2017

Differentiating Successful and Unsuccessful Nursing Students

Trilla Mays
Walden University

Walden University

College of Education

This is to certify that the doctoral study by

Trilla Mays

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Vicki Underwood, Committee Chairperson, Education Faculty
Dr. Nancy Walters, Committee Member, Education Faculty
Dr. Beate Baltes, University Reviewer, Education Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Differentiating Successful and Unsuccessful Nursing Students

by

Trilla A. Mays

MSN, University of Pennsylvania, 1992

BSN, University of North Florida, 1988

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

December 2017

Abstract

Administrators of nursing programs in community colleges are aware of the need to retain and to graduate students to meet the growing demand for licensed practical nurses (LPNs). High attrition in a 2-year nursing program in South Carolina affected the number of students either graduating as a LPN after completing the third semester, or continuing in the program to become a registered nurse (RN). Guided by Jeffreys's nursing undergraduate retention and success model, this causal comparative study investigated the differences between students who were and were not successful in the initial 3 semesters of the program. Archival student records for all students entering fall 2012 through fall 2013 (n = 373) were analyzed using multiple ordinal logistic regression. The independent variables were demographics (age, gender, race/ethnicity), admissions qualifications (SAT/ACT scores, prior degree, or pre-nursing certificate), and academic performance (GPA in prerequisite courses, final course grades, and Kaplan standardized test scores). The dependent measure, student success, was defined by Jeffreys's pathways: attrition, failure, and retention (interim or continuous). Data analysis indicated GPA in prerequisite courses and grade in the first medical-surgical course were significant factors in predicting students successfully passing the initial 3 semesters. There were no other significant findings. Findings were incorporated into a recommendation for a policy change to increase the prerequisite GPA admissions requirement. Implications for social change include increased retention and graduation rates, thus preparing more students to enter the workforce as LPNs and contribute to reducing the nursing shortage.

Dedication

I dedicate this scholarly work to my family. My parents and brothers whose encouragement to never give up on my dream helped me keep going even when I felt like giving up. My son whom I hope will see that dedication, never giving up, and keep going no matter how long it takes will show him that anything worthwhile is worth taking the time to complete the journey. The final and most important dedication is to my Lord and Savior, Jesus Christ; without him, I would not be able to accomplish anything.

Acknowledgments

I want to acknowledge that without my faith in God, I would not have completed this project study. I want to thank my family and friends for their support and encouragement to keep me going. I want to thank everyone from work: my boss who supported and encouraged me, my co-workers, faculty, staff, and those who took the time to pull archival student data based on my criteria then substituted a non-identifying number for the names so I could have accurate data without student names.

Additional acknowledgements which were important to me include my classmates at Walden University. It was a pleasure to discuss success and sometimes set-backs only to receive great advice and encouragement.

I offer a special thank you to my committee chair, Dr. Underwood. I appreciate the edits, helping me grow as a scholar, and helping me to never give up on completing my goal. I want to acknowledge my committee member and university research reviewer, Dr. Nancy Bannister Walters and Dr. Beate Baltes for their quick yet thorough reviews. Each person on my committee offered suggestions for edits so the final version of my project study would be the best possible version. You each helped me become the scholar-researcher I am today.

Differentiating Successful and Unsuccessful Nursing Students

by

Trilla A. Mays

MSN, University of Pennsylvania, 1992

BSN, University of North Florida, 1988

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Higher Education Leadership

Walden University

December, 2017

Table of Contents

List of Tables

List of Figures

Section 1: The Problem

More than ever, higher education institutions need to be concerned about retention and graduation rates. In President Obama's Budget Proposal for the Department of Education (2016), improving college access and completion rates continued to be listed as priorities. Not only is improving overall college graduation rates a national initiative, the American Association of Community Colleges (AACC; 2015) proposed strategies to improve retention rates of community colleges, at which 46% of all college students in the United States are enrolled. The setting for this study was a community college; as with other community colleges, the college administrators are concerned about retention and graduation rates (Vice president for academic affairs, personal communication, August 11, 2014).

Overview of the Local Problem

According to the vice president for academic affairs, the large number of students who fail out of the nursing program at a 2-year public college in South Carolina has resulted in both retention and progression concerns for the college administration (personal communication, August 11, 2014). The nursing program is currently accredited by the Accreditation Commission for Education in Nursing (ACEN). However, to maintain accreditation status without any warnings, it is important for all nursing programs to document assessments of course outcomes and retention and graduation rates, as well as to establish a plan to improve any deficiencies.

Although "student departure (or from an organizational perspective, the phenomenon of nonretention) may well be an institutionalized characteristic of higher

education" (Laden, Milem, & Crowson, 2000, p. 251), nursing schools nationally are required to maintain satisfactory retention and graduation rates. The graduation rates of nursing programs can affect their accreditation status (ACEN, 2015). The ACEN (2015) Accreditation Manual indicates that students should be able to complete a nursing program within 150% of the stated program length. Therefore, having students complete the program is vital to the school's accreditation status. When a nursing program is experiencing increased attrition rates, resulting in decreased graduation rates, the institution must collect data to determine the cause and make changes to improve the completion rates to maintain their accreditation status (ACEN, 2015). In addition to potential problems with accreditation status, low completion rates can also interfere with federal and state funding (South Carolina Commission on Higher Education, 2014).

The study site offers a seamless program with practical nursing (PN) students and associate degree nursing (ADN) students taking the same courses in the first three semesters. After these three semesters, the PN students graduate with a diploma and take the National Council Licensure Examination–Practical Nurse (NCLEX-PN) to enter the workforce as a licensed practical nurse (LPN). ADN students have three options: graduate with a PN diploma and take the NCLEX-PN so they can work as LPNs while completing the ADN program, or continue to complete the ADN program without taking the NCLEX-PN exam. The course content in the first three semesters is unique to this program; most nursing programs that have separate PN and RN programs; for example, Holyoke Community College (2014) and Madison Community College (2014), both offer similar programs. There is one difference because this nursing program is a seamless

program—all PN and ADN students are in the same classes for the first three semesters providing the opportunity for all students to take the NCLEX-PN to work as a LPN or complete additional coursework and graduate to take the National Council Licensure Examination–Registered Nurse (NCLEX-RN) to obtain an RN license. Therefore, after completing three semesters, every student is eligible to take the exam to obtain a license to work as an LPN. According to the study site catalog (2014), the PN students must exit out of the program after the third semester to take the NCLEX-PN to become a LPN. The various tracks through the study site's seamless program are shown in Figure 1.

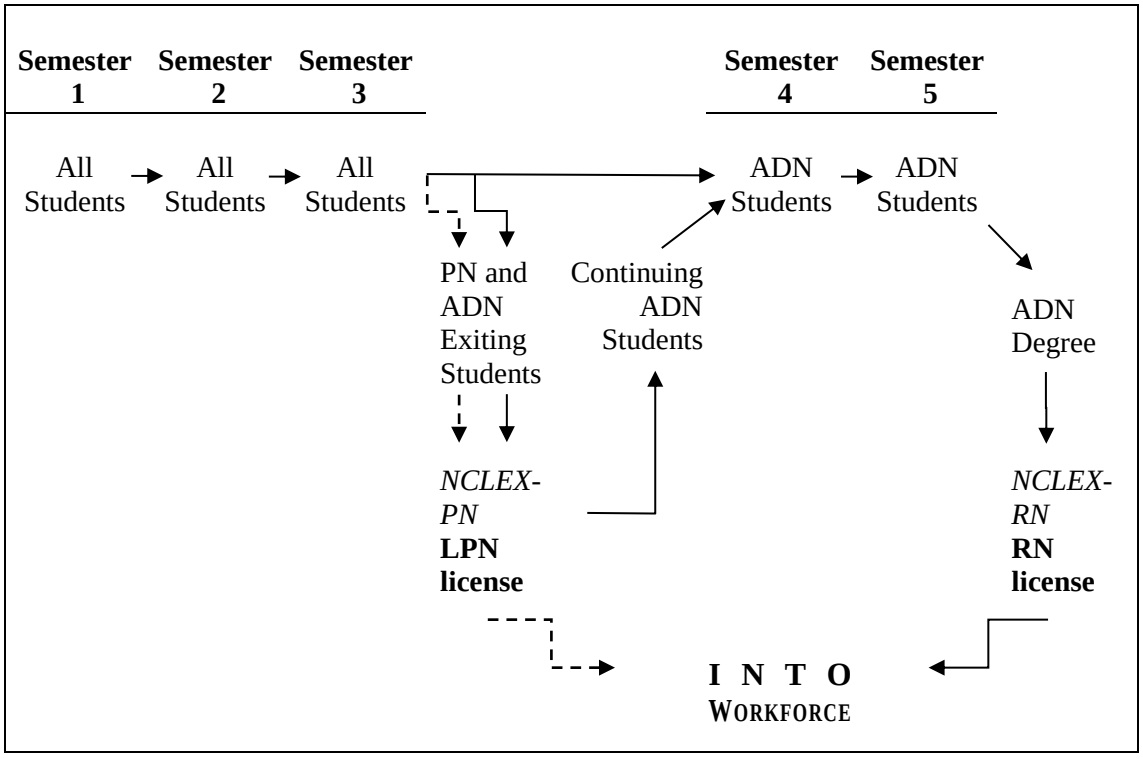

Figure 1. The study site has a seamless nursing program. All PN and ADN students take the first three semesters' courses together. PN students must graduate and pass the NCLEX-PN to practice. ADN students have three choices: continue on to the fourth semester, graduate and take the NLCEX-PN, or take the NCLEX-PN without graduating and continue on to the fourth semester. PN and ADN exiting students can return into the fourth semester after passing the NCLEX-PN.

Once students have qualified for the Nursing Program, they attend an orientation and are told when they will start their first nursing clinical course. According to the study site's website (2014), students accepted into the nursing program have an 18- to 24-month waiting period prior to starting their first nursing clinical course. The study site course catalog for 2012-2014 states that during that waiting period, most students complete their general education requirements and several nonclinical nursing courses.

In each of the first and second semesters of clinical nursing courses, students take one 6-credit clinical course. In the third semester, students take two clinical courses, one 6-credit and one 4-credit course. Although students who pass the third semester are eligible to take the NCLEX-PN enabling them to obtain employment as a LPN, the attrition rates that are the highest in the third semester, prevent students who fail out of the program from testing for licensure or continuing in the program to become a RN. Thus, this high rate of attrition in the third semester affects both the PN and RN options.

Rationale

Evidence of the Problem at the Local Level

There continues to be a need to graduate students in healthcare fields in South Carolina, especially LPNs and RNs. The state's 2013-2014 legislative priorities (South Carolina Technical College System, 2015b) included increasing the number of and PN graduates as a priority due to the increasing demand for qualified healthcare workers. However, at present, the nursing program at the study site is unable to assist in addressing this priority. According to the vice president for academic affairs, there is a 60.8%

overall attrition rate, with a 33% failure rate in the third semester of the Nursing Program (personal communication, August 11, 2014).

The workforce report from the South Carolina Department of Employment and Workforce (2012) indicated that healthcare jobs, especially nursing, remain in demand in South Carolina. Students who successfully complete the first three semesters of their program at the study site can take the NCLEX-PN exam to become an LPN and enter the workforce. However, students who are unsuccessful in completing the first three semesters cannot register for the NCLEX-PN exam. Those students have limited skills for employment, with the exception of working as a nursing assistant in a nursing home or as a student nurse technician in one of the local hospitals (Bureau of Labor Statistics, 2015). They cannot work as an LPN. They have invested both time and money in a failed attempt to improve their employment status, and they often are faced with paying back student loans on a lower than anticipated salary because they can only work as a nursing assistant. According to the Bureau of Labor Statistics (2015), the hourly mean wage for a nursing assistant in the local area is $11.46 per hour compared to $19.36 per hour for an LPN and $27.11 for an RN. In addition to the loss to the students, there is a loss of potential staff for facilities such as those providing long-term care, which are in need of nurses. MacCallum (2012) stated that "student attrition from nursing courses impacts the number of students who need to be recruited to meet ongoing demands for newly qualified nursing staff" (p. 205). Likewise, the South Carolina Department of Employment and Workforce (2012) projected that one of the industries in highest need of workers is nursing and residential care facilities, the main industry that employs LPNs.

The high attrition rate also affects potential nursing students. The National League for Nursing (NLN, 2012) reported that nearly 80% of practical and associate degree nursing programs turn away qualified students due to several factors including the lack of clinical sites for experiential placements and the need for more nursing faculty. In the nursing program at the study site, unsuccessful students are taking the space of potentially successful students. Considering the continuing need for nurses in the workforce and that after acceptance into the programs, students must wait to start the first clinical course for 18 to 24 months, it is in the best interest of both students and the program to identify the characteristics of successful students.

Evidence of the Problem from the Professional Literature

The number of students who complete a degree is a concern for nursing schools and higher education in general. In the past 20 years, approximately 31 million students left college before receiving any degree or certificate (Shapiro, Dundar, Yuan, Harrell, Wild et al., 2014, p. 2). Based on the results of a cohort study from 1993 through 2013, Shapiro, Dundar, Yuan, Harrell, Wild et al. (2014) reported the completion rate (150% of program length) for 2-year institutions as 39% in the United States and 37% in South Carolina for all students, whereas for part-time students, the completion rate in the United States was 19% and 21% in South Carolina. In contrast, the Center for Community College Student Engagement (2012) reported that only 45% of students at 2-year colleges met the goal of attaining a degree within 6 years (300% of program length). These figures are particularly distressing in light of the AACC's (2014) report that community colleges prepare 57% of the RNs and 90% of the LPNs in the United States. In

comparison to these national figures, the community college site for the study reported retention rates of 52% for full-time and 39% for part-time students as well as a 15% completion rate (Institute of Education Sciences, 2015), indicating substantial room for improvement. Improving the retention rates of nursing students and their subsequent degree attainment will result in more nurses available to enter the workforce.

The employment demand for all LPNs is projected to increase 21% through the year 2018 (NLN, 2012). In addition, in their state workforce data, NLN (2011) predicted a 15% decrease in the supply of LPNs and RNs in South Carolina, an outcome that will not meet the state's 2015 demand. Similarly, the Bureau of Labor Statistics (2014) reported an expected 19% increase in the availability of RN jobs through the year 2022; these jobs could remain unfilled. The Health Resources and Services Administration used a health workforce simulation model to predict the supply and demand of RNs and LPNs for 2025 (U.S. Department of Health and Human Services [DHHS], 2014). Although nationally the supply will outpace the demand, for states such as South Carolina, the supply will not meet the demand. According to the Health Resources and Services Administration report, South Carolina is projected to have a deficit of 600 RNs and 3,910 LPNs by the year 2025. To meet the projected workforce needs, nursing programs such as the one at the study site must address low retention and graduation rates that contribute to the nursing shortage.

The study focused on the characteristics of successful and unsuccessful students in the first three semesters of the Nursing Program. Demographics, how students qualified for the program, and students' academic performance in selected courses were

investigated to determine if these variables related to the success of nursing students, that is, if there were characteristics that were different in students who successfully completed the first three semesters. This study will assist the college administration with understanding how to improve retention and subsequent graduation rates of students in the nursing program.

Definitions of Terms

Accreditation Commission for Education in Nursing (ACEN): The agency that accredits nursing programs from diploma to doctorate level (ACEN, 2014).

Practical nursing (PN): Nursing programs that take 12 months to complete to obtain a diploma (DHHS, 2014).

Licensed practical nurse (LPN): A graduate with a Practical Nursing Diploma who has achieved a passing score on the NCLEX-PN (South Carolina Board of Nursing, 2014).

Associate degree nursing (ADN): Nursing program that requires 5 semesters or 2 years of study at a 2-year or community college (Black, 2014).

Registered nurse (RN): A graduate of an approved 2-year or 4-year program who has achieved a passing score on the NCLEX-RN (South Carolina Board of Nursing, 2014).

National Council of State Boards of Nursing (NCSBN): The agency that administers the NCLEX-PN and NCLEX-RN exams (NCSBN, 2017).

NCLEX-PN: The national exam that PN graduates take to become a licensed practical nurse (NCSBN, 2017). *NCLEX-RN* is the national exam that RN graduates take to become a licensed registered nurse (NCSBN, 2017).

Kaplan standardized tests: Tests offered by Kaplan Nursing as integrated end-of-course benchmark tests throughout the curriculum and a NCLEX-RN review to assist with student success (Kaplan, 2015).

Interim retention pathway: The pathway for students who either withdrew or failed a course then had to repeat that course before progressing to the next course (Jeffreys, 2007).

Significance

The waiting list for admission to the nursing program at the study site is 18 to 24 months, due, in part, to the success of its students; there is a 100% pass rate on the NCLEX-PN for the nursing program (South Carolina Board of Nursing, 2015). However, when students are not successful in completing the program, they do not take the NCLEX-PN exam, and they may have taken the place of students who could have been successful. The unsuccessful students also contributed to a decrease in the program's graduation rate. It is not the number of students enrolled, it is the number of students who graduate prepared to enter the workforce that contributes to the supply of nurses.

With the anticipated increased need for nurses (both LPNs and RNs) in the next 4 years (NLN, 2012) and a projected deficit of LPNs and RNs in South Carolina by the year 2025 (DHHS, 2014), the current supply of nursing graduates, limited by high

attrition rates, will not meet the projected need for nurses in the future. Improving retention and graduation of these nursing students is a means to supplying nurses to help meet the demands of the workforce. By comparing the students who successfully complete the third semester of the Nursing Program to those who do not, it may be possible to identify characteristics of students who are more likely to be successful in the program. This information may provide the basis for modifying admissions requirements and developing interventions to increase the success of students at risk for failing out of the nursing program, both of which should result in increased rates of retention and subsequent graduation.

Research Questions and Hypotheses

The purpose of this quantitative research study was to determine the factors contributing to students' success, or lack thereof, in this nursing program by exploring possible differences in demographic characteristics (age, gender, race/ethnicity), admissions qualifications, and academic performance between nursing students who successfully complete the third semester (interim retention or continuous retention pathways) and those students who are not successful (attrition or failure pathways). The research questions I addressed were:

RQ1. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to demographic characteristics?

$H_0$1: There are no differences in demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a1: There are differences in one or more demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways.

RQ2. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to admissions qualifications?

$H_0$2: There are no differences in admissions qualifications (SAT, ACT, prenursing certificate, or prior degree) among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a2: There are differences in one or more admissions qualifications (SAT, ACT, prenursing certificate, or prior degree) among students in the attrition, failure, interim retention, and continuous retention pathways.

RQ3. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to academic performance?

$H_0$3: There are no differences in academic performance as measured by GPA in prerequisite coursework, final course grades, and Kaplan test scores among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a3: There are differences in one or more characteristics of academic performance as measured by GPA in prerequisite coursework, final course grades, and Kaplan test scores among students in the attrition, failure, interim retention, and continuous retention pathways.

Review of the Literature

A review of student retention in higher education in general, more specifically in community colleges and nursing programs, was conducted to discover similarities in characteristics of students who are successful and how these students differ from those who are not successful. I used nursing and education databases including CINAHL, Academic Research Complete, and Education Research Complete for this search with the following search terms separately or in combination: *nursing students, retention, attrition, associate degree nursing, community college, student characteristics, at-risk nursing students, success or successful students, higher education,* and *nontraditional nursing students*.

Theoretical Foundation

The review of student retention studies revealed that several retention models were used most frequently. Tinto's (1975) theoretical model of student integration, the student attrition model (Bean, 1980), the conceptual model of nontraditional student attrition, a revision of Bean's model by Bean and Metzner (1985), and Wylie's (2005) model of nontraditional student attrition all have aspects that could apply to this study. However, Jeffreys's (2012) nursing undergraduate retention and success (NURS) model

aligns closely with the research questions investigating the characteristics of successful and unsuccessful nursing students.

Jeffreys (2007) developed a set of nursing student progress pathways based on the realization that not all students progress in the same manner; some students, especially nontraditional students, attend school part-time, take longer to graduate, or drop out. The pathway tracks students from entry through progression to graduation and the subsequent nurse licensure exam using "three different retention pathways (ideal, continuous, and interim/stopout), three different attrition pathways (first semester failure, voluntary, and involuntary), and three licensure pathways" (p. 408). In Jeffreys's model, demographic characteristics (gender, age, and race/ethnicity) and academic characteristics (prenursing GPA, anatomy and physiology grade, local and transfer credits) are reviewed upon entry into the nursing program. The progression of students through their programs follows either the retention or attrition pathway. The licensure pathways are outside the scope of this study and therefore will not be discussed in detail. For the study site, the retention pathway includes students who are (a) continuous, which refers to students who take each course in sequence without taking a semester off; or (b) interim, meaning students who withdrew or failed and had to repeat a course before taking the next course. The failure pathway includes students who failed out of the nursing program in the third semester. The attrition pathway includes students who either withdrew or failed out of the program in the first or second semester. This model was selected because it specifically addresses the fact that nursing student attrition persists, it is complex and multidimensional, and retention strategies need to be evidence-based, holistic, and evaluated.

The original NURS model (Jeffreys, 2007), the nontraditional undergraduate retention and success model, was later renamed the nursing undergraduate retention and success model (Jeffreys, 2012), which is appropriate for both traditional and nontraditional nursing students. According to Jeffreys (2012), the model was created to help "identify at-risk students, develop diagnostic-prescriptive strategies to facilitate success, guide innovations in teaching and educational research, and evaluate strategy effectiveness" (p. 11). This model was appropriate for use in this study that was designed to identify the characteristics of unsuccessful or at-risk students.

Aspects of this model were incorporated into the data collection, data analysis, and interpretation of the results of this study. I reviewed various demographic and performance variables of successful and unsuccessful students that corresponded to the view espoused in the NURS model that retention strategies should be based on several factors such as student characteristics, academic factors, and environmental factors. The NURS model can also be applied to the development and implementation of a project to improve nursing student retention.

Higher Education Retention

There have been numerous studies explaining why students leave college. Reason (2009) reviewed studies related to changes in student demographics over time, student variables that predict retention, and SAT or ACT scores as predictors of retention. Reason reported that "variables such as high school grade point average, college entrance examination scores, first-year college GPA, socioeconomic status, race/ethnicity, and gender should be included as predictor variables in all retention studies" (2009, p. 497).

Adding to these demographic predictors, a comprehensive literature review of higher education retention studies by Burns (2010) revealed characteristics of unsuccessful community college students: being academically unprepared, delaying entry into college after high school graduation, attending part-time, working to support themselves, and being low-income single parents. Similar to Reason, Soria and Stebleton (2012) found that first-generation students had lower completion rates and were less engaged than other students based on results of the Student Experience in the Research University survey of undergraduate students, which focused on academic engagement, community and civic engagement, global knowledge and skills, and student life. Reviewers of numerous student retention studies have found that part-time, first-year students who lack academic preparation are at risk for leaving college (Burns, 2010; O'Keefe, 2013; Reason, 2009).

Complementing these results, completion data from the AACC (Juszkiewicz, 2014) indicated that women, adult learners, and full-time students had higher completion rates. These completion rates confirm that part-time students are at higher risk for not completing college. Similarly, O'Keefe (2013) found that part-time, first-year students were more likely to leave and not complete their programs. The majority of the studies reviewed by O'Keefe revealed that younger students, those attending part time, and working students were more likely to demonstrate lower retention rates whether they attended a 2-year community or technical college or a 4-year college or university. The site of this study was a 2-year state technical college. This next section includes a review of retention studies conducted at 2-year higher education institutions.

Community College Retention

The AACC (2014), in its 21st Century Initiative, discussed the concerns of low retention and completion rates and recommended that community colleges work on increasing retention. In addition to retention and completion issues similar to those faced by 4-year colleges and universities, community colleges have the additional challenge of enrolling more nontraditional students. According to the Institute of Education Sciences (2017), although students at 4-year colleges and universities are generally under the age of 25, the majority of students at community colleges are over the age of 25. To add to the complexity of this issue, the Institute of Education Sciences (2013) projected the number of students 25 years of age and older will continue to grow.

Research has revealed a variety of reasons community college students leave, with some studies finding that nontraditional and older students are at risk for leaving college (Goncalves & Trunk, 2013; Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014; Spellman, 2007). However, studies conducted by Bremer et al. (2013) and Porchea, Allen, Robbins, and Phelps (2010) found that older students were more likely to complete a class or persist at a community college than their younger classmates. Spellman (2007) reported that adult students face barriers such as academic, financial, social, cultural, and personal issues that contribute to them leaving college. Goncalves and Trunk (2014) found factors such as feelings of isolation, inattention to nontraditional student needs, and administrative inflexibility in special circumstances contributed to the nontraditional student leaving college.

In contrast, Bremer et al. (2013) reviewed the path from developmental English and mathematics through completion and graduation to discover that students who were White, non-Hispanic, older, and with a higher cumulative GPA were more likely to persist through to graduation. Porchea et al. (2010) found that older students were more likely to complete a 2-year degree than younger students, who were more likely to either drop out or transfer to 4-year institutions without completing a 2-year degree. In a descriptive study, Wintrup, James, and Humphris (2012) conducted interviews to identify the student characteristics of those who completed a degree in health education. Although the students who left early in the program were younger in age, when looking at students who persisted through to graduation, there were no significant differences in age, race, or disability status.

There are contradictory findings for the effects of age. Some studies found that older students were more successful (Bremer et al., 2013; Porchea et al., 2010), another found that older students were more likely to leave college (Spellman, 2007), and one found no significant difference (Wintrup et al., 2012). These differences might be explained by personal and situational factors that contribute to nontraditional students leaving college. Although studies have reported different factors contributing to student retention in higher education, more research needs to be conducted to determine the causes for attrition and characteristics of students who do not persist in specific college programs, contributing to the low retention rates of these programs.

Community colleges serve several purposes: they offer undergraduate courses for students who plan to transfer and complete a 4-year degree; they provide noncredit

programs for continuing education for the workforce and community; and they administer certificate, diploma, and associate degree programs for entry into the workforce (AACC, 2015). As such, retention and graduation rates of programs offered by community colleges vary within and across colleges. One research study examined the retention and graduation rates of different programs within a community college (Nitecki, 2011). The paralegal and early childhood academic programs, both of which had higher than average graduation rates, were studied in depth in an effort to improve the retention and graduation rates for all students at the community college. Nitecki found that the students' association with a specific program at the community college contributed to the success of those students as demonstrated by higher retention and graduation rates than the college's overall rates. Although the community college had a low graduation rate of 12.5%, the smaller career programs, specifically the paralegal and early childhood programs, had graduation rates of 32.2 % and 51.3% respectively. Based on Nitecki's findings, it would be reasonable to expect nursing programs at community colleges to have high retention and graduation rates because students are closely affiliated with their nursing departments.

Retention is a concern for both 2- and 4-year institutions. Differences between these types of higher educational institutions could be the reason for some of the differences in retention and graduation outcomes found for community colleges when compared to 4-year schools. The main difference between 4-year colleges and universities and community colleges is the type of degrees offered and that the student population tends to be older at community colleges (Institute of Education Sciences,

2013). Recognizing that community colleges serve a more diverse population, Clotfelter, Ladd, Muschkin, and Vigdor (2013) statistically corrected for the institutional differences in student preparation, aptitude, and resources when comparing community colleges and universities. They found similar student success rates for both institutional types whether student success was defined by completion of a degree or ability to transfer to 4-year colleges or universities. Clotfelter et al. discovered a greater difference among community colleges themselves, however, due to the variations across programs at those colleges. The authors noted that community colleges offer certificates, diplomas, and associate degrees, but not all offer the same academic award levels or the same programs. The academic programs offered are reflective of the community by meeting the needs of the business and industry of the community they serve; therefore nursing is one program common to most community colleges in South Carolina (South Carolina Technical College System, 2016).

Retention in Associate Degree Nursing Programs

Associate degree nursing programs are offered at many 2-year community or technical colleges (Black, 2014). At the completion of this program, students are eligible to take the NCLEX-RN exam to become licensed as an RN. Although a student can obtain the education and qualifications to become an RN through a 2-year or a 4-year program, the Institute of Education Sciences (2013) noted that 2-year colleges have more nontraditional or older students than 4-year universities. The 2-year community colleges typically have less stringent entrance requirements than universities, which leads to students' inability to assess their actual college readiness (Millar & Tanner, 2011).

Students at nine community colleges were surveyed to analyze the difference between the students' perceived and actual academic readiness (Millar & Tanner, 2011). The results revealed that students either modified their perceptions of academic readiness to match reality or left college. In a study of the relationship between academic preparatory, psychosocial, sociodemographic, situational, and institutional factors and degree obtainment, Porchea et al. (2010) discovered that students with higher levels of academic preparation were more successful at completing a community college degree or transferring to a 4-year institution.

Other studies have also revealed that academic preparation can be a factor in student success at community colleges (Barra, 2014; Rogers, 2010). Although the students in the qualitative study by Rogers (2010) did not think academic achievement was a factor that contributed to their success, the document analysis revealed it was a factor. It is possible in this study that the high academic achievement was due to the competitive nature of the selection process. Only successful students were included in this study; there could have been different perceptions if both successful and unsuccessful students had been included. A quasi-experimental study of Black practical nursing students was conducted to decrease the attrition rates at a community college (Barra, 2013). The results revealed that a medical mathematics course along with tutoring improved the completion rate for students in the LPN program. Attrition rates went from 50% to a range of 17% to 37%, depending on the semester. This study is another example of how a strong academic background, medical mathematics in particular, improves the success of nursing students.

Demographic factors. Shelton (2012) studied background, as well as internal and external support variables, to determine the relationship between those variables and student persistence and academic performance in nursing school. Surveys were obtained from 458 participants who were graduates and current students from nine associate degree nursing programs. Shelton reviewed background variables such as age, gender, marital status, the number of hours worked per week, prior education, and grade point average, academic self-efficacy, and perceived faculty expectations. Shelton found no significant differences in age and family responsibilities between students who persisted and those who left nursing school; however, students with poor financial resources and lower high school and college grade point averages were at greater risk for leaving nursing school. Similarly, in an earlier study by Fraher, Belski, Carpenter, and Gaul (2008), receipt of financial aid was found to be related to attrition in nursing school.

Some studies of retention in nursing programs have found conflicting results similar to those of higher education retention studies. Fraher et al. (2008) and Pryijmachuk, Easton, and Littlewood (2009) found that students who were younger were less likely to continue in nursing school. These studies conflict with other studies (Bremer et al., 2013; Wladis, Conway, & Hachey, 2015) that reported older, nontraditional students were at higher risk for leaving nursing school. Donnell (2015) also found that older students were at risk for leaving nursing school. This secondary analysis retrospective correlational study included student characteristics such as age, sex, ethnicity, race, whether a first generation college student, and whether the student was an English as a second language student. Donnell discovered that students who were

older men, English was their second language, were first generation to attend college, and Black, Asian, or Native Hawaiian were more likely to repeat a course or drop out of the program completely (2015).

Academic factors. Other contributing factors or student characteristics leading to nursing student attrition include low entrance examination scores and low prerequisite course grades, specifically anatomy and physiology. Walker et al. (2011) surveyed nine nursing programs and reported that low reading and math scores on the student entrance examination and low grades in anatomy and physiology were associated with attrition. Abele, Penprase, and Ternes (2013) discovered that completing a lifespan developmental psychology course was a better predictor of success in a nursing program than other courses such as biology and chemistry. They also found that the more courses a student failed, the less likely the student was to complete the nursing program. In particular, struggling with science classes prior to starting a nursing program has been found to be a factor contributing to the high attrition rate in nursing (Williams, 2010). However, science knowledge, followed by reading, written/verbal skills, and mathematics, respectively, were found to be the strongest predictors of nursing student success (Wolkowitz & Kelly, 2010).

Both Jeffreys (2007) and Tipton et al. (2008) found a positive correlation between higher grades in the first semester of the nursing program and both retention and subsequent success on the NCLEX. In Jeffreys' (2007) retrospective study of the characteristics of associate degree nursing students, she reported several factors that may contribute to retention and graduation. Successful nursing students were found to have at

least a grade of B in prerequisite courses, no withdrawal or failure from any nursing course, and an overall B average in nursing courses. Other studies also support GPA as a predictor of nursing school success (Hopkins, 2008; Meier, Miller & Wilk, 1975; Romeo, 2013). Using regression models, both Meier et al. (1975) and Hopkins (2008) found that high school GPA, SAT scores, and reading test scores were highly predictive of nursing school success. Hopkins identified at-risk students early in their program by defining success as a grade of 80 for the first nursing clinical course. The Nursing Entrance Test was used to collect data on students' math and reading ability, stress levels, and learning styles along with SAT or ACT scores, high school GPA, and college GPA. Risk factors for not succeeding in the first clinical course identified by Hopkins included lower math and reading scores, lower GPA, and lower SAT or ACT scores. However, Harris, Rosenberg, and O'Rourke (2014) found that the strongest predictor of passing the first nursing clinical course was passing anatomy and physiology on the first attempt with a grade of A or B.

A student's GPA can also be a predictor of success when readmitted to a nursing program. Harding, Bailey, and Stefka (2017) studied archival data of students readmitted to the nursing program to compare the characteristics of students who completed the program after readmission. Students who had to take courses to increase their GPA prior to readmission were less likely to complete the program and graduate. Studies have revealed GPA can be a predictor of success when beginning or restarting a nursing program (Harding et al., 2017; Harris et al., 2014; Hopkins, 2008; Meier et al., 1975; Romeo, 2013).

There are numerous research studies on the reasons or factors contributing to retention in nursing school. These studies have revealed that demographic characteristics and the level of academic preparation could be significant factors in student success. However, research is needed to determine which factors are the most significant contributors to the success of students in the Nursing Program. Reviewing the literature confirms that the proposed research study may assist the study site nursing program in developing strategies to improve retention.

Implications

The purpose of this project study was to identify the characteristics of successful and unsuccessful nursing students in the 2-year nursing program. The results of this study will be presented to nursing faculty, college administrators, and the nursing advisory board for their use in determining the need for changes to admissions criteria or the program. A proposed change in policy was written with a summary of the findings, implications, discussion, and future recommendations.

Summary

Nursing schools nationally are faced with the challenge of graduating a sufficient number of nurses to meet the demand reported by local and national organizations (NLN, 2012; South Carolina Department of Employment and Workforce, 2012). The nursing program includes preparation for both LPNs and RNs. After completing the third semester in the nursing program, students have the option of becoming an LPN, but the high attrition rate in the first three semesters poses a problem in supplying enough nurses

to meet demands of the local community. Therefore, discovering differences in the characteristics of successful and unsuccessful students was needed research.

In the next section, I present the quantitative data collection method for this study along with an explanation of the sample selected for this study and how the data were analyzed. Finally, I present a discussion of the assumptions, limitations, and ethics related to this study.

Section 2: The Methodology

At the study site, all students, whether aspiring to be an LPN or an RN take the same courses during the first three semesters. There is a high attrition rate in the third semester of the program, which affects the percentage of students who graduate. The purpose of this research study was to identify the characteristics of students who are successful as compared to those who are unsuccessful in completing the third semester of the nursing program.

Research Design

This quantitative study employed a retrospective causal-comparative design. Quantitative research collects numerical data to test a hypothesis, provide predictions, or explain causal relationships (Salkind, 2010). A causal-comparative design is useful when trying to discover relationships (Kalof, Dan, & Dietz, 2008; Salkind, 2010). According to Hanneman, Kposowa, and Riddle (2012), it is the research objectives that determine whether a variable is independent or dependent. For the purposes of this study, the independent variables are those variables that were used to predict the dependent variable, the success of nursing students in the third semester. As is the case with causal-comparative studies, the independent variables will not be manipulated because they occurred in the past. The independent variables including demographics, admission qualifications, and academic performance were collected as retrospective data and analyzed using multiple ordinal logistic regression to predict the dependent variable, the pathways (attrition, failure, interim retention, and continuous retention) of the students. The attrition pathway was defined as leaving the program (whether voluntarily or

involuntarily) in the first or second semester. The failure pathway included students who voluntarily left the program during the third semester or failed their third semester courses. The interim retention pathway was defined as successfully passing the third semester by students who temporarily left due to withdrawals or failures, then returned to successfully complete the program. The continuous retention pathway included students who successfully completed the third semester through continuous enrollment. Figure 2 presents a visual representation of the four attrition and retention pathways.

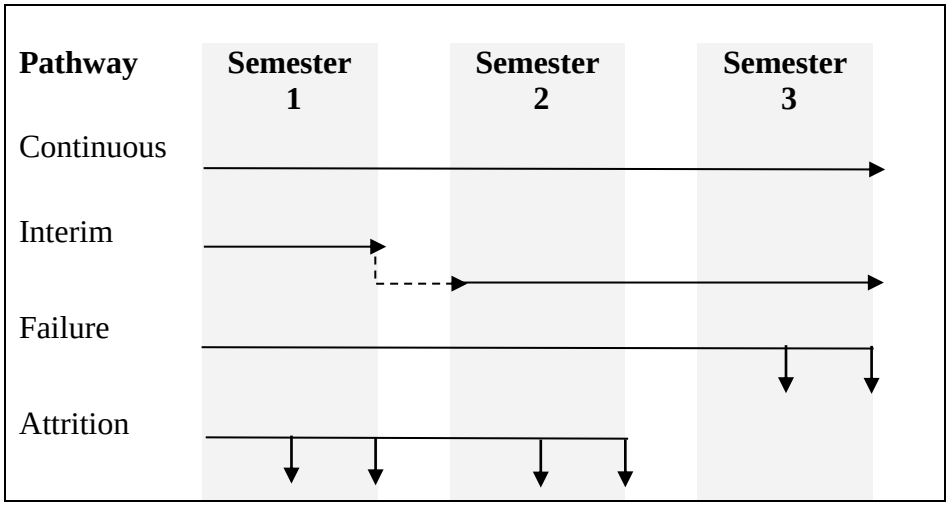

Figure 2. The different pathways include continuous (completed the program in succession), interim (left then returned to complete the program), failure (unable to complete the program due to failing out of the program), and attrition (withdrew or failed out of the program in the first or second semester).

Setting and Sample

Setting

The setting for this study was a 2-year state technical college in South Carolina that has a seamless PN (leading to an LPN) and ADN (leading to an RN) nursing

program. Students can take general education courses on campus or online. Enrollment in the program averages 500 per year, with approximately 325 new students entering each year. Graduates of the nursing program included 69% White, 25% Black, and 6% other ethnic groups, which was similar to other health science majors on campus, which had 69% White, 24% Black, and 7% other groups. The RN workforce in South Carolina reflected a similar racial/ethnic distribution: 68% White, 28% Black, and 7% other groups (Office of Healthcare Workforce Research for Nursing, 2015). At this college, with an average student age of 26, 41% of students were older than 24, which was also similar to the health science students and the South Carolina RN workforce (Office of Healthcare Workforce Research for Nursing, 2015).

Sample

A purposeful sampling method was used for this study. In purposeful sampling, participants are selected because they have experienced what is being studied (Creswell & Clark, 2011). The sample for this study was limited to the nursing students who had been enrolled in at least one of the first three semesters of the nursing program. The census sample included all students who were admitted into the nursing program from fall 2012 through fall 2013. Students are admitted three times a year with 150 to 160 in fall, 125 to 135 in spring, and 30 to 40 in summer. This sample included four groups of students who were first enrolled during that time frame for a total of 374 students. The sample selected included students who, at the time of the study, had either completed the third semester of the nursing program or exited out of the program in the first three semesters regardless of the reason.

Given the complexity of computing a priori analysis of power to determine the necessary sample size for multiple logistic regression analysis, a rule of thumb of 10 events per predictor variable has been found to be more than adequate (Vittinghoff & McCulloch, 2006). This sample of 374 students provided sufficient power (J. Cohen, 1992) for the three multiple ordinal logistic regression analyses performed.

Instrumentation and Materials

For this quantitative research, I retrieved retrospective data reflecting demographic, admissions, and academic performance variables. Demographic variables were limited to age, gender, and race/ethnicity. As nearly all students attended part-time, this was not a consideration in the study. All data collected are stored in password protected electronic files and will be kept for a period of 5 years and available from the researcher upon request.

Admissions data included how the student qualified for the program. The data used for each of the three ways students qualify included SAT or ACT scores, overall GPA earned for prenursing certificate courses, overall GPA earned for completion of an associate or higher degree, and GPA in prerequisite coursework. The verbal or critical reading and the mathematics scores were used for the SAT; the English and mathematics scores were used for the ACT. The GPA was used for the other methods to qualify: prenursing certificate or prior degree. The overall GPA in prerequisite coursework included the following courses: English, Anatomy and Physiology I and II, Intermediate Algebra, and General Psychology. The grades in the prerequisite coursework were used to determine the GPA prior to the first nursing clinical course. The prerequisite

coursework did not include prerequisite coursework transferred in. The following courses were used to calculate the prerequisite coursework GPA: Algebra (Intermediate and Advanced Algebra or Statistics), Anatomy and Physiology I and II, English Composition I, Introduction to Psychology, a nutrition course, and a growth and development course.

Academic performance variables included the final grades in each clinical course in the first three semesters, and the Kaplan test score in each of those clinical courses. The final grades for the clinical courses were calculated based on departmental approved weights for the tests, homework, quizzes, and course specific assignments. Final grades ranged from 0 to 100. Students could attempt each course twice and then were required to repeat the previous clinical course before taking a course for the third time. Grades for the first attempt were included in the data for this study.

The Kaplan Integrated Testing program includes a set of standardized tests created to assess students' learning of content in the courses required by nursing curriculum standards (Kaplan, 2015). Kaplan uses the Rasch model to determine the reliability and validity of the integrated tests (Sanders & Irwin, 2014). Kaplan tests are administered in the clinical nursing courses in the first semester (Fundamentals of Nursing), second semester (Medical-Surgical Test I) and the third semester clinical courses (Pharmacology Test for the medical-surgical nursing course and Pediatric-Obstetrical Test for the pediatric-obstetrical nursing course). Kaplan provides percentile ranks and raw scores indicating the number correct for each exam. The raw scores were used in this study.

The Fundamentals of Nursing test administered at the end of the first clinical course has a phi reliability of 0.64 and a Rasch score of 0.98 suggesting that all items are testing what was intended and test takers respond in a predictable manner. The Medical-Surgical Test administered in the second clinical course is very reliable as determined by the Rasch method; however, "despite the fact that this test is very reliable, there is considerable variation between the items in terms of their statistical properties" (Sanders & Irwin, 2014, p. 47). This variation could be caused by the fact that some students had not learned everything needed for this test (Sanders & Irwin, 2014). The test in the third semester pediatric and obstetrical/women's health clinical course is a customized test created by Kaplan with input from the nursing faculty.

Data Collection and Analysis

Data Collection

Permission was obtained from the vice president for academic affairs at the study site to conduct the study on this campus. A retrospective data collection process was used wherein the Assessment, Research, and Planning Office extracted and de-identified the data archived in student records prior to receipt. The data retrieved included demographics, admissions information, enrollment information, and academic performance data.

Data Analyses

The independent variables were divided into three sets (demographic, admissions, and academic performance) corresponding to the three research questions and their related hypotheses addressed in this study. The demographic variables and their

respective measurement scales included age (interval), gender (nominal), and race/ethnicity (nominal). The admissions variables were SAT verbal/critical reading and mathematics scores (interval), ACT English and mathematics scores (interval), highest prior degree (nominal), GPA for prenursing certificate or prior degree (interval), and GPA in prerequisite coursework (interval). The academic performance variables were final course grades (interval), Kaplan test scores (interval), and number of drops/withdrawals/failures (interval). The research questions and hypotheses addressed in this study were:

RQ1. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to demographic characteristics?

H_0 1: There are no differences in demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a 1: There are differences in one or more demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways.

RQ2. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to admissions qualifications?

H_0 2: There are no differences in admissions qualifications (SAT, ACT, prenursing certificate, or prior degree, GPA in prerequisite coursework)

among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a 2: There are differences in one or more admissions qualifications (SAT, ACT, prenursing certificate, or prior degree, GPA in prerequisite coursework) among students in the attrition, failure, interim retention, and continuous retention pathways.

RQ3. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to academic performance?

H_0 3: There are no differences in academic performance as measured by final course grades, and Kaplan test scores among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a 3: There are differences in one or more characteristics of academic performance as measured by final course grades, and Kaplan test scores among students in the attrition, failure, interim retention, and continuous retention pathways.

Multiple ordinal logistic regression was used to study the relationship between the independent variables—demographics, admissions qualifications, and academic performance—and the dependent variable, student pathways. The multiple ordinal logistic regression method should be used to provide a prediction of the relationship between several independent variables and a categorical dependent variable (Hanneman et al., 2012).

Assumptions and Testing of Data with SPSS

There are statistical assumptions that must be addressed when using multiple logistic regression (Hanneman et al., 2012). The relationship between the logit of the independent variables and the dependent variable, the pathways, should be linear. The assumption of multicollinearity is that the multiple independent variables within each set of independent variables (demographics, admission qualification, and academic performance) are not strongly associated (Hanneman et al., 2012). Furthermore, there is the assumption that each independent variable will have the same proportional effect on each of the cumulative points of the dependent variable.

Ordinal regression assumptions include that the one dependent variable is measured at the ordinal level and the independent variables are either continuous or categorical. Testing for assumptions prior to using the ordinal logistic regression model and interpreting results ensure the correct model was used (Combs-Orme and Orme, 2009). The first two assumptions were met. The third assumption of multicollinearity was tested using SPSS for each ordinal regression for the three research questions. The fourth assumption, the assumption of proportional odds was assessed by a full likelihood ratio test comparing the fit of the proportional odds model with varying location parameters. Both the third and fourth assumptions are discussed together.

There were no multicollinearity problems with the regression of the data for RQ 1 testing for demographic variables. The assumption of proportional odds was met for RQ 1 when all the demographic variables were included, $\chi^2(14) = 10.973$, $p = .688$. The assumption of proportional odds was met for RQ 2 when the variables of qualifying by

prenursing certificate, SAT, or ACT, and the prerequisite GPA were used, $\chi^2(10) = 13.648$, $p = .190$.

The assumption of proportional odds was not met when all academic variables for RQ 3 were used, $\chi^2(10) = 18.927$, $p = .041$. After deleting the end-of-semester grades and the Kaplan test scores for the third semester, the assumption of proportional odds was met for RQ 3, $\chi^2(16) = 22.430$, $p = .130$. The decision to remove the third semester variables resulted in a focused analysis of the end-of-semester grades and Kaplan test scores in the first and second semesters only. The analysis revealed the variables that contributed to student success in the third semester.

Following the testing of assumptions, the data were analyzed using the PLUM and GENLN tests in SPSS as separate logistic regression analyses using the following sets of independent variables: demographic data for RQ1 and admissions criteria for RQ 2. A separate binomial logistic regression was conducted with the variables for RQ 3. The dependent variable, the attrition and retention pathways, were the same for all three analyses. SPSS formulas were used to create a variable indicative of whether a student was in one of the attrition or retention pathways. Students were placed in a pathway based on whether they left in the first or second semester and never returned (attrition pathway), left during the third semester (failure pathway), left and did return to finish (interim pathway), or continued through the program without leaving (continuous pathway). Success was defined as a student who completed the third semester of the nursing program following either the interim or continuous pathway.

Assumptions, Limitations, Scope, and Delimitations

Assumptions

As Blessing and Chakrabarti (2009) noted, assumptions could influence the interpretation of the findings, therefore it is important to acknowledge assumptions for this research study. I assumed that faculty were teaching the content in each course that lays the foundation for success in the next course and that faculty had the required skills to present the content in a manner that would promote student learning. Another assumption is that, on average, students attending the Nursing Program are similar across time in their demographics, how they qualified, and their grades in each course.

Limitations

According to Simon (2011), limitations can be considered those things that are out of my control as a researcher, or potential weaknesses of my research study. The results may not be transferable to other nursing programs, or only those programs where the student demographics are similar, as are the types of courses and content taught in the first three semesters.

Scope

The scope of this study was limited to retrospective analysis of records for nursing students who were enrolled in one or more of the first three semesters the Nursing Program. It was beyond the scope of this study to analyze characteristics of students who either failed or withdrew from the program during the fourth or fifth semester.

Delimitations

Delimitations define the scope of the study, and unlike limitations, they were within my control (Simon, 2011). The retrospective data were collected from one nursing program located at a 2-year college. Only students who were accepted and enrolled in the first semester course from fall 2012 through fall 2013 were included in the study. The variables selected for inclusion in the study such as admission qualifications, test grades, and Kaplan scores were also delimitations. These variables were selected based on information from the literature that indicated these to be the variables most likely to distinguish between successful and unsuccessful students.

Protection of Participants' Rights

To ensure the protection of participant rights, an application was submitted to the Institutional Review Board (IRB) at Walden University, and permission to collect data from the study site was obtained from the Vice President for Academic Affairs. No data were collected until full approval was granted by the Walden University IRB (approval number 06-30-16-0341815) and the study site. Anonymity was ensured for all students by receiving the data with all identifiers such as student names and identification numbers removed. As this study employed retrospective analyses of data, the risk of harm to students was minimal to nonexistent. The students whose data were studied would have exited the program either through attrition or graduation at the time of data collection. This study does not report students' rationales for departure from the nursing program.

Data Analysis Results

Analysis and Interpretation

A separate ordinal logistic regression analysis was reviewed for each of the three research questions. The review of the data analysis and interpretation revealed the null hypothesis was not rejected for RQ 1, but was rejected for RQ 2 and RQ 3. The findings are discussed in this section beginning with RQ 1.

Research Question 1: Demographic Variables

Both the Pearson and the deviance goodness of fit tests indicated that the model was a good fit to the observed data for RQ 1, $\chi^2(410) = 404.750$, $p = .564$ and $\chi^2(410) = 402.606$, $p = .593$, respectively. The final model did not significantly predict the dependent variable over and above the intercept-only model, $\chi^2(7) = 6.586$, $p = .473$. The gender and race/ethnicity demographics are listed in Table 1; age of the participants ($M = 30.50$, $SD = 8.63$) is listed in Table 2.

The data analysis revealed no significant differences in the demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways. There are conflicting research studies regarding whether the age of students contributes to their success. Some studies revealed older, nontraditional students are at greater risk for leaving college (Goncalves & Trunk, 2013; Shapiro, Dundar, Yuan, Harrell, & Wakjungu, 2014; Spellman, 2013). In contrast, Bremer et al. (2013) reported that older students were more likely to remain at the college. Similar to this study, Wintrup et al. (2012), found no significant differences in attrition rates related to age, race, or disability.

Table 1

Demographic Characteristics

Demographic variable	*n*	Percentage
Gender		
Female	330	88.5%
Male	43	11.5%
Race/Ethnicity		
Asian	11	2.9%
Black	82	22.0%
Hispanic	12	3.2%
White	167	44.8%
American Indian	1	0.3%
Unknown	100	26.8%

Table 2

Age of Participants

Age range	*n*	Percentage
18 - 24	119	31.9
25 - 34	146	39.1
35 - 44	71	19.0
45 - 54	34	9.1
Over 54	3	0.8

Research Question 2: Admissions Qualifications

Both the Pearson and the deviance goodness of fit tests indicated that the model was a good fit to the observed data for RQ 2, $\chi^2(304) = 319.841$, $p = .255$ and $\chi^2(304) =$

288.815, $p = .725$, respectively. The final model significantly predicted the dependent variable over and above the intercept only model, $\chi^2(5) = 27.480$, $p < .001$.

Regardless of the method a student used to qualify, there was no increase in the odds of a student being in one particular pathway. In contrast, both Meier et al. (1975) and Hopkins (2008) found that high school GPA and SAT scores were highly predictive of student success. The prerequisite GPA did have a statistically significant effect on the prediction of being successful, Wald $\chi^2(1) = 19.821$, $p < .001$. An increase in GPA was associated with an increase in the odds of successfully completing the third semester of the program with an odds ratio of .367, 95% CI [.245, .549], Wald $\chi^2(1) = 23.809$, $p < .0005$. There are a few other studies that found GPA to be a predictor of success (Hopkins, 2008; Meier et al., 1975; Romeo, 2013).

Table 3 lists the number and percentage of students who qualified by each of the four methods, along with the prerequisite GPA ($M = 3.05$, $SD = .503$) for RQ 2.

Table 3

Admissions Qualifications

	n	Percentage
Qualified by		
SAT	24	6.5%
ACT	23	6.3%
Prior degree	101	27.5%
Prenursing certificate	221	60.2%

Research Question 3: Academic Performance

For the third research question, the Pearson goodness of fit test revealed the model was not a good fit, $\chi^2(760) = 857.946$, $p = .008$. However, the deviance goodness of fit test indicated that the model was a good fit to the observed data, $\chi^2(760) = 475.531$, $p = 1.00$. The final model significantly predicted the dependent variable over and above the intercept-only model, $\chi^2(8) = 96.655$, $p<.001$. High scores on the Kaplan tests and the first semester end-of-course grades do not increase the odds of successfully completing the first three semesters.

Students who successfully completed the first semester did not have increased odds of successfully completing the third semester. However, successfully completing the second semester with a grade of A, B, or C had a statistically significant effect on the prediction of whether students successfully completed the third semester, Wald $\chi^2(3) = 50.827$, $p < .001$. Students with a grade of C or above in the second semester were more likely to be successful, a statistically significant effect, $p =.000$ (see Table 4). The majority of research studies on nursing student retention in associate degree programs focus on prerequisite courses, GPA, and entrance exams as a predictor of success (Hopkins, 2008; Meier et al., 1975; Romeo, 2013). Very few studies evaluate the nursing semester grades as a predictor of success for completing a nursing program. Research studies by Jeffreys (2007) and Tipton et al. (2008) revealed a positive correlation with retention for students with higher first semester grades in the nursing program, which also led to retention and success on the NCLEX exam after graduation.

Table 4

Second Semester Statistics

Second semester grade	Hypothesis test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
	Wald chi-square	df	Sig.		Lower	Upper
A	22.956	1	.000	.017	.003	.089
B	47.369	1	.000	.044	.018	.108
C	18.676	1	.000	.199	.095	.413
D, F, WF, W				1.000		

Conclusion

Retrospective data were collected using a census sample of students admitted from fall 2012 through fall 2013 into the Nursing Program. Analysis of the data was conducted using multiple ordinal logistic regression for comparison of successful and unsuccessful students with regard to their demographics, admission qualifications, and academic performance. There were no differences in successful versus unsuccessful students related to their demographic characteristics, similar to findings of Wintrup, et al. (2012). Other authors reported conflicting findings revealing that older students were at greater risk for leaving college (Gonvalves & Trunk, 2013; Shapiro, Dundar, Yu, Harrell, & Wakhungu, 2014; Spellman, 2013) or older students were more likely to be retained (Bremer et al. 2013).

The variables that distinguished students who successfully completed the first three semesters (interim or continuous pathways) were the prerequisite GPA (RQ 2) and the second semester grades (RQ 3). Other studies found similar results, indicating that

GPA was a predictor of success (Hopkins, 2008; Meier et al., 1975; Romeo, 2013). Very few studies evaluated nursing semester grades similar to this study. Jeffreys (2007) and Tipton et al. (2008) found a positive correlation between the first semester nursing courses and retention of students. This study did not find a statistically significant difference with first semester grades; however, there was a difference in retention and success of those students who passed the second semester nursing course on the first attempt. This study revealed that students were more likely to remain in the retention pathway if they passed the medical-surgical nursing course on the first attempt. Students were more likely to be in the attrition or failure pathways if they withdrew or received a grade of D, F, or WF (withdraw failing). This finding is consistent with the NURS model (Jeffreys, 2012), used as the theoretical framework for this study.

There were no other statistically significant differences discovered for the demographics, admission qualifications, and academic performance. Future research plans include reviewing the prerequisite GPA to admit students who are academically prepared to successfully complete the program. The project study, explained in the next section, will include a policy recommendation to increase the prerequisite GPA.

Section 3: The Project

The problem at this nursing program was a high attrition rate in the third semester. The retrospective data collected and analyzed revealed that students with a higher prerequisite GPA and a grade of C or higher on the first attempt in the second semester nursing course are more likely to be successful. The proposed project for this study is a policy recommendation to increase the prerequisite GPA as the entrance requirement for the nursing program.

Rationale

Improved retention is needed to ensure this program graduates enough nurses to meet the workforce demands of the future (South Carolina Department of Employment and Workforce, 2012; South Carolina Technical System, 2015a). Changes in nursing education policies should be developed from best educational practices based on nursing research (NLN, 2005). Therefore, a suggested change in policy is the appropriate method to present a recommendation based on the research findings of my study.

The analysis for RQ1 did not reveal a significant difference in demographic variables related to student success. The analysis for RQ2 revealed there was no difference in the method in which a student qualified; however; there was a difference in success with a higher GPA for prerequisite courses. The analysis of RQ3 revealed there was increased success and improved retention of students with a grade of C or higher on the first attempt in the second semester medical-surgical nursing course. This policy recommendation will allow me to discuss the analysis of the three research questions and recommend a policy change to increase the prerequisite GPA from 2.75 to 3.0 as an entry

requirement into the nursing program. This will also give me the opportunity to discuss suggestions to improve the student learning of medical-surgical content in an effort to improve grades and increase retention from the second to the third medical-surgical course.

Review of the Literature

An additional literature review was conducted in preparation for the project selected based on the research results. Nursing and education databases including CINAHL, Academic Research Complete, and Education Research Complete were used for this search with the following search terms separately or in combination: *white paper, policy recommendations, nursing admission policies,* and *nursing program policies*.

White Paper

A white paper can be used to present a solution for a problem to gain the cooperation of those who influence decisions (S. S. Cohen, 2015; Sakamuro, Stolley, & Hyde, 2015; Stelzner, 2007). The problem of high attrition, low retention at the research site led to the development of this research study. The analysis and recommendations based on this research study will be presented to nursing faculty and administration to gain cooperation to change the current admission policy.

The purpose of this white paper is to recommend a policy change (S. S. Cohen, 2015). The target audience for this policy change will be the nursing faculty and administration of a 2-year state technical college. It is important to understand the stakeholders or audience in order to influence the acceptance of a policy change (Stelzner, 2007). The nursing faculty and administration are familiar with the research

process and the problem that led to this study. The college is currently developing strategies to improve retention. Therefore, this presentation to propose a policy change will fit into to college's retention strategies.

Policy Change

According to Baer and Duin (2014) there is pressure in higher education to change and promote strategies to increase retention and completion rates. Furthermore, in the changing healthcare environment, nursing education must also change. The Robert Wood Johnson Foundation saw the need to transform nursing, and along with the Institute of Medicine, a report was produced identifying recommendations for nursing based on the changing healthcare environment (Institute of Medicine, 2011). According to Ruth-Sahd (2014), "profound changes in nursing practice call for equally profound changes in the way students are admitted into colleges of nursing" (p. 29). Changes in nursing education should be based on evidence-based research. The findings of this research study revealed the need to change the current admission policy for the nursing program. The findings of the study will be presented with the recommendation for a policy change.

Project Description

The policy recommendation will include the research questions, explanation of the methodology, results of the analysis, and a recommendation based on the research study. The recommendation will be a change in the nursing admission policy. I plan to submit the policy recommendation to the associate vice president (AVP) of career programs and the vice president (VP) of academic affairs at the institution that served as

the research site. Once they have reviewed the policy recommendation, I will present it to the nursing faculty and the academic affairs council.

Potential Resources and Existing Supports

Decisions that affect the nursing program require the support of the nursing faculty and administration. It is important to present the findings supporting a policy recommendation to the nursing faculty. According to Bolman and Gallos (2011), faculty can be resistant to change depending on how the change is presented. Therefore, I will present the results of this research study along with my recommendation for a policy change to include increasing the prerequisite GPA from 2.75 to 3.0. Faculty will have the opportunity to review the information and discussion of the recommended policy change.

It will be the nursing faculty who will be making the final decision for the changes as a result of this research study. The nursing faculty previously discussed the possibility of increasing the prerequisite GPA as an attempt to increase retention; however, a decision was made to gather more information to support a change in the GPA requirement. The results of this research study may provide the information needed for the faculty to support the change in prerequisite GPA.

Potential Barriers

Although the faculty discussed the option of increasing the prerequisite GPA, there may be some faculty members opposed to the idea. Some faculty think increasing the GPA will eliminate students who could potentially complete the nursing program. One way to gain support of faculty is by presenting the information on the low retention rates in relation to the need for nurses in the workforce. Admitting students who have a

greater chance of success will provide more nurses for the workforce and result in fewer students who spend money repeating courses only to fail out of the nursing program. Once faculty approve the change, it will need to be approved by the AVP and VP. If faculty do not approve the change, I would suggest and offer to facilitate a discussion of alternatives from faculty to improve the retention rates. The retention rates need to increase whether or not the proposed policy change is approved and implemented.

Proposal for Implementation and Timetable

At the end of the fall 2017 semester, I will forward the policy recommendation to the AVP and VP for their review and input. I will also forward the document to nursing faculty and present it at the last faculty meeting of the spring semester. If approved by the nursing faculty, I will present the recommendation to the academic affairs council. The next admission date for students to begin the nursing program is the spring 2019 semester. If a change in admission criteria is put into place, it will start with students who have not yet qualified. It is possible that the group of students working on qualifying for the nursing program based on the proposed policy will not begin the nursing program until summer 2019. After approval from nursing faculty, the AVP, the VP, and the academic affairs council, a meeting with admissions office personnel will be arranged to discuss the policy change. New student orientation advisors will be informed of the change so they can provide the correct admission criteria to new students. Students will receive notification by postal mail and electronic mail; the new information will also be added to the website and the student handbook.

Roles and Responsibilities

As the nursing department chair, I am responsible for oversight of the nursing department policy and procedures. I will be the person responsible for the policy recommendation and the process to implement the policy change. As the leader of the nursing faculty, I will gain their support and assist them through the change. At a faculty meeting I will present the research findings, review the recommendation to increase the prerequisite GPA, answer questions, and ask for them to make a motion to vote on the change.

Once faculty have approved the recommendation, I will discuss it with the AVP and VP because the final approval will be theirs. The faculty will decide the implementation date for the policy change. The nursing coordinator, who is responsible for admission of students and the nursing student handbook, and I will meet with representatives from admissions to inform them of the change in the admission of nursing students. The coordinator will be responsible for notifying the students and updating the nursing student handbook.

Project Evaluation Plan

The primary goal of this project is to implement a policy change increasing the prerequisite GPA to improve the retention and graduation rates of nursing students. During the 2019-2020 academic year, the students admitted in 2018-2019 with the higher GPA requirement will be followed through graduation and compared to the students admitted with the lower requirement during the 2017-2018 academic year. The evaluation will include information on retention and graduation rates comparing the

students admitted with a minimum 2.75 GPA and those admitted with a minimum 3.0 GPA.

Project Implications

This project has the potential to broadly affect stakeholders of this college: the nursing students, the faculty, administration, and the community. Increasing the GPA could decrease the time frame students have to wait to start the first nursing course. Currently there is an 18 to 24 month wait from the time students are accepted to when they start the first nursing clinical course. Increasing the GPA has the potential to have fewer, although better prepared, students, thereby decreasing the number of students on the list waiting to enter the program. I expect the average wait time to decrease by approximately 6 months, to 12 to 18 months. Increasing the retention and graduation rates of the nursing program will promote social change by having more students graduating to become nurses to serve the members of the community.

Conclusion

The project for this study is a policy recommendation found in Appendix A. The policy recommendation is the result of this research and literature review. This research study will be presented to the nursing faculty and administration of the college that served as the research site to gain support for the policy change. The evaluation of the project will be conducted after implementation of the policy change to determine if the change has been effective in improving retention and graduation rates. This study has the potential to benefit students by gaining an earlier start date for the nursing program and the community by providing more graduates entering the workforce.

Section 4: Reflections and Conclusions

In this section, I discuss the strengths and limitations of the project. I include my reflections on growth as a scholar practitioner and how learning the research process will improve my leadership abilities. I also discuss the implications and recommendations for future research.

Project Strengths and Limitations

The strength of this project is the recommendation for policy change supported by the research findings. A white paper can be used to present a solution for a problem to gain the cooperation of those who influence decisions (Sakamuro et al., 2015). The problem studied was low retention rates in the first three semesters of the nursing program. Research has revealed a variety of reasons community college students leave, with some studies finding that nontraditional and older students are at risk for leaving college (Goncalves & Trunk, 2013; Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014; Spellman, 2007). However, studies conducted by Bremer et al. (2013) and Porchea et al. (2010) found that older students were more likely to complete a class or persist at a community college than their younger classmates. This research study did not reveal a significant difference in the age related to retention. However, academic preparation was found to be a significant predictor. Porchea et al. (2010) discovered that students with higher levels of academic preparation were more successful at completing a community college degree. Lower course grades in anatomy and physiology (Walker et al., 2011; Williams, 2010) and lifespan developmental (Abele et al., 2013) have been associated with attrition. Both Jeffreys (2007) and Tipton et al. (2008) found a positive correlation

between higher grades in the first semester of the nursing program and retention as well as subsequent success on the NCLEX.

A proposed policy change supported by this research study to increase the incoming GPA as a means of increasing the retention of nursing students. Other studies support GPA as a predictor of nursing school success (Hopkins, 2008; Meier et al., 1975; Romeo, 2013). Risk factors for not succeeding in the first clinical course identified by Hopkins included lower math and reading scores, lower GPA, and lower SAT or ACT scores. A solution to the problem of low retention is increasing the incoming GPA of nursing students.

A limitation of the project is related to the limitation of the research study. The sample used for this research study was comprised of students admitted during a one-year period, which should have been sufficient to yield accurate results. This is similar to some retention studies (Hopkins, 2008). Other nursing retention studies used samples from multiple years (Romeo, 2013; Wolkowitz & Kelly, 2010) or used multiple locations (Meier et al., 1975). Although this research was limited to one site for a one-year period, it may be used to assist other nursing programs when reviewing student characteristics to increase retention.

Recommendations for Alternative Approaches

There are two possible alternative approaches for the policy recommendation. The first is to limit the number of attempts a student can take for each prerequisite course. Currently, if students fail a prerequisite course twice, they cannot enter the nursing program. However, to avoid failure, a student can repeat a course by withdrawing

multiple times until they are able to successfully complete the course. A proposed change to the current policy would recommend that students could only attempt each course twice. All grades, including a withdrawal or withdrawal-failing would count as an attempt.

The second alternative approach to this problem would be to develop a plan to improve student learning to affect retention instead of increasing the prerequisite GPA. A qualitative follow-up study would assist with assessment of strategies to increase student learning, with the focus on the medical-surgical content in the second semester. This approach would need faculty support and input into the plan to ensure success.

Scholarship, Project Development, and Leadership and Change

The entire research process from discovery of a local problem through data collection and analysis allowed me to develop a scholarly voice. According to the *Handbook of Research on Scholarly Publishing and Research Methods*, scholarship is the "possession of a rich understanding and deep appreciation of the subject matter and culture of an academic discipline, coupled with the ability to articulate disciplinary knowledge in ways that are recognized as considered and innovative by other scholarly peers" (Starr-Glass, 2014, p. 82. Going through the process of identifying a local problem, writing a research question, and completing a literature review enabled me to develop a rich understanding of attrition and retention in nursing education. As I began the data collection and analysis of the data, I improved the skills needed to conduct an accurate analysis and interpretation of the findings. I am continuing to develop scholarship in the area of articulating the results of this study. I will be reporting the

findings, and recommendations will be presented in educational settings. The process of developing scholarship will enable me to present the policy recommendation as a research scholar who is knowledgeable of the subject.

Reflection on Importance of the Work

The results of this study with my recommendations will assist in improving retention of nursing students. There has been a push in higher education to increase retention (Sousa, 2015), and my college is no exception. Limited federal and state funds cause additional pressure on institutions to increase enrollment, retention, and graduation rates. Every department at the college must increase efforts to improve retention. Presenting the information from this study will demonstrate to administration that efforts are being made based on research to improve the retention of students.

Implications, Applications, and Directions for Future Research

Implications

The implications of this study include improved retention and graduation rates of nursing students. Increasing the number of graduates eligible to take the NCLEX-PN and NLCEX-RN will help to provide the workforce needed in this region. The increased number of graduates will assist with the nursing shortage by providing qualified nurses to enter the workforce.

Recommendations for Future Research

Recommendations for future research include conducting a follow-up study to include qualitative data. Although quantitative data provided information needed about the successful students; there is more to be learned as to the reasons students leave.

Students can leave for reasons such as financial difficulties or having to take care of children or elderly parents. A follow-up qualitative study could assist by identifying the reasons students leave nursing school other than academics.

I am recommending that this study be repeated in a few years as a comparison. The nursing department has reviewed and revised the curriculum that was in place for this study. Waiting a few years will provide time for the recommendations from this study to have an effect. Although there will be differences—revised curriculum with different entry requirements—the differences can be compared to determine if there was an increase in retention with the revision.

A recommendation to other schools of nursing is to conduct a similar study. Each nursing school has different entry requirements, prerequisites, and curriculum. Although this study cannot be generalized to other nursing programs (Lodico, Spaulding, & Voegtle, 2010),. there are ideas for research that other nursing programs can use from this study. If a nursing school has similar entry qualifications with a high attrition rate, reviewing prerequisite GPA could provide valuable information.

Conclusion

The quantitative design provided analysis of variables revealing the different characteristics of successful and unsuccessful students. These results led to creating the project, a policy recommendation. The recommendation to increase the prerequisite GPA in an effort to improve retention and success of nursing students will be presented to faculty and administration at the college that served as the research site. Completing this process from the research study through the development of a project contributed to my

growth as a research scholar and practitioner. The recommendations from this study will promote social change by increasing the number of qualified nurses to enter the workforce. Future research recommendations include conducting another quantitative research study with a follow-up qualitative component to compare factors related to student success with the revised curriculum to the curriculum in place during this study.

References

Abele, C., Penprase, B., & Ternes, R. (2013). A closer look at academic probation and attrition: What courses are predictive of nursing student success? *Nurse Education Today 33*, 258-261. doi:10.1016/j.nedt2011.11.017

Accreditation Commission for Education in Nursing (2015). *ACEN accreditation manual: General information*. Retrieved from http://www.acenursing.net/manuals/GeneralInformation_July2015.pdf

American Association of Community Colleges. (2015). Community college trends and statistics. Retrieved from http://www.aacc.nche.edu/AboutCC/Trends/Pages/default.aspx

Baer, L. L., & Duin, A. A. (2014). Retain your students! The analytics, policies, and politics of reinvention strategies. *Planning For Higher Education, 42*(3), 30-41.

Barra, M. (2013). The effect of medical mathematics retention strategies in decreasing attrition rate among African American licensed practical nursing students in a community college. *Journal of Cultural Diversity* 20(3), 125-133.

Bean, J.P. (1980). Drop out and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education, 12*(2), 155-187. doi:10.1007/bf00976194

Bean, J.P. & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485-540. doi:10.3102/00346543055004485.

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

Blessing, L. M., & Chakrabarti, A. (2009). *DRM, a design research methodology*. Dordrecht, The Netherlands: Springer.

Bolman, L. G. & Gallos, J. V. (2011). *Reframing academic leadership.* San-Francisco, CA: Jossey-Bass

Bremer, C. D., Center, B. A., Opsal, C. L., Medhanie, A., Jang, Y. J., & Geise, A. C. (2013). Outcome trajectories of developmental students in community colleges. *Community College Review*, *41*(2), 154-175. doi:10.1177/0091552113484963

Bureau of Labor Statistics (2015, December 17). *Occupational outlook handbook, 2016-2017 Edition.* Washington, DC: U.S. Department of Labor.

Burns, K. (2010). Community college student success variables: A review of the literature. *Community College Enterprise*, *16*(2), 33-61.

Center for Community College Student Engagement, (2012). *A matter of degrees: Promising practices for community college student success (A first look).* Austin, TX: Community College Leadership Program. The University of Texas at Austin.

Clotfelter, C., Ladd, H., Muschkin, C., & Vigdor, J. (2013). Success in community college: Do institutions differ? *Research in Higher Education, 54*(7), 805-824. doi:10.1007/s11162-013-9295-6

Creswell, H. W. & Clark, V. L. (2011). *Designing and conducting mixed methods research.* Los Angeles, CA: Sage Publications.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159. doi:10.1037/0033-2909.112.1.155

Cohen, S. S. (2015). On white papers and pages. *Policy, Politics, & Nursing Practice, 16*(1-2), 3-4. doi:10.1177/1527154415589664

Orme, J. G. & Combs-Orme,T. (2009). *Multiple regression with discrete dependent variables.* Cary, NC: Oxford University Press.

Donnell, W. M. (2015). A correlational study of a reading comprehension program and attrition rates of ESL nursing students in Texas. *Nursing Education Perspectives, 36*(1), 16-21. doi:10.5480/13-1212

Fraher, E., Belski, D., Carpenter, F, & Gail, J. (2008). A study of associate degree nursing program success. Retrieved from http://shepscenter.unc.edu/hp/publications/NCCCS_ADN_Report.pdf

Goncalves, S. A. & Trunk, D. (2014). Obstacles to success for the nontraditional student in higher education. *Psi Chi Journal of Psychological Research, 19*(4), 164-172. doi:10.24839/2164-8204.jn19.4.164

Hanneman, R. A., Kposowa, A. J., & Riddle, M. D. (2012). *Research methods for the social sciences: Basic statistics for social research*. Somerset, NJ: John Wiley and Sons.

Harding, M., Bailey, M, & Stefka, S. (2017). Factors influencing nursing student success after readmission. *Teaching and Learning in Nursing, 12*(3), 191-194. doi:10.1016/j.teln.2017.03.004

Harris, R. C., Rosenberg, L., & O'Rourke, M. E. G. (2014). Addressing the challenges of nursing student attrition. *Journal of Nursing Education, 53*(1), 31-7. doi:10.3928/01484834-20131218-03

Holyoke Community College (2014). Nursing (Practical and Associate). Retrieved from http://www.hcc.edu/courses-and-programs/academic-divisions/health-and-natural-sciences/nursing-(practical-and-associate)

Hopkins, T. H. (2008). Early identification of at-risk nursing students: A student support model. *Journal of Nursing Education, 47*(6), 254-259.

Institute of Education Sciences, (2017). *Characteristics of postsecondary students.* National Center for Education Statistics: United States Department of Education.

Institute of Education Sciences, (2013). *Digest of education statistics 2012* National Center for Education Statistics: United States Department of Education.

Institute of Education Sciences, (2015). *College navigator.* National Center for Education Statistics: United States Department of Education.

Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health.* Washington, DC: The National Academies Press. doi:10.17226/12956

Jeffreys, M. R. (2007). Tracking students through program entry, progression, graduation, and licensure: Assessing undergraduate nursing student retention and success. *Nurse Education Today, 27,* 409-419.

Jeffreys, M. R. (2012). *Nursing retention: Understanding the process and making a difference.* New York, NY: Springer Publishing.

Jeffreys, M. R. (2015). Jeffreys's nursing universal retention and success model: Overview and action ideas for optimizing outcomes A-Z. *Nurse Education Today, 35*, 425-431.

Juszkiewicz, J. (2014). Recent national community college enrollment and award completion data. *American Association of Community Colleges.* Retrieved from http://www.aacc.nche.edu/Publications/Reports/Documents/Enrollment_AwardData.pdf

Kalof, L., Dan, A., and Dietz, T. (2008). *Essentials of Social Research.* Berkshire, United Kingdom: Open University Press.

Kaplan Nursing (2015). Kaplan nursing integrated testing: NCLEX-RN review. Retrieved from http://www.kaptest.com/nursing/nclex-prep/rn-programs

Laden, B. V., Milem, J. F., & Crowson, R. L. (2000). New institutional theory and student departure. *Reworking the student departure puzzle, 235-256.*

Lodico, M. G., Spaulding, D. T., & Voegtle, K. H. (2006). *Methods in educational research: From theory to practice.* San-Francisco, CA: Jossey-Bass. doi:10.12968/bjon.2012.21.3.205

MacCallum, A. (2012). Collectively tackling student attrition. *British Journal of Nursing, 21*(1), 205. doi:10.12968/bjon2012.21.3.205

Madison Community College (2014). Integrated nursing: PN and RN. Retrieved from http://www.madisonville.kctcs.edu/en/Academics/Programs_of_Study/Nursing_Options/Traditional_Option.aspx

Meier, R. S., Miller, C. L. & Wilk, T. S. (1975, April). Variables related to academic success for associate degree nursing students. Paper presented at the annual meeting of the National Council on Measurement in Education, Washington, DC. Retrieved from http://files.eric.ed.gov/fulltext/ED111834.pdf

Millar, B. & Tanner, D. (2011). Students' perceptions of their readiness for community college study. *International Journal of Educational Leadership Preparation, 6*(4), 1-6. Retrieved from http://files.eric.ed.gov/fulltext/EJ974348.pdf

National League for Nursing. (2005). *Position statement: Transforming nursing education*. New York, NY: Author. Retrieved from http://www.nln.org/docs/default-source/about/archived-position-statements/transforming052005.pdf?sfvrsn=6

National League for Nursing (2011). *South Carolina Nurse Workforce Information.* Retrieved from http://www.nln.org/docs/default-source/advocacy-public-policy/south-carolina-fact-sheet-pdf.pdf?sfvrsn=0.

National League for Nursing (2012). National League for Nursing public policy agenda 2011-2012. *The Voice for Nursing Education.* Retrieved from www.nln.org

NCSBN (2017). *2017 NCLEX examination candidate bulletin*. Retrieved from https://www.ncsbn.org/089900_2017_Bulletin_Proof2.pdf

Nitecki, E. M. (2011). The power of the program: How the academic program can improve community college student success. *Community College Review, 39*(2), 98-120. doi:10.1177/0091552111404926

Office of Healthcare Workforce Research for Nursing. (2015). *Nursing workforce in South Carolina: Data summary report 2012-2013.* Retrieved from http://www.sc.edu/study/colleges_schools/nursing/centers_institutes/center_nursing_leadership/office_healthcare_workforce_research/reports/workforcedatasummary2013/2013_sc_nurse_supply_data_factsheet.pdf

O'Keefe, P. (2013). A sense of belonging: Improving student retention. *College Student Journal 47*(4), 605-613.

Porchea, S. F., Allen, J., Robbins, S., & Phelps, R. P. (2010). Predictors of long-term enrollment and degree outcomes for community college students: Integrating academic, psychosocial, socio-demographic, and situational factors. *Journal of Higher Education*, *81*(6), 680-708. doi:10.1080/00221546.2010.11779077

Pryjmachuk, S., Easton, K., & Littlewood, A. (2009). Nurse education: Factors associated with attrition. *Journal of Advanced Nursing, 65*(1), 149-160. doi:10.1111/j.1365-2648.2008.04852.x

Reason, R. D. (2009). Student variables that predict retention: Recent research and new developments. *Journal of Student Affairs Research and Practice*, *46*(3), 482-501. doi:10.2202/1949-6605.5022

Rogers, T.L. (2010). Prescription for success in an associate degree nursing program. *Journal of Nursing Education*, *49*(2), 96-100. doi:10.3928/01484834-20091022-03

Romeo, E. M. (2013). The predictive ability of critical thinking, nursing GPA, and SAT scores on first-time NCLEX-RN performance. *Nursing Education Perspectives, 34*(4), 248-253. doi:10.5480/1536-5026-34.4.248

Ruth-Sahd, L. A. (2014). A call to action: Nursing education must embrace change and move forward. *Dimensions of Critical Care Nursing, 33*(1), 28-33.

Sakamuro, S., Stolley, K., & Hyde, C. (2015). White paper: Purpose and audience. Purdue University, Online Writing Lab. Retrieved from https://owl.english.purdue.edu/owl/resource/546/1/

Salkind, N. J. (2010). *Encyclopedia of research design*. Thousand Oaks, CA: SAGE Publications.

Sanders, S. & Irwin, B. (2014). *Integrated testing program faculty manual: Statistical analysis results* (11th ed.). New York. NY: Kaplan, Inc.

Simon, M. K. (2011). Assumptions, limitations, and delimitations. In M. K. Simon (Ed.), *Dissertation and scholarly research: Recipes for success*. Seattle, WA: Dissertation Success, LLC. Retrieved from http://www. dissertationrecipes.com/guides-tools-worksheets-slideshows/

Shapiro, D., Dundar, A., Yuan, X., Harrell, A., Wild, J., & Ziskin, M. (2014). *Some college, no degree: A national view of students with some college enrollment, but no completion* (Signature Report No. 7). Herndon, VA: National Student Clearinghouse Research Center.

Shapiro, D., Dundar, A., Yuan, X., Harrell, A. & Wakhungu, P. K. (2014, November). *Completing college: A national view of student attainment rates – fall 2008*

cohort (Signature Report No. 8). Herndon, VA: National Student Clearinghouse Research Center.

Shelton, E. N. (2012). A model of nursing student retention. *International Journal of Nursing Education Scholarship, 9*(1), 1-16. doi:10.1515/1548-923X.2334

Soria, K. M. & Stebleton, M. J. (2012). First-generation students' academic engagement and retention. *Teaching in Higher Education, 17*(6), 673-685. doi:10.1080/13562517.2012.666735

Sousa, T. (2015). *The secret to student success: Effective practices to boost student retention and graduation rates.* Washington DC: Blackboard

South Carolina Board of Nursing. (2014). Registered nursing programs approved by the State Board of Nursing for South Carolina. Retrieved from http://www.llr.state.sc.us/POL/Nursing/pdf/NursingPrograms/RNPrograms.pdf

South Carolina Commission on Higher Education (2014, January 3). A review of parity funding for South Carolina higher education. Retrieved from http://www.scstatehouse.gov/reports/commissiononhighered/che_parityreport_proviso11-16_3jan2014.pdf

South Carolina Department of Employment and Workforce. (2012). *Worklink LWIA Workforce Report 2012*. Retrieved from http://jobs.scworks.org/analyzer/default.asp

South Carolina Technical College System (2015a). Facts and stats. Retrieved fromhttps://www.sctechsystem.com/facts.html

South Carolina Technical College System (2015b). FY2013-2014 Legislative Priorities. Retrieved from https://www.sctechsystem.com/legpriorities.html

South Carolina Technical College System. (2016). *About us.* Retrieved from http://www.sctechsystem.com/about-us/system-impact.html

Spellman, N. (2007). Enrollment and retention barriers adult students encounter. *Community College Enterprise, 13*(1), 63-79.

Starr-Glass, D. (2014). Scholarship of teaching and learning: Promoting publication or encouraging engagement. In V. C. Wang (Ed), *Handbook of research on scholarly publishing and research method*s. Hershey, PA: IGI Global.

Stelzner, M. A. (2007). How to write a white paper: A white paper on white papers. Stelzner Consulting. Retrieved from http://eng249.pbworks.com/f/A+White+Paper+on+White+Papers.pdf

Study Site. (2014). *Fact book.*

Tipton, P., Pulliam, M., Beckworth, C., Illich, P., Griffin, R., & Tibbit, A. (2008). Predictors of associate degree nursing students' success students. *Southern Online Journal of Nursing Research, 8*(1), 1-8.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125. doi:10.3102/00346543045001089

21st Century Center. (2014). Recommendation 1–Completion. Retrieved from http://www.aacc21stcenturycenter.org/recommendations/recommendations-1/

U.S. Department of Education (2016). FY 2017 Budget. Retrieved from http://www.2.ed.gov/about/overview/budget/budget17/index.html

U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2014). *The future of the nursing workforce: National- and state-level projections,* 2012-*2025.* Rockville, MD. Retrieved from http://bhpr.hrsa.gov/healthworkforce/supplydemand/nursing/workforceprojections/nursingprojections.pdf

Vittinghoff, E. & McCulloch, C. E. (2007). Relaxing the rule of ten events per variable in logistic and Cox regression. *American Journal of Epidemiology, 165*(6), 710-718. doi:10.1093/aje/kwk052

Walker, G. C., Klotz, L., Martin, P., Miller, G. K., Missildine, K., Bishop, S., . . . Glymph, D. (2011). A regional academic partnership for the early identification and retention of at-risk nursing students. *Journal of Professional Nursing, 27*(6), e8-e13. doi:10.1016/j.profnurs.2011.09.002

Williams, M. G. (2010). Attrition and retention in the nursing major: Understanding persistence in beginning nursing students. *Nursing Education Perspectives, 31*(6), 362-367. doi:10.1043/1536-5026-31.6.362

Wintrup, J., James, L., & Humphris, D. (2012). Beyond inequality? A case study of progression, achievements and experiences of health and care workers in higher education, 2005-2011. *Widening Participation & Lifelong Learning*, *14*(3), 172-189. doi:10.5456/wpll.14.3.172

Wladis, C., Conway, K. M., & Hachey, A. C. (2015). The Online STEM Classroom—Who Succeeds? An Exploration of the Impact of Ethnicity, Gender, and Non-traditional Student Characteristics in the Community College Context. *Community College Review*, *43*(2), 142-164. doi:10.1177/0091552115571729

Wolkowitz, A.A., & Kelley, J. A. (2010). Academic predictors of success in a nursing program. *Journal of Nursing Education 49*(9), 498-503. doi:10.3928/01484834-20100524-09

Wylie, J. (2005). Non-traditional *student attrition in higher education: A theoretical model of separation, disengagement then dropout*. Paper presented at the Annual Conference of Australian Association for Research in Education (AARE), Parramatta, Australia. Retrieved from http://www.aare.edu.au/data/publications/2005/wyl05439.pdf

Appendix A: Project

Increasing Nursing Retention: A Retrospective Study

There continues to be a high demand for nurses, LPN and RN, in South Carolina and nationally (MacCallum, 2012; South Carolina Department of Employment and Workforce, 2012). At present, our nursing program is not producing the optimum number of nurses because the low retention rate in the third semester affects the number of nurses entering a workforce. At the end of the third semester, students have the option of graduating and taking the National Council Licensure Examination–Practical Nurse (NCELX-PN) to become a Licensed Practical Nurse (LPN). The low retention rate in the third semester affects the number of students who continue to complete the nursing program and graduate eligible to take the National Council Licensure Examination–Registered Nurse (NCLEX-RN) to become a Registered Nurse (RN).

The low retention rate led to the development of a retrospective quantitative study to analyze the differences between students who are successful and unsuccessful in completing the third semester. This paper will review the findings of that research study and present a policy recommendation to increase the prerequisite GPA as a means of addressing the retention issue.

The Problem

Nursing schools nationally are required to maintain satisfactory retention and graduation rates. The Accreditation Commission for Education in Nursing (ACEN; 2015) Accreditation Manual indicates that students should be able to complete a nursing program within 150% of the stated program length. Therefore, having students complete

the program is vital to the school's accreditation status. When a nursing program is experiencing increased attrition rates, subsequently resulting in decreased graduation rates, the institution must collect data to determine the cause and make changes to improve the completion rates to maintain their accreditation status (ACEN, 2015). In addition to potential problems with accreditation status, low completion rates can also interfere with federal and state funding (SC Commission on Higher Education, 2014).

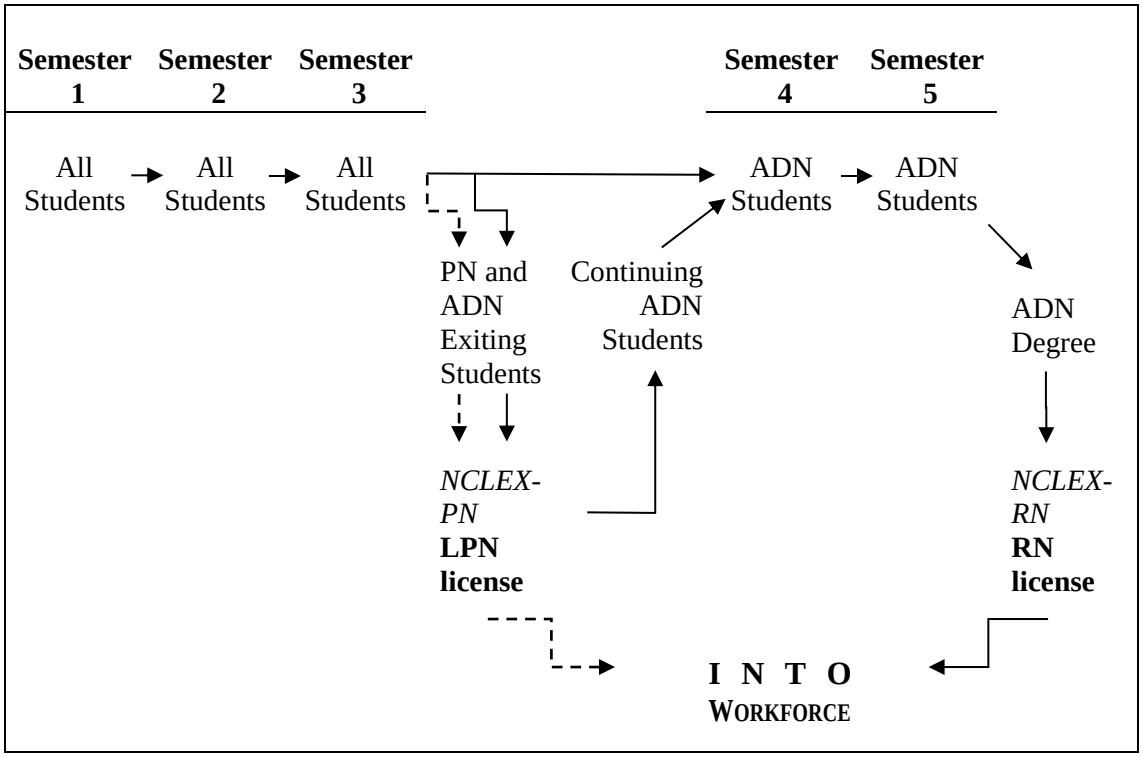

Figure 1. The study site has a seamless nursing program. All PN and ADN students take the first three semesters' courses together. PN students must graduate and pass the NCLEX-PN to practice. ADN students have three choices: continue on to the fourth semester, graduate and take the NLCEX-PN, or take the NCLEX-PN without graduating and continue on to the fourth semester. PN and ADN exiting students can return into the fourth semester after passing the NCLEX-PN.

The seamless nature of this nursing program provides the associate of applied science degree in nursing (ADN) students with the opportunity to either take the NCLEX-PN and continue on to complete the ADN portion of the program or graduate as a PN student and take the NCLEX-PN. Both options allow students to work as a LPN. The various tracks through the seamless program are shown in Figure 1.

Students who are unsuccessful in completing the first three semesters cannot register for the NCLEX-PN exam. Those students have limited skills for employment, with the exception of working as a nursing assistant in a nursing home or as a student nurse technician in one of the local hospitals (Bureau of Labor Statistics, 2015). They have invested both time and money in a failed attempt to improve their employment status, and they often are faced with paying back student loans on a lower than anticipated salary because they can only work as a nursing assistant. According to the Bureau of Labor Statistics (2015) the hourly mean wage for a nursing assistant in the local area is $11.46 per hour compared to $19.36 per hour for a LPN and $27.11 for a RN. In addition to the loss to the students, there is a loss of potential staff for facilities such as those providing long-term care, which are in need of nurses. The South Carolina Department of Employment and Workforce (2012) projected that one of the industries in highest need of workers is nursing and residential care facilities, the main industry that employs LPNs. Likewise, as noted by MacCallum (2012), “student attrition from nursing courses impacts the number of students who need to be recruited to meet ongoing demands for newly qualified nursing staff” (p. 205).

The low retention rate also affects potential nursing students. The National League of Nursing (NLN, 2012) reported that nearly 80% of practical and associate degree nursing programs turn away qualified students due to several factors, including the lack of clinical sites for experiential placements and the need for more nursing faculty. Unsuccessful students are taking the space of potentially successful students. Considering the continuing need for nurses in the workforce and that, after acceptance into the programs, students must wait to start the first clinical course for 18 to 24 months, it is in the best interest of both students and the program to identify the characteristics of successful students.

Purpose and Nature of the Study

The purpose of this quantitative research study was to determine the factors contributing to students' success, or lack thereof, in this nursing program. A retrospective causal-comparative design was used for this quantitative research study. The independent variables including demographics, admission qualifications, and academic performance were collected as retrospective data. A purposeful sampling method included all students who were admitted into the nursing program from fall 2012 through fall 2013 for a total of 374 students. The data were analyzed using multiple ordinal logistic regression to predict the dependent variable, the pathways (attrition, failure, interim retention, and continuous retention) of the students. The attrition pathway was defined as leaving the program (whether voluntary or involuntary) in the first or second semester. The failure pathway included students who voluntarily left the program during the third semester or failed their third semester courses. The interim retention pathway

was defined as successfully passing the third semester by students who temporarily left due to withdrawals or failures then returned to successfully complete the program. The continuous retention pathway included students who successfully completed the third semester through continuous enrollment. Figure 2 presents a visual representation of the four attrition and retention pathways.

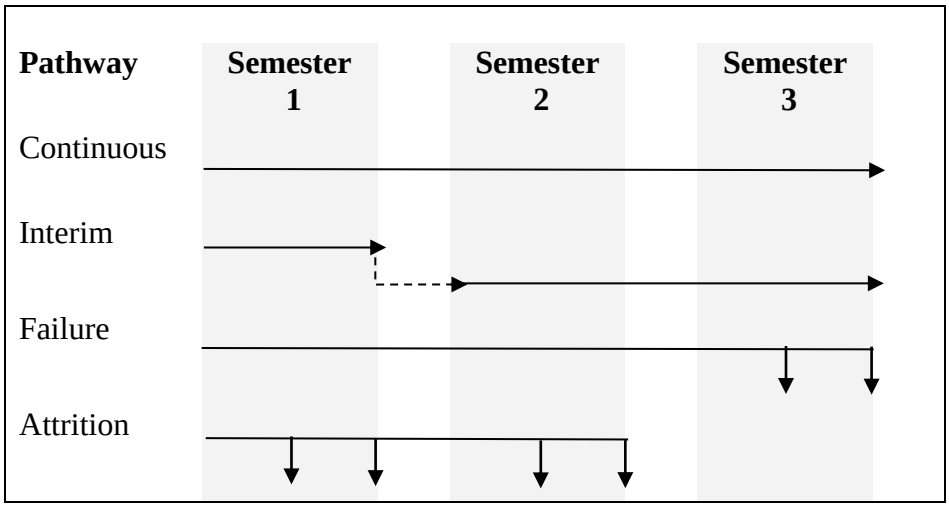

Figure 2. The different pathways include continuous (completed the program in succession), interim (left then returned to complete the program), failure (unable to complete the program due to failing out of the program), and attrition (withdrew or failed out of the program in the first or second semester).

The research questions I addressed were:

RQ 1. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to demographic characteristics?

H_0 1: There are no differences in demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a 1: There are differences in one or more demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways.

RQ 2. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to admissions qualifications?

H_0 2: There are no differences in admissions qualifications (SAT, ACT, prenursing certificate, or prior degree) among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a 2: There are differences in one or more admissions qualifications (SAT, ACT, prenursing certificate, or prior degree) among students in the attrition, failure, interim retention, and continuous retention pathways.

RQ 3. How do students who follow the academic pathways of attrition, failure, interim retention, and continuous retention differ with respect to academic performance?

H_0 3: There are no differences in academic performance as measured by GPA in prerequisite coursework, final course grades, and Kaplan test scores among students in the attrition, failure, interim retention, and continuous retention pathways.

H_a 3: There are differences in one or more characteristics of academic performance as measured by GPA in prerequisite coursework, final course

grades, and Kaplan test scores among students in the attrition, failure, interim retention, and continuous retention pathways.

Quantitative Analysis and Findings

This quantitative study employed a retrospective causal-comparative design. For the purposes of this study, the independent variables are those variables that were used to predict the dependent variable, the success of nursing students in the third semester. As is the case with causal-comparative studies, the independent variables were not manipulated because they occurred in the past. The multiple ordinal logistic regression method was selected to provide a prediction of the relationship between several independent variables and a categorical dependent variable (Hanneman, Kposowa, & Riddle, 2012). The independent variables, including demographics, admission qualifications, and academic performance, were collected as retrospective data and analyzed using multiple ordinal logistic regression to predict the dependent variable, the pathways (attrition, failure, interim retention, and continuous retention) of the students.

The multiple ordinal logistic regression analysis of the three research questions revealed two significant results: GPA on prerequisite courses and the grade in the second semester clinical course. There were no significant findings in demographics (RQ 1), the method in which a student qualified for the nursing program (RQ 2), or the standardized test scores (RQ 3) taken by students each semester.

RQ 1: Demographic Variables

The final regression model did not significantly predict the dependent variable over and above the intercept-only model, $\chi^2(7) = 6.586$, $p > .05$. The gender and

race/ethnicity demographics are listed in Table 1; statistics for the age of the participants are listed in Table 2.

Table 1

Demographic Characteristics

Demographic variable	*n*	Percentage
Gender		
Female	330	88.5%
Male	43	11.5%
Race/Ethnicity		
Asian	11	2.9%
African American	82	22.0%
Hispanic	12	3.2%
White	167	44.8%
American Indian	1	0.3%
Unknown	100	26.8%

Table 2

Age of Participants

Age range	*n*	Percentage
18 - 24	119	31.9
25 - 34	146	39.1
35 - 44	71	19.0
45 - 54	34	9.1
Over 54	3	0.8

The data analysis revealed there were no significant differences in the demographic characteristics (age, gender, and race/ethnicity) among students in the attrition, failure, interim retention, and continuous retention pathways. There are conflicting research studies regarding whether the age of students contributes to their success. Some authors reported that older, nontraditional students were at greater risk for leaving college (Goncalves & Trunk, 2013; Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014; Spellman, 2013). In contrast, Bremer et al. (2013) reported that older students were not at greater risk of leaving college. Wintrup, James, and Humphris (2012) found no significant differences in attrition related to age, race, or disability.

RQ 2: Admissions Qualifications

Regardless of the method a student used to qualify, there was no increase in the odds of a student being in one particular pathway. The prerequisite GPA did have a statistically significant effect on the prediction of being successful, Wald $\chi^2(1) = 19.821$, $p < .001$. An increase in GPA was associated with an increase in the odds of successfully completing the third semester of the program with an odds ratio of .367, 95% CI[.245, .549], Wald $\chi^2(1) = 23.809$, $p < .0005$. Other also studies revealed that GPA is a predictor of success (Hopkins, 2008; Meier, Miller, & Wilk, 1975; Romeo, 2013).

Table 3

Admission Qualifications

	n	Percentage
Qualified by		
SAT	24	6.5%
ACT	23	6.3%
Prior degree	101	27.5%
Prenursing certificate	221	60.2%

RQ 3: Academic Performance

Students with high scores on Kaplan tests or who successfully completed the first semester did not have increased odds of successfully completing the third semester. However, successfully completing the second semester with a grade of A or B had a statistically significant effect on the prediction of whether students successfully completed the third semester, Wald $\chi^2(3) = 50.827$, $p < .001$. Students with a grade of C or above on the first attempt in the second semester were more likely to be successful, a statistically significant effect, $p = .000$ (see Table 4). The majority of research studies on nursing student retention in associate degree programs focused on prerequisite courses, GPA, and entrance exams as a predictor of success (Hopkins, 2008; Meier et al., 1975; Romeo, 2013). Very few studies evaluated the nursing semester grades as a predictor of success for completing a nursing program. Jeffreys (2007) and Tipton et al. (2008) found a positive correlation with retention for students with higher first semester grades in the

nursing program, which also led to retention as well as success on the NCLEX exam after graduation.

Table 4

Second Semester Statistics

Second semester grade	Hypothesis test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
	Wald chi-square	df	Sig.		Lower	Upper
A	22.956	1	.000	.017	.003	.089
B	47.369	1	.000	.044	.018	.108
C	18.676	1	.000	.199	.095	.413
D, F, WF, W				1.000		

Recommendations

The finding of this study revealing prerequisite GPA as a strong predictor of success is supported by other nursing research studies (Hopkins, 2008; Meier et al., 1975; Romeo, 2013). Jeffreys (2007) and Tipton et al. (2008) found that successful nursing students had at least a grade of B in prerequisite courses, no withdrawal or failure from any nursing course, and an overall B average in nursing courses. Williams (2010) correlated success in a nursing program with higher science grades; however, Wolkowitz and Kelly (2010) found that reading, written/verbal skills, and mathematics were the strongest predictors of student success. Harris, Rosenberg, and O'Rourke (2014) found that the strongest predictor of passing the first nursing clinical course was passing anatomy and physiology on the first attempt with a grade of A or B.

The primary recommendation based on this research study is to increase the prerequisite GPA to 3.0. A policy change focusing on calculating the prerequisite GPA using the following courses: ENG 101, BIO 210, BIO 211, MAT 102 (PN students), MAT 110 or MAT 120 (ADN students) and PSY 201, is proposed. Students with a GPA of 3.0 or above on those courses would be accepted into the nursing program. Currently there are three methods to qualify: SAT/ACT, prior degree, or Pre-Nursing Certificate. Those courses proposed are five of the eight courses on the Pre-Nursing Certificate. The Pre-Nursing Certificate includes three other courses: COL 105, AHS 102, and NUR 115. Those three classes are not taken by students who qualify by SAT, ACT, or prior degree. The five courses recommended for inclusion in computing the prerequisite GPA are taken by all students regardless of the method used to qualify. Figure 3 shows the three methods to qualify with the proposed changes for the GPA to start the first clinical course (NUR 134).

Method to qualify	Current	Proposed	Effective date
Prior degree	2.5 GPA for bachelor or higher 2.75 GPA for associates	3.0 GPA for associates or higher	Spring 2019
Pre-Nursing Certificate	2.75 GPA	3.0 GPA	Spring 2019
SAT/ACT	No changes to qualifying; must have 3.0 GPA on the five prerequisite courses to start NUR 134.		Spring 2019

Figure 3. The three methods to qualify for the program with the current and proposed GPA changes.

Conclusion

Retrospective data were collected using a census sample of students admitted from fall 2012 through fall 2013 into the nursing program. Analysis of the data indicated the variables that distinguished students who successfully completed the first three semesters (interim or continuous pathways) were the prerequisite GPA (RQ 2) and the second semester grades (RQ 3). There were no other statistically significant differences discovered within the demographics, the other admission qualifications, and the remaining academic performance variables. The recommendation based on the findings of this research study is a policy change to increase the prerequisite GPA required for admission to the nursing program.

References

Accreditation Commission for Education in Nursing (2015). *ACEN accreditation manual: General information*. Retrieved from http://www.acenursing.net/manuals/GeneralInformation_July2015.pdf

Bremer, C. D., Center, B. A., Opsal, C. L., Medhanie, A., Jang, Y. J., & Geise, A. C. (2013). Outcome trajectories of developmental students in community colleges. *Community College Review*, *41*(2), 154-175. doi:10.1177/0091552113484963

Bureau of Labor Statistics (December 17, 2015). *Occupational outlook handbook, 2016-2017 Edition,* U. S. Department of Labor.

Goncalves, S. A. & Trunk, D. (2014). Obstacles to success for the nontraditional student in higher education. *Psi Chi Journal of Psychological Research, 19*(4), 164-172.

Hanneman, R. A., Kposowa, A. J., & Riddle, M. D. (2012). *Research methods for the social sciences: Basic statistics for social research*. Somerset, NJ: John Wiley and Sons.

Harris, R. C., Rosenberg, L., & O'Rourke, M. E. G. (2014). Addressing the challenges of nursing student attrition. *Journal of Nursing Education, 53*(1), 31-7. doi:10.3928/01484834-20131218-03

Hopkins, T. H. (2008). Early identification of at-risk nursing students: A student support model. *Journal of Nursing Education, 47*(6), 254-259. doi:10.3928/01484834-20080601-05

Jeffreys, M. R. (2007). Tracking students through program entry, progression, graduation, and licensure: Assessing undergraduate nursing student retention and success. *Nurse Education Today, 27*, 409-419.

MacCallum, A. (2012). Collectively tackling student attrition. *British Journal of Nursing*, *21*(1), 205. doi:10.12968/bjon.2012.21.3.205

Meier, R. S., Miller, C. L., & Wilk, T. S. (1975). Variables related to academic success for associate degree nursing students. Retrieved from http://files.eric.ed.gov/fulltext/ED111834.pdf

National League for Nursing (2012). National League for Nursing public policy agenda 2011-2012. *The Voice for Nursing Education.* Retrieved from http://www.nln.org

Romeo, E. M. (2013). The predictive ability of critical thinking, nursing GPA, and SAT scores on first-time NCLEX-RN performance. *Nursing Education Perspectives*, *34*(4), 248-253. doi:10.5480/1536-5026-34.4.248

Shapiro, D., Dundar, A., Yuan, X., Harrell, A., & Wakhungu, P. K. (2014, November). *Completing college: A national view of student attainment rates – fall 2008 cohort* (Signature Report No. 8). Herndon, VA: National Student Clearinghouse Research Center.

South Carolina Commission on Higher Education (2014, January 3). A review of parity funding for South Carolina higher education. Retrieved fromhttp://www.scstatehouse.gov/reports/commissiononhighered/che_parityreport_proviso11-16_3jan2014.pdf

South Carolina Department of Employment and Workforce. (2012). *Worklink LWIA workforce report 2012*. Retrieved from http://jobs.scworks.org/analyzer/default.asp

Spellman, N. (2007). Enrollment and retention barriers adult students encounter. *Community College Enterprise, 13*(1), 63-79.

Tipton, P., Pulliam, M., Beckworth, C., Illich, P., Griffin, R., & Tibbit, A. (2008). Predictors of associate degree nursing students' success students. *Southern Online Journal of Nursing Research, 8*(1), 1-8. Retrieved from http://www.resourcenter.net/images/SNRS/Files/SOJNR_articles2/Vol08Num01Art02.pdf

Wintrup, J., James, L., & Humphris, D. (2012). Beyond inequality? A case study of progression, achievements and experiences of health and care workers in higher education, 2005-2011. *Widening Participation & Lifelong Learning, 14*(3), 172-189. doi:10.5456/wpll.14.3.172

Williams, M. G. (2010). Attrition and retention in the nursing major: Understanding persistence in beginning nursing students. *Nursing Education Perspectives, 31*(6), 362-367. doi:10.1043/1536-5026-31.6.362

Wolkowitz, A. A., & Kelley, J. A. (2010). Academic predictors of success in a nursing program. *Journal of Nursing Education 49*(9), 498-503. doi:10.3928/01484834-20100524-09