ _____

DIRECTOR, DATE
SETON HALL UNIVERSITY INSTITUTIONAL
REVIEW BOARD FOR HUMAN SUBJECTS RESEARCH

APPENDIX B

Undergraduate Course Catalogues

Spring Semester		
BIOL 1103	Anatomy and Physiology II	4
ENGL 1202	College English II	3
NUTH 1002	Individual and Family Development Across the Lifespan	3
SOCI 1101	Understanding Society	3
	Language	3
Sophomore		
Fall Semester		
CHEM 1301	Chemistry	5
ENGL xxxx	Literature Elective	3
MATH 1101	Statistical Concepts and Methods	3
NUTH 1003	Culture and Health	3
NUTH 1004	Dying with Dignity	2
NUTH 2001	*Introduction to Professional Nursing*	2
Spring Semester		
BIOL 2111	Microbiology	4
NUTC 2011	*Health Assessment*	3
NUTC 2012	Heath Promotion across the Lifespan	4
NUTH 2002	Legal Aspects of Nursing	1
NUTH 2003	Pathophysiology	3
Junior		
Fall Semester		
NUTC 3013	Adult Nursing I	6
NUTH 3001	Pharmacological Therapies	2
NUTH 3002	Gerontological Nursing	2
PHIL 1105	Ethics	3
RELS/PHIL	Religion/Philosophy elective	3
Spring Semester		
NUTC 3014	Dimensions of Childbearing Family	5
NUTC 3015	Dimensions of Psychosocial Nursing	5
NUTH 3003	Research in Nursing	3
NUTH 3004	Economic/Management for the Professional Nurse	3
Senior		
Fall Semester		
HIST xxxx	*History elective*	3
NUTC 4016	Dimensions of the Childrearing Family	6
NUTC 4017	Acute Adult Nursing	6
Elective		3
Spring Semester		
NUTC 4018	Community Health Perspectives	6
NUTC 4019	Synthesis Practicum	3
NUTH 4001	Nursing Leadership	3

BIOL 1103 and 1105 must be completed prior to NUTH 2003. All Nursing courses must be completed with a grade of "C" or higher. These Nursing courses must be completed sequentially.

Traditional or Accelerated Program for Second Degree Students

Admission to the program is limited to students holding a baccalaureate or higher degree. All prerequisites must be completed with a grade of "C" or higher for acceptance. A minimum GPA of 2.5 is required.

Students must complete courses in Anatomy and Physiology I and II, Chemistry, Microbiology, Statistics, Developmental Psychology and Ethics prior to starting this program. The program requires the completion of 72 nursing credits. The accelerated program requires 14 month to complete while the traditional second degree program takes 2 full academic years.

Program for Registered Nurses

Registered nurses also must complete liberal arts curriculum requirements.

Credits from other colleges for non-nursing courses will be accepted according to University policies.

RN/BSN NURN

Area	Courses	credits
Sciences	*Anatomy and Physiology*	
	Chemistry/Microbiology	12-16
English	College English I	3
	College English II	3
Languages	Language/computers/math/literature	9
Math	Statistics	3
Social Sciences	Introduction to Psychology	9
	Developmental Psychology	
	Sociology	9
Liberal Arts	Free Electives	13-17
NCLEX-RN	Successful completion	32
ACT-PEP #407	*Gerontology*	3
Waivers	A.S. Degree	
	History	3
	Literature	3
Nursing	NUTH 1001 Group Dynamics	2
	NUTH 1003 Culture and Health	3
	NUTC 2012 Individual/Family *Health Promotion Across Lifespan*	4
	NUTH 3004 Economic/Management For the Professional Nurse	3
	NUTC 2011 Health Assessment	3
	NUTH 3002 Gerontology	2
	NURN 3001 Professional Nursing I	6
	NUTH 3003 Nursing Research	3
	NURN 4017 Community Health Perspectives	5
	NURN 4020 Professional Nursing II	6

R.N./B.S.N./Second Degree

If R.N. already has a baccalaureate degree, these are the requirements:

Sciences	Anatomy and Physiology	
	Chemistry/Microbiology	12
Liberal Arts	Statistics	3
	Introduction to Psychology	3
	Developmental Psychology	3
	Sociology	3
NCLEX	Successful completion	32
ACT-PEP #407	Gerontology	3
Waivers	A.S. Degree	
	History	3
	Literature	3

Freshman

Fall Semester		credits
BIOL 1102	Anatomy and Physiology I	4
	Language	3
ENGL 1201	College English I	3
NUTH 1001	Group Dynamics	2
PSYC 1101	Introduction to Psychology	3
CPSY 1101	University Life	1
Spring Semester		
BIOL 1103	Anatomy and Physiology II	4
ENGL 1202	College English II	3
NUTH 1002	Individual and Family Development Across the Lifespan	3
SOCI 1101	Understanding Society	3
	Language	3

Sophomore

Fall Semester		
CHEM 1301	Elements of Organic and Biochemistry	5
ENGL xxxx	Literature Elective	3
MATH 1101	Statistical Concepts and Methods	3
NUTH 1003	Culture and Health	3
NUTH 1004	Dying with Dignity	2
NUTH 2001	Introduction to Professional Nursing	2
Spring Semester		
BIOL 2111	Microbiology	4
NUTC 2011	Health Assessment	3
NUTC 2012	Heath Promotion across the Lifespan	4
NUTH 2002	Legal Aspects of Nursing	1
NUTH 2003	Pathophysiology	3

Junior

Fall Semester		
NUTC 3013	Adult Nursing I	6
NUTH 3001	Pharmacological Therapies	2
NUTH 3002	Gerontological Nursing	2
PHIL 1105	Ethics	3
RELS/PHIL	Religion/Philosophy elective	3
Spring Semester		
NUTC 3014	Dimensions of Childbearing Family	5
NUTC 3015	Dimensions of Psychosocial Nursing	5
NUTH 3003	Research in Nursing	3
NUTH 3004	Economic/Management for the Professional Nurse	3

Senior

Fall Semester		
HIST xxxx	History elective	3
NUTC 4016	Dimensions of the Childrearing Family	6
NUTC 4017	Acute Adult Nursing	6
	Elective	3
Spring Semester		
NUTC 4018	Community Health Perspectives	6
NUTC 4019	Synthesis Practicum	3
NUTH 4001	Nursing Leadership	3

BIOL 1102 and 1103 must be completed with a grade of C or higher prior to NUTH 2003, NUTC 2011 and NUTC 2012. All Nursing courses must be completed with a grade of "C" or higher. These Nursing courses must be completed sequentially.

Traditional or Accelerated Program for Second Degree Students

Admission to the program is limited to students holding a baccalaureate or higher degree. All prerequisites must be completed with a grade of "C" or higher for acceptance. A minimum GPA of 3.0 is required.

Students must complete courses in Anatomy and Physiology I and II, Bio/Organic Chemistry, Microbiology, Statistics, Developmental Psychology and Ethics prior to starting this program. The program requires the completion of 64 nursing credits. The accelerated program requires 14 months to complete while the traditional second degree program takes 2 full academic years.

Accelerated Program

First Semester		Credits
NUTH 2001	Introduction to Professional Nursing	2
NUTH 2002	Legal Aspects of Nursing	1
NUTH 2003	Pathophysiology	3
NUTC 2001	Health Assessment	3
NUTH 3001	Pharmacology	2
NUTC 3013	Adult Nursing I	6
Second Semester		
NUTH 1003	Culture and Health	3
NUTH 3002	Gerontological Nursing	2
NUTH 1004	Dying with Dignity	2
NUTC 3015	Dimensions of Psychosocial Nursing	5
NUTC 3014	Dimensions of Childbearing Family	5
Third Semester		
NUTH 3003	Nursing Research	3
NUTC 4016	Dimensions of the Childbearing Family	6
NUTC 4017	Acute Adult Nursing	6
NUTH 3004	Economic Management for the Professional Nurse	3

care hospitals, long-term care facilities, hospices and schools, among others. In addition, the baccalaureate degree in nursing prepares graduates to continue education on a graduate level.

Admission Requirements

In addition to the general University requirements for admission, the College of Nursing requires that applicants complete one unit in biology and one unit in chemistry.

Transfer Requirement

Students must have a 3.0 G.P.A. or higher to be accepted into the College of Nursing.

Licensure

The State Board of Nursing has the responsibility to determine who is eligible to take the registered nurse licensure examination (NCLEX-RN). Graduation from the nursing program satisfies one of the eligibility requirements. There are other eligibility criteria as well. Since eligibility criteria may vary, applicants should check with the Board of Nursing of the state in which they plan to take the examination to determine the eligibility criteria.

Clinical Requirements

Prior to enrollment, accepted students need to complete JCAHO and OSHA requirements for immunization, medical history, and competencies including the American Heart Association Certification course for CPR (BLS for Healthcare Professionals).

Health Examination

Students are not eligible to participate in clinical nursing experiences unless annual health requirements are met. The *Health Examination Form, giving specific requirements,* is available from the College of Nursing.

Liability Insurance

Students taking clinical nursing courses must be covered by liability insurance. Application forms and additional information can be obtained from the College of Nursing.

Uniform and Equipment Policy

A uniform and equipment policy for clinical practice is in effect in the College of Nursing. Appropriate attire is included in this policy, which must be adhered to by students of professional nursing.

Honor Society

Gamma Nu Chapter of the international nursing honor society Sigma Theta Tau, inducts members annually. Students who achieve an overall cumulative GPA of at least 3.0 and rank within the upper third in their respective programs upon completion of half of the nursing courses are eligible for membership.

Cooperating Community Agencies

Students obtain their clinical experience in a variety of settings. There are more than 40 hospitals, nursing homes and community health agencies that cooperate with the College of Nursing.

Requirements for Progression

To enroll in the first clinical nursing course, students must be a nursing major, meet curricular prerequisites and have a minimum GPA of a 2.0 and at least a "C" in the following courses: BIOL 1102 and BIOL 1103. Additionally, students must complete all nursing courses in one semester with grades of at least "C" in each course in order to proceed to the next semester.

"And what nursing has to do is to put the patient in the best condition for nature to act upon him."

FLORENCE NIGHTENGALE

Any student who achieves less than a "C" grade in nursing courses must repeat the course. Students also are expected to exhibit personality values and emotional characteristics consistent with a developing professional nurse role. If, after consultation and work with approved counselors, students do not meet these criteria to the satisfaction of their professors, they will not be permitted to continue the nursing program.

Retention and progression in the nursing program also is determined by the student's ability to meet successfully the requirements identified in the policy statements titled "Academic Standards for the College of Nursing" in the Undergraduate Student Handbook.

Students are placed on Risk of Non-Progression, or Progression Failure following a review process for failing to meet the academic standards of the College of Nursing. A first letter grade of below a "C" in Nursing courses or Anatomy and Physiology 1 or 2, results in Risk of Non-Progression. A second grade of below a "C" in Nursing courses or Anatomy and Physiology in the same or subsequent semesters results in Progression Failure.

Traditional Program

Nursing courses are introduced in the freshman year along with the liberal arts and sciences. This approach is used to enhance the students' exposure to the profession of nursing. This future-oriented curriculum highlights wellness and health promotion as well as disease management. Student experiences include caring for clients in a variety of settings, including acute care, hospice care, community-based agencies and day care. These exciting experiences all begin in the sophomore year.

B.S.N. Degree Requirements

The curriculum requires 127 credits for graduation and the successful completion of a comprehensive nursing exam. Professional requirements include 73 nursing credits.

B.S.N. Degree Requirements

The curriculum requires 125 credits for graduation and the successful completion of a comprehensive nursing exam. Professional requirements include 72 nursing credits.

Freshman

Fall Semester		Credits
BIOL 1102	Anatomy and Physiology 1	4
	Language	3
ENGL 1201	College English I	3
NUTH 1001	Group Dynamics	2
PSYC 1101	Introduction to Psychology	3
CPSY 1101	University Life	1
Spring Semester		
BIOL 1103	Anatomy and Physiology II	4
ENGL 1202	College English II	3
NUTH 1002	Individual and Family Development Across the Lifespan	3
SOCI 1101	Understanding Society	3
	Language	3

Sophomore

Fall Semester		
CHEM 1301	Elements of Organic and Biochemistry	5
ENGL xxxx	Literature Elective	3
MATH 1101	Statistical Concepts and Methods	3
NUTH 1003	Culture and Health	3
NUTH 1004	Dying with Dignity	2
NUTH 2001	Introduction to Professional Nursing	2
Spring Semester		
BIOL 2111	Microbiology	4
NUTC 2011	Health Assessment	3
NUTH 2012	Heath Promotion	2
NUTH 2002	Legal Aspects of Nursing	1
NUTH 2003	Pathophysiology	3

Junior

Fall Semester		
NUTC 3013	Adult Nursing I	6
NUTH 3010	Pharmacological Therapies	3
NUTH 3002	Gerontological Nursing	2
PHIL 1105	Ethics	3
RELS/PHIL	Religion/Philosophy elective	3
Spring Semester		
NUTC 3014	Dimensions of Childbearing Family	5
NUTC 3015	Dimensions of Psychosocial Nursing	5
NUTH 3003	Research in Nursing	3
NUTH 3004	Economic/Management for the Professional Nurse	3

Senior

Fall Semester		
HIST xxxx	History elective	3
NUTC 4016	Dimensions of the Childrearing Family	6
NUTC 4017	Acute Adult Nursing	6
Elective		3
Spring Semester		
NUTC 4018	Community Health Perspectives	6
NUTC 4019	Synthesis Practicum	3
NUTH 4001	Nursing Leadership	3

BIOL 1102 and 1103 must be completed with a grade of "C" or higher prior to NUTH 2003, NUTC 2011 and NUTH 2012. All Nursing courses must be completed with a grade of "C" or higher. These Nursing courses must be completed sequentially.

Traditional or Accelerated Program for Second Degree Students

Admission to the program is limited to students holding a baccalaureate or higher degree. All prerequisites must be completed with a grade of "C" or higher for acceptance. A minimum GPA of 3.0 is required.

Students must complete courses in Anatomy and Physiology I and II, Bio/Organic Chemistry, Microbiology, Statistics, Developmental Psychology and Ethics prior to starting this program. The program requires the completion of 65 nursing credits. The accelerated program requires 14 months to complete while the traditional second degree program takes 2 full academic years.

Accelerated Program

First Semester		Credits
NUTH 2001	Introduction to Professional Nursing	2
NUTH 2002	Legal Aspects of Nursing	1
NUTH 2003	Pathophysiology	3
NUTC 2001	Health Assessment	3
NUTH 3010	Pharmacological Therapies	3
NUTC 3013	Adult Nursing I	6
Second Semester		
NUTH 1003	Culture and Health	3
NUTH 3002	Gerontological Nursing	2
NUTH 1004	Dying with Dignity	2
NUTC 3015	Dimensions of Psychosocial Nursing	5
NUTC 3014	Dimensions of Childbearing Family	5
Third Semester		
NUTH 3003	Nursing Research	3
NUTC 4016	Dimensions of the Childrearing Family	6
NUTC 4017	Acute Adult Nursing	6
NUTH 3004	Economic Management for the Professional Nurse	3
Fourth Semester		
NUTC 4019	Synthesis Practicum	3
NUTC 4018	Community Health Perspectives	6
NUTH 4001	Nursing Leadership	3

Program for Registered Nurses

Registered nurses also must complete liberal arts curriculum requirements. Credits from other colleges for non-nursing courses will be evaluated for acceptance according to University policies.

Admission Requirements

In addition to the general University requirements for admission, the College of Nursing requires that applicants complete one unit in biology and one unit in chemistry. Students who do not meet the nursing requirement but meet the University admission requirement will be assigned to pre-nursing status. Students must attain a minimum of a 3.0 GPA before requesting a change in major to nursing. Pre-nursing students cannot enroll in any clinical nursing course. This policy pertains to traditionally admitted students as well as transfer students.

Transfer Requirement

Students must have a 3.0 G.P.A. or higher to be accepted into the College of Nursing.

Licensure

The State Board of Nursing has the responsibility to determine who is eligible to take the registered nurse licensure examination (NCLEX-RN). Graduation from the nursing program satisfies one of the eligibility requirements. There are other eligibility criteria as well. Since eligibility criteria may vary, applicants should check with the Board of Nursing of the state in which they plan to take the examination to determine the eligibility criteria.

Clinical Requirements

Prior to enrollment, accepted students need to complete JCAHO and OSHA requirements for immunization, medical history, and competencies including the American Heart Association Certification course for CPR (BLS for Healthcare Professionals).

Health Examination

Students are not eligible to participate in clinical nursing experiences unless annual health requirements are met. The Health Examination Form, giving specific requirements, is available from the College of Nursing.

Liability Insurance

Students taking clinical nursing courses must be covered by liability insurance. Application forms and additional information can be obtained from the College of Nursing.

Uniform and Equipment Policy

A uniform and equipment policy for clinical practice is in effect in the College of Nursing. Appropriate attire is included in this policy, which must be adhered to by students of professional nursing.

Honor Society

Gamma Nu Chapter of the international nursing honor society Sigma Theta Tau, induces members annually. Students who achieve an overall cumulative GPA of at least 3.0 and rank within the upper third in their respective programs upon completion of half of the nursing courses are eligible for membership.

Cooperating Community Agencies

Students obtain their clinical experience in a variety of settings. There are more than 40 hospitals, nursing homes and community health agencies that cooperate with the College of Nursing.

Requirements for Progression

To enroll in the first clinical nursing course, students must be a nursing major, meet curricular prerequisites and have a minimum GPA of a 2.0 and at least a "C" in the following courses: BIOL 1102, BIOL 1103 Microbiology and CHEM 1301. Students must achieve a grade of "C" or better in the chemistry requirement. Additionally, students must complete all nursing courses in one semester with grades of at least "C" in each course in order to proceed to the next semester.

Any student who achieves less than a "C" grade in nursing courses must repeat the course. Students also are expected to exhibit personality values and emotional characteristics consistent with a developing professional nurse role. If, after consultation and work with approved counselors, students do not meet these criteria to the satisfaction of their professors, they will not be permitted to continue the nursing program.

Retention and progression in the *nursing program* also is determined by the student's ability to meet successfully the requirements identified in the policy statements titled "Academic Standards for the College of Nursing" in the Undergraduate Student Handbook.

Students are placed on Risk of Probation, or College Dismissal following a review process for failing to meet the academic standards of the College of Nursing. A first letter grade of below a "C" in Nursing courses or Anatomy and Physiology 1 or 2 or Microbiology, results in Risk of Probation. A second grade of below a "C" in Nursing courses, Anatomy and Physiology or Microbiology in the same or subsequent semesters results in College Dismissal.

When a student is assigned the status of College Dismissal, the status may be appealed to the Nursing Appeals Committee at *nursing.shu.edu/appeal_form.htm* or from the College of Nursing homepage (click on Student Academic Forms) if extenuating circumstances are present. Please see the College of Nursing homepage for details on requirements for the appeal.

In order to take any clinical nursing course, the student must be a *nursing major.*

Traditional Program

Nursing courses are introduced in the freshman year along with the liberal arts and sciences. This approach is used to enhance the students' exposure to the profession of nursing. This future-oriented curriculum highlights wellness and health promotion as well as disease management. Student experiences include caring for clients in a variety of settings, including acute care, hospice care, community-based agencies and day care. These exciting experiences all begin in the sophomore year.

Honor Society

Gamma Nu Chapter of the international nursing honor society Sigma Theta Tau International, Inc. inducts members annually. Students who achieve an overall cumulative GPA of at least 3.0 and rank within the upper third in their respective programs upon completion of half of the nursing courses are eligible for membership.

Fees

Fees are associated with certain courses for ATI testing, PDA, Lab equipment, and criminal background check.

Cooperating Community Agencies

Students obtain their clinical experience in a variety of settings. There are more than 40 hospitals, nursing homes and community health agencies that cooperate with the College of Nursing.

Requirements for Progression

To enroll in the first clinical nursing course, students must be a nursing major, meet curricular prerequisites and have a minimum GPA of a 2.0 and at least a "C" in the following courses: BIOL 1102, BIOL 1103, BIOL 2111 and CHEM 1301.. Additionally, students must complete all nursing courses in one semester with grades of at least "C" in each course in order to proceed to the next semester.

Any student who achieves less than a "C" grade in nursing or science courses must repeat the course. Students also are expected to exhibit personality values and emotional characteristics consistent with a developing professional nurse role. If, after consultation and work with approved counselors, students do not meet these criteria to the satisfaction of their professors, they will not be permitted to continue in the nursing program.

Retention and progression in the nursing program also is determined by the student's ability to meet successfully the requirements identified in the policy statements titled "Academic Standards for the College of Nursing" in the Undergraduate Student Handbook.

Students are placed on Risk of Probation, or College Dismissal following a review process for failing to meet the academic standards of the College of Nursing. A first letter grade of below a "C" in Nursing courses or Anatomy and Physiology 1 or 2 or Microbiology, results in Risk of Probation. A second grade of below a "C" in Nursing courses, Anatomy and Physiology or Microbiology in the same or subsequent semesters results in College Dismissal.

When a student is assigned the status of College Dismissal, the status may be appealed to the Nursing Appeals Committee at *nursing.shu.edu/appeal_form.htm* or from the College of Nursing home page (click on Student Academic Forms) if extenuating circumstances are present. Please see the College of Nursing home page for details on requirements for the appeal.

In order to take any clinical nursing course, the student must be a nursing major.

Traditional Program

Nursing courses are introduced in the freshman year along with the liberal arts and sciences. This approach is used to enhance the students' exposure to the profession of nursing. This future-oriented curriculum highlights wellness and health promotion as well as disease management. Student experiences include caring for clients in a variety of settings, including acute care, hospice care, community-based agencies and day care. These exciting experiences all begin in the sophomore year.

B.S.N. Degree Requirements

The curriculum requires 122 credits for graduation and the successful completion of a comprehensive nursing exam. Professional requirements include 71 nursing credits.

Freshman

Fall Semester		**Credits**
BIOL 1102	Anatomy and Physiology I	4
CORE 1101	Journey of Transformation	3
ENGL 1201	College English I	3
NUTH 1001	Group Dynamics	2
PSYC 1101	Introduction to Psychology	3
CORE 1001	University Life	1
Spring Semester		
BIOL 1103	Anatomy and Physiology II	4
ENGL 1202	College English II	3
NUTH 1002	Individual and Family Development Across the Lifespan	3
SOCI 1101	Understanding Society	3
MATH 1203	Statistical Models for Social Sciences	3

Sophomore

Fall Semester		
CHEM 1301	Elements of Organic Chemistry and Biochemistry	5
CORE 2101	Christianity and Culture in Dialogue	3
NUTH 2001	Introduction to Professional Nursing	2
NUTH 1003	Culture and Health	3
NUTH 1004	Dying with Dignity	2
NUTH 2001	Introduction to Professional Nursing	2
Spring Semester		
BIOL 2111	Introduction to Microbiology	4
NUTC 2011	Health Assessment	3
NUTH 2012	Heath Promotion	2
NUTH 2002	Legal Aspects of Nursing	1
NUTH 2003	Pathophysiology	3

baccalaureate graduates are prepared to practice nursing in a variety of settings, which may include ambulatory care, acute care hospitals, long-term care facilities, hospices and schools, among others. In addition, the baccalaureate degree in nursing prepares graduates to continue education on a graduate level.

College of Nursing Mission Statement

The College of Nursing's mission is to educate generalists and specialists in nursing at the undergraduate and graduate levels. Undergraduate and graduate curricula exist within a university community that embraces a student body enriched by cultural, ethnic, and racial diversity where religious and ethical commitment and academic freedom are valued. The College of Nursing aims to cultivate values in its students and graduates that enable a commitment to lifelong learning, service and leadership for the greater god of the global society.

Undergraduate Philosophy

Education is a dynamic process that directs and facilitates learning. Learning is the active, continuous process of acquiring knowledge and skill that brings about actual or potential changes in behavior. Acquired through lifelong endeavor, new learning builds on previous levels of knowledge and experience and is a function of motivation and readiness. Learning is facilitated when activities are goal-directed, purposeful, and meaningful for the learner. The faculty guide, direct, facilitate, and evaluate learning while encouraging self-direction and development of intellectual curiosity, creativity, and independent thinking. Learning is best achieved in an atmosphere where individual dignity is respected and a commitment to excellence exists. The development of cognitive skills that include critical thinking, analysis, and synthesis is a vital process necessary for professional nursing practice. The curriculum builds upon a liberal education and incorporates creative teaching strategies.

Adapted from University of Southern Indiana School of Nursing & Health Professions. (1995). Evansville, IN: Author.

Undergraduate Program Outcomes

At the conclusion of the program, the student will:

1. communicate actively and clearly;
2. think critically and creatively in solving problems and making decisions;
3. design and provide care based on "best evidence"; and
4. act as a servant leader in a global society.

Admission Requirements

In addition to the general University requirements for admission, the College of Nursing requires that applicants complete one unit in biology and one unit in chemistry. Students who do not meet the nursing requirement but meet the University admission requirement will be assigned to pre-nursing status. Students must attain a minimum of a 2 GPA before requesting a change in major to nursing. Pre nursing students cannot enroll in any clinical nursing cou This policy pertains to traditionally admitted students as as transfer students.

Transfer Requirement

Students must have a 3.2 GPA or higher to be accepted into the College of Nursing.

Licensure

The State Board of Nursing has the responsibility to determine who is eligible to take the registered nurse licensure examination (NCLEX-RN). Graduation from the nursing program satisfies one of the eligibility requiremen There are other eligibility criteria as well. Since eligibility criteria may vary, applicants should check with the Board of Nursing of the state in which they plan to take the examination to determine the eligibility criteria.

Clinical Requirements

Prior to enrollment, accepted students need to complete JCAHO and OSHA requirements for immunization, medical history, and competencies including the American Heart Association Certification course for CPR (BLS for Healthcare Professionals). This also includes a criminal background check through the agency required by the College of Nursing. Clinical agencies vary in their requirements for participation and these may be in addition to the regular requirements. All requirements must be submitted by the established due date. For clarification, please see the Blackboard undergraduate Website. Requirements are also included in the student handbook.

Health Examination

Students are not eligible to participate in clinical nursing experiences unless the annual Clinical Nursing Student Health Form is completed. This form, giving specific requirements, is available from the Blackboard organization site for undergraduate majors

Liability Insurance

Students taking clinical nursing courses must obtain professional liability and malpractice insurance in the amounts of $2,000,000 per claim/$4,000,000 aggregate is required for all students Application forms and additional information can be obtained from the Blackboard organization site for undergraduate majors.

Uniform and Equipment Policy

A uniform and equipment policy for clinical practice is in effect in the College of Nursing. Appropriate attire is included in this policy, which must be adhered to by students of professional nursing.