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The Correlational Effects of Academic and Demographic Factors on Nursing Students' Attrition, Progression, and Completion at a University College of Nursing

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The Correlational Effects of Academic and Demographic Factors on Nursing Students' Attrition, Progression, and Completion at a University College of Nursing

A dissertation submitted in partial satisfaction.

Of the requirements for the degree of

Doctor of Education in Organizational Leadership

by

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Dedication

I dedicate this work to God, my dear mother, my beloved husband, and our three children, the Obafemi young men. To God, who piloted me from the beginning and saw me to the end, guiding me every step of the journey with His timely wisdom, understanding, knowledge, and enablement. To my mother, who would have been so proud to witness this aspect of my life. To my husband, who journeyed with me so tirelessly on this remarkable journey despite the health challenges thrown at him and us as a family during this journey. To our three children – Tobi, Tomi, and Tolu – for their countless encouragements throughout this academic journey.

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Abstract

High United States nursing student attrition rates have attracted political, organizational, and social interest for numerous reasons. This attrition places financial burdens on the students, results in revenue loss for the college, and exacerbates the existing nursing shortage. Students' success in a nursing program is crucial for nurses to practice nursing. The purpose of this retrospective study was to explore the effects of academic performance and demographic/categorical factors on nursing students' progression and completion at a University College of Nursing in the Southern United States. The target population consisted of students who were enrolled at University College of Nursing from January 2017 to August 2023 who have either successfully graduated from the program or withdrawn by December 31, 2022. The statistically significant associations revealed the importance of nationality, race, transfer, and academic risk on graduation and on National Council Licensure Examination pass rates. As nursing schools continue to explore many ways to attract nontraditional student groups, nursing programs also need to evaluate issues impacting the successful completion of the various student groups. This study concluded the need to continually evaluate admission and programmatic process factors' role in better understanding attrition and success as these links with developing appropriate student success strategies for practice settings.

Keywords: At-risk students, nontraditional nursing students, preadmission factors, student attrition, student performance, NCLEX pass rates

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Chapter 1: Introduction

The aging of the United States population and increasing health problems have steadily increased the demand for healthcare professionals (Foley & Luz, 2021). This increase stems from people living longer and the linked, growing prevalence of many chronic diseases (World Health Organization [WHO], 2022). Notably, the WHO report predicted that the proportion of the world's population over 60 years would increase from 2% to 22%, with the number of persons aged 80 years and older tripling from 142 million in 2020 to 426 million in 2050 (WHO, 2022). As a result, healthcare professionals, particularly nurses, must increasingly manage chronic diseases associated with the aging population and the increase in emerging novel infectious diseases (Flaubert et al., 2021; Johns Hopkins Medicine, 2022). Nurses, alongside other health professionals, are faced with more demand to care for clients with these increasing health problems.

Although nursing is the largest U.S. healthcare profession, with more than 4.2 million Registered Nurses (RNs) nationwide, there is still a nationwide shortage of nurses (American Association of Colleges of Nursing [AACN], 2022a). The current deficit of RNs is expected to intensify in the coming years (AACN, 2022a). Additionally, with stressful work demands, such as increased chronic medical complications, repeat and increased admissions with COVID-19 patients, and other health comorbidities, more RNs are leaving the healthcare field at an increased rate (Engström et al., 2022). The number of RNs decreased by more than 100,000 from 2020 to 2021, the most significant drop observed over the past four decades (AACN, 2022a). Additionally, a substantial number of the nurses leaving the workforce were under 35 and primarily employed in hospitals (AACN, 2022a). Consequently, the increased demand for healthcare outpaces the number of RNs entering the profession (Engström et al., 2022).

Therefore, building a future nursing workforce that effectively provides adequate nursing care to the public requires a substantial increase in the enrollment and graduation of nursing students.

The current and predicted shortage of nurses is problematic; nursing schools across the United States are already struggling to expand their capacity to meet the rising demand for patient care (AACN, 2022a). To accommodate the nursing shortage, nursing schools have increased their efforts in recruiting diverse types of traditional and nontraditional students (Chamlou, 2022). However, increased enrollments come with new challenges that need to be met to reduce student attrition, low National Council Licensure Examination (NCLEX) pass rates, and address issues such as inclusiveness, diversification, and attracting various student populations predicted for success. For example, having a diverse faculty to mentor students has an influential, positive impact on the students' confidence levels, success, and sense of belonging at their institutions (Murray & Loyd, 2020).

Practical solutions to this shortage critically hinge on increasing intakes of nursing students while preserving quality nursing educational programs. Many U.S. students currently seek enrollment in nursing programs, extending from traditional/conventional to nontraditional students. Traditional students are learners who have been out of high school for less than a year, most likely going to school full-time, and usually finish school in the prescribed amount of time (i.e., 4 years at a university; Smith, 2021). Traditional nursing students tend to be interested in the nursing profession early in life, usually in middle school, and hence come with little or no knowledge of their abilities to deal with people, especially those who are ill (McEnroe-Petitte, 2015). Traditional nursing students also include recent high school graduates; these students are described as digital natives, motivated, highly adaptable, multitaskers, and impatient with lofty expectations in all they do (McEnroe-Petitte, 2015). However, because there are not enough

potential traditional students to meet the nation's nursing needs, improving efforts to recruit nontraditional nursing students is essential.

Nontraditional students are adults 25 or older who go to college for the first time or return for a second degree (National Center for Education Statistics [NCES], 2016). However, defining nontraditional students is more complex because these populations have many attributes distinguishing them from traditional nursing students. The U.S. Department of Education categorizes students as nontraditional when they exhibit nontraditional characteristics. The National Center for Education Statistics identified these nontraditional characteristics as being older than the typical age, attending classes part-time, and being independent of parents (NCES, 2022). In addition, the NCES included attributes like working full-time while enrolled, having dependents, being a single parent, and receiving a General Education Diploma (GED) or a high school certificate. These were also included in the categorization (NCES, 2022).

Nontraditional students are also adults who are not straight from high school but have met the prerequisites, mature adults with life experiences wanting a career change and experienced adults who have been practicing in the healthcare sector as licensed practical nurses, medical assistants, pharmacy technicians, and patient care technicians. Anecdotally, most nursing school students fit this nontraditional category (P. Perryman, personal communication, May 1, 2022). At the same time, more anecdotal evidence indicates that many nontraditional students endure personal conflicts and crises that directly impact their academic outcomes in the nursing program (S. Mathew, personal communication, July 1, 2022). Many of these students must work to support their families while attending a full-time program, which may contribute to students' stress and inability to complete the nursing program. Nursing programs should consider

the characteristics of the enrolled student population to provide resources that increase their likelihood of completing the programs.

The national dropout rate from nursing programs in the United States, reported by the National League for Nursing, is 20%, and this high attrition rate is considered problematic (Elkins, 2019). Some baccalaureate nursing programs reported dropout rates as high as 50% (Merkley, 2016). Notably, the National League for Nursing Accrediting Commission set the desirable retention rate at 80% (Elkins, 2019). Despite some students' impressive admission credentials, they are not fully aware of and committed to the academic rigor and student engagement needed in a nursing program (P. Perryman, personal communication, May 1, 2022). So, an initial sizable population of students at enrollment does not persist until graduation.

However, as the program progresses, due to academic and nonacademic factors, some students depart from the nursing program without completing the program (P. Perryman, personal communication, May 1, 2022). Consequently, this results in the issue of student attrition. Therefore, even if the enrollment of traditional and nontraditional students is impressive, providing a practical, inclusive, and supportive college environment for these students to continue to graduation should be the ultimate consideration.

Problem Statement

The nursing profession is confronted by numerous factors that drive the nursing shortage in the United States; these factors include high nursing student dropout rates, high nurse burnout rates, rapid turnover, economic downturns, waves of retiring nurses, and increased healthcare demands (AACN, 2022a; Kelly et al., 2021; Rege & Curnow, 2020). Additionally, the COVID pandemic negatively affected many nurses who had to deal with the premature death of colleagues in healthcare and family members and the overwhelming death of their patients; this

emotional impact led to increasing numbers of nurses leaving the profession and some bedside nurses to retire early (Kelly et al., 2021; Raso et al., 2021). For example, a study of more than 5,000 nurse participants showed that 11% intended to leave, with another 20% undecided about leaving, which could cause significant instability in the nursing workforce if not reversed (Raso et al., 2021). Also, the increasing demand for competent nursing care for patients with complex healthcare needs and nurses working exceptionally long hours has resulted in nurses' burnout, early retirement, and high turnover (Rege & Curnow, 2020). Therefore, with so many challenges confronting the nursing workforce, the effective management of nursing student's departure from the program without continuing to graduation must be addressed immediately. The current nursing student intake, being more diverse than traditional entry-level nursing students in terms of age, gender, race and ethnicity, and life experience, poses a challenge for nursing leadership (Kramlich et al., 2020). The challenge for leaders is reducing attrition rates and ensuring students continue to program completion (Harris et al., 2014).

To effectively address this concern, leadership needs to regularly evaluate admission requirements and student academic performances that affect students' successful completion of their nursing education. Additionally, early identification of students academically at risk at admission is essential to assist in identifying students' admission factors and at-risk challenges; early identification will be crucial both at entry and at the end of the second-year courses (Merritt, 2021). The first-year preparation and successful completion of the 200-level courses are essential for students to progress through the program. This understanding will better assist nurse leaders in predicting nursing students' successful program completion.

The employment of registered nurses in the United States is projected to grow 9% from 2020 to 2030, with a predicted need for over 200,000 new nurses annually through 2026 to

accommodate this growth (U.S. Bureau of Labor Statistics, 2022). To increase the number of RNs, the AACN is leveraging its resources to shape legislation, identify strategies, and form collaborations (AACN, 2022a). Therefore, nursing schools are considering creative ways to attract students and see them complete the nursing program (AACN, 2022b).

Student attrition is a significant problem at UCN. This issue of concern has steadily increased from approximately 5% in 2019 to 9% in 2021 (T. Williams, personal communication, April 30, 2022). With the current sociological constraints, this trend is expected to continue. Students leave the program after the first year due to a low-grade point average (GPA), lack of academic rigor, and poor time management. Other students lack the discipline to study and submit assignments promptly (P. Perryman, personal communication, May 1, 2022). Regardless of some students' remarkable admission credentials, certain students are not fully committed to the needed engagement required in a nursing program, as evidenced by the frequency of students logging into the Learning Management System (T. Williams, personal communication, May 1, 2022).

The specific problem addressed in this study is the effect of academic and demographic factors on nursing students' attrition, progression, and completion at a University College of Nursing. The primary reason nursing students leave after the second year is that they are classified as at-risk. Students who are academically challenged or at risk must be promptly identified at enrollment. These students will need proactive remediation initiatives implemented to successfully retain and support them along their academic journey to complete their education (Myles, 2018). When nursing programs initiate strategies that identify the student's educational needs early and incorporate expectations for student participation, such students are better supported (Brussow & Dunham, 2018). Significantly, when students struggle academically at the

beginning of the second year, this continues throughout the program. They are less likely to complete the program successfully (P. Perryman, personal communication, June 1, 2022). Therefore, identifying students at risk to implement appropriate interventions can be a valuable tool to increase retention.

The UCN program recruits a diverse student population that differs from cohort to cohort in life experiences, skills, and exposures. The diversification of the nursing workforce diversity is a national priority, as this supports the provision of culturally competent care to the public, that will contribute to the improvement in health equity. While nurses from underrepresented populations are increasing in the nursing workforce, identifying the needs of such students is vital to their successful completion of the nursing program and furthering on to pass their licensure examination (Noone et al., 2020).

Nursing program leadership is constantly challenged with how to address the ongoing problem of student attrition. De Leon (2018) claimed the lack of a standard unified definition of student attrition and the multiple reasons associated with the problem of student attrition makes the issue more complex for nursing leadership. The complexity of the student attrition problem has been linked to the interconnected nature of the personal, institutional, and professional elements of the concept of student attrition (De Leon, 2018). Therefore, identifying students' needs will assist with better planning as nursing leadership sets aside, seeks out, and allocates funds to reduce student attrition rates. Consequently, at the professional level, the state and national agencies will benefit from a well-established foundation while considering students' enrollment and persistence to graduation (De Leon, 2018). Nursing leaders must be aware of and understand the personal, institutional, and professional elements of student attrition and how to utilize this information to address factors influencing student attrition efficiently.

Purpose Statement

This quantitative, retrospective multivariate study examined multiple variables contributing to successful completion of admitted nursing students and NCLEX performance. A set of potential predictor variables (i.e., demographic/student categories and academic performance) were correlated with successful degree completion and NCLEX pass rates. From the evidence presented, I have recommended significant evidence-based findings that could benefit the program.

Specifically, the aims of this project were to investigate the statistical relationships of independent variables student/demographic categories of nationality, race, gender, risk label, and transfer status as well as academic performance in key courses with dependent variables of graduation and NCLEX pass rates. These associations were assessed in the following research questions:

Research Questions

The research questions guiding this study were:

RQ1: What are statistically significant correlations between students' demographic categories (noted in pre-admission) and academic performance (grades) explaining students' likelihood of being identified as at-risk or in attrition at the end of the second-year courses?

RQ2: What are statistically significant correlations between students' category/demographic and academic variables explaining students' program completion?

RQ3: What are statistically significant correlations between students' second-year academic performance measures and program completion?

RQ4: How do students' demographic and academic variables contribute to a model predicting second-year academic performance and successful program completion?

Definition of Key Terms

At-risk students. These students will need temporary or ongoing intervention due to their academic deficit to succeed academically.

NCLEX pass. The National Council Licensure Examination for Registered Nurses (NCLEX-RN) is the national licensure examination that nursing graduates must pass in order to practice as a registered nurse.

Nontraditional nursing students. These nursing students are usually adults twenty-five or older, attending college for the first time or returning to college for a second degree. These adult learners are often part-time attendees, independent of their parents, working full time while enrolled, having dependents, being single parents, or receiving GED (General Educational Development) or high school certificates.

Preadmission factors. Students' preadmission criteria data were intended to include nonacademic, academic, and educational experiences. The data finally available in the presented noted the term “preadmission” (as in earlier academic performance potential) was not available in the data received, but the notions of demographics and student categories are related preadmission data.

Student attrition. Students who leave/drop out of a study program before the stipulated completion time.

Student performance. A grade of C or better in all the identified second-year courses is required to enter the nursing program.

Summary

This chapter discussed the background to the problem of nursing students' attrition as a factor affecting the nursing shortage in the United States. At the same time, this chapter provided

a better understanding of the characteristics of students enrolling in the identified nursing program. Also, the chapter described the problem statement, purpose statement, research questions, and pertinent definitions.

Chapter 2 will review and analyze the literature on the challenges of students' attrition in nursing programs, the preadmission factors impacting students' departure from college, and the attrition costs. Also, this chapter will discuss nonacademic and academic factors affecting students' academic performance during the nursing program and other vital facets that impact students' premature departure from nursing school. Overall, this study underscores that nursing shortages will continue unless nursing education leadership addresses critical issues of student preparation, needs, mentoring, and their progression in nursing programs. As articulated in the research questions, this study sought to gather archival data to correlate relevant academic and background variables with student attrition in nursing programs.

Chapter 2: Literature Review

This chapter will focus on scholarly literature identifying nursing students' attrition and the multiple factors contributing to this phenomenon. Also, the nonacademic and academic issues impacting students' untimely departure from nursing school, including the challenges of nontraditional students, transfer, and at-risk students, will be elaborated. This chapter presents relevant literature on nursing students' academic accomplishments at the end of the second year and their influence on students' progression. Additionally, this chapter identifies potential predictor variables, their correlation with successful degree completion, and how this impacts the nursing shortage.

Conceptual Framework

Several theories have been associated with attrition in nursing education. Despite the significant institutional concerns related to student attrition, there is still work to be done to determine how an institution can improve retention. Classical and contemporary scholars agree that student retention, achievement, and success are complex and multidimensional; there is no one quick fix or solution to this issue (Jeffreys, 2022). Many models and frameworks have been used and are still being used better to understand students' persistence and retention in higher education. Of these theoretical frameworks are three seminal works these seminal works are Tinto's (1975, 1993) institutional departure model, Spady's (1970, 1971) undergraduate dropout process model, and Bean's (1980, 1982) student attrition model (Burke, 2019). These models suggest that students' predetermined characteristics and interactions with their institutions' academic and social systems influence their decisions to depart from the institution.

Tinto's Theory of Student Departure

Tinto's (1993) theory of student departure asserts that students' entry characteristics and initial commitment to the institution influence their departure decisions. In addition, Tinto (1993) recognized that a dropout decision from an individual student is influenced not only by personal attributes, such as goals and commitments but also by institutional experiences and integration. These personal attributes stem from being part of a particular social system (e.g., the family) and reflect the individual's social connectedness with their environment. At the same time, students are also affected by their precollege schooling; these fundamental precollege educational exposures significantly impact who they are, and the attributes they bring shape how students experience the array of different communities at educational institutions. Therefore, when students feel they belong within the academic communities, this increases their commitment to an institution and fosters their motivation to persist in the environment (Tinto, 1975, 1993). So, this suggests the importance of early and continued institutional commitment and its impact on academic and social integration within the university are crucial factors in college student retention.

Critics of Tinto's Theory

Despite the extensive use of Tinto's theory in varied educational settings, some studies do not support Tinto's initial conceptualization. Some critics argued that Tinto's theoretical model needs to be revisited, specifically about students based on nonresidential campuses. Other critics further argued that although Tinto's theory considered college students' characteristics, it failed to reflect their cultural backgrounds (Schuh et al., 2016). However, Tinto's approach continues to improve the knowledge needed to understand better student departure in higher education (Terrell, 2013).

The Nursing Universal Retention and Success Model

The nursing universal retention and success (NURS) model (Jeffreys, 2022) is another classic model used to understand college student attrition better. This model provides an essential, valuable foundation, a guiding framework for early nursing student retention research and strategy design, and insights to identify areas for enhancement. This easily adaptable organizing framework has been used to understand the multidimensional process involved in student retention and success.

The model asserts the importance of the interaction of student profile characteristics, student affective factors, academic factors, environmental factors, academic outcomes, psychological outcomes, outside surrounding factors, and professional integration factors as crucial elements that impact retention decisions and persistence (Jeffreys, 2022). The NURS model is an empirically supported, easily adaptable framework utilized in nursing education to understand the multidimensional process involved in student retention and success.

The NURS model presents an organizing framework for examining the multifaceted factors influencing nursing student retention (Jeffreys, 2022). This model assists with identifying at-risk students, developing diagnostic prescriptive strategies that facilitate success, guiding teaching and educational research innovations, and evaluating strategy effectiveness. This framework is suitable for developing strategies that embrace a diversified worldview, addressing and actively involving the multiple stakeholders involved in student attrition This framework has been valuable in various undergraduate and graduate settings, over sixty nursing and college-wide professional development programs, and 70 published studies in the United States and abroad. The NURS model provides a panoramic and up-close framework to promote nursing student retention and success. In over 70 studies, results from factor analysis, correlational,

cross-sectional, longitudinal, descriptive, quasi-experimental pre- and postintervention, and qualitative designs continue to support the model components and their underlying assumptions.

Nursing Student Attrition

Nursing student attrition continues to be an issue of concern to all stakeholders, including higher education institutions, students, the government, and employers (Cheng et al., 2022). Although student attrition in nursing triggers a significant concern for nurse educators and deans of nursing programs, it is not a new phenomenon. Attrition is commonly defined as the departure from or delays in completing program requirements (Crane & Abbott, 2021; Tinto, 2012).

Student attrition involves withdrawal from the program, resulting in a difference between the number of students admitted at the beginning and the number of students who complete the program (Ascend Learning, LLC, 2012; Betts et al., 2017). Additionally, student attrition or academic failure always involves students who drop out and depart from the institution for several reasons and at various times, either voluntarily or involuntarily, officially, or unofficially, and early or late in the program (Caponnetto et al., 2021). When nursing students fail to complete their education, this problem negatively impacts the supply of registered nurses needed to fill bedside nursing staff, administrative, and teaching positions. Therefore, understanding and carefully addressing the phenomenon of student attrition is necessary to support students' completion of the nursing program.

Nursing Shortage and Attrition

Nursing students' untimely departure from school plays a significant role in the current and projected nursing shortage. With the aging population and the expanding societal demands of health care, more nurses are needed than those currently graduating from the various nursing programs (National Center for Chronic Disease Prevention and Health Promotion, 2022).

Unfortunately, high student attrition in nursing programs affects graduate nurse availability, compounding the nursing shortage problem (Kubec, 2017; Kukkonen et al., 2016; Priode et al., 2020).

Because the graduation rates from nursing programs continue to be of national concern due to the nursing shortage, accredited nursing programs must report program completion rates to their accrediting body. However, attrition rates are not commonly reported outside the institution (Barbé et al., 2018). The Accreditation Commission for Education in Nursing (ACEN) and the Commission on Collegiate Nursing Education (CCNE) expect nursing programs to maintain completion rates of 70% or higher to demonstrate program effectiveness. The ACEN's most recently published completion rates reported that accredited prelicensure baccalaureate programs averaged 74% (ACEN, 2015).

While this rate is 14% higher than the national graduation rate of 60% for students seeking a bachelor's degree at 4-year institutions (National Center for Education Statistics, 2016), higher nursing program completion rates are needed to meet society's increasing healthcare needs. Notably, the statistics compiled by the ACEN (2015) on program completion rates indicated the national student attrition rate is higher than 30%. In addition, on average, the attrition rates noted in research are 50% for baccalaureate nursing programs and 47% for associate degree nursing programs (Harris et al., 2014). It is essential to reduce nursing students' national attrition rate because of the many challenges this issue poses to all stakeholders involved, including educating the future generation of nurses in an aging society.

Reasons for student attrition have been challenging to identify because of the numerous factors involved. Among the multiple factors affecting and determining a student's decision to drop out or continue in program completion to graduation include academic and nonacademic

elements. A comprehensive approach through interventions aimed at the identified factors is essential in allaying students' decisions to drop out (Vidal et al., 2022). Therefore, to meet the stakeholders' needs, careful consideration must be given to all the multiple underlying factors affecting the concept of student attrition.

There has always been a connection between more education and earnings. Recently updated data from the United States Bureau of Labor Statistics indicated that staying in school is rewarding; the data emphasized that as workers' educational attainment rises, their unemployment rates decrease and their earnings increase (U.S. Bureau of Labor Statistics, 2022). The data further explains that individuals aged 25 and over with less than a high school diploma had the highest unemployment rate (5.4%) and lowest median weekly earnings ($592) in 2019 all education levels. Therefore, workers with graduate degrees had the lowest unemployment rates and highest incomes.

The increasing demand for postsecondary education also indicates the need to address the concept of the knowledge economy. Previously, the U.S. economy depended heavily on unskilled labor and primarily on producing physical goods. The knowledge economy concept suggests that the economy relies more heavily on a skilled workforce whose jobs require special knowledge or skills (Shoulders et al., 2020). The modern economy is comprised more of service industries and jobs that require thinking and analysis of data. The knowledge economy is characterized by a higher percentage of highly skilled employees; however, transitioning from an industrial economy to a knowledge economy is challenging.

For example, some workers lack the requisite skill sets to function in healthcare. Although some workers are, to some extent, productive, they need to retrain and obtain skills appropriate to the knowledge economy. To facilitate such transitions, companies must develop

more extensive on-the-job training programs and support employees in obtaining further education or training outside the workplace in a hospital setting or designated training site. Also, such subsidized training assists employees in attending university classes with tuition reimbursement or providing opportunities for learning new skills elsewhere (Corporate Finance Institute, 2022). The significance of the knowledge economy is evident in the healthcare sector, where hospitals are willing to invest in extensive on-the-job training programs/tuition reimbursement programs to support employees, like patient care technicians, to further their education. Therefore, the awareness of the knowledge economy helps elucidate the current push from politicians and the educational sector for more adults to earn a degree or certification to qualify for higher wages and be a part of the workforce.

Student attrition is multilayered, and this challenge attracts political, organizational, and societal interest for several reasons (Vassie et al., 2020). State and national policies influence students' ability to access necessary financial support and can make it easier or more difficult for students. Anecdotal evidence from minority students indicated that the application process for financial assistance is cumbersome and complex (B. Carson, personal communication, November 1, 2022). Despite crushed hopes of better employment and job availability, students who leave college before completing their degree programs retain substantial debt based on unpaid tuition loans. When students graduate from college, it promotes economic development for the community, state, and nation. Students at risk of attrition also deal with concerns about reliable social amenities, such as childcare and transportation, affecting their ability to progress smoothly through the nursing program (Carreira & Lopes, 2021). Organizationally, nursing schools' ongoing evaluation of student needs is crucial (Carreira & Lopes, 2021).

Additionally, nursing students dropping out or not persisting is associated with voluntary or involuntary reasons for departure. Voluntary attrition occurs when students no longer want to continue their studies within a study plan; they withdraw voluntarily from their programs (Bakker et al., 2020; Tarmizi et al., 2019). For example, De Leon (2018) identified six subthemes that described the reasons students depart voluntarily from school. These include:

1. Unrealistic expectations about the demands of the course or program,
2. Personal-family-social-academic conflicts,
3. Ineffective coping/disengagement defense mechanisms,
4. Financial difficulties,
5. Travel and relocation difficulties,
6. Wrong career choice.

However, De Leon (2018) concluded that of all these reasons, unrealistic expectations about the demands of the course were the primary reason students voluntarily departed from school. Involuntary attrition factors are associated with the students' inability to meet the academic needs of the course or program, resulting in temporary or permanent attrition depending on the program curriculum (Caponnetto et al., 2021). Consequently, the causes for involuntary attrition that result in forced exit from the nursing program must be evaluated.

Voluntary and involuntary attrition are micro-level factors linked to student characteristics (Caponnetto et al., 2021). Conversely, Mitchell et al. (2019) argued that attrition could not be relegated to an individual educational problem alone. Therefore, while research on attrition continues to provide an essential understanding of why students fail to complete a program, more research is required to explore related concepts of student retention.

Understanding these related concepts will help retain students in their programs and increase graduation rates, ultimately affecting the supply of nurses to the workforce.

When nursing students fail to complete the nursing program, it is a problem not only for the nursing programs but also for the nursing students, nurse faculty, and the reputation of the nursing program (Elkins, 2019). Even though institutions typically do not report attrition rates outside the institution, accredited nursing programs must report program completion rates to their accrediting body. At the same time, the approval of the nursing program by state boards of nursing, as well as the national accrediting organizations, such as the National League for Nursing Accreditation Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE), are an essential consideration for prospective students and other stakeholders. Importantly, prospective students look at the reputation of the nursing program to apply, meaning high student attrition rates and low rates for student completion of the program bodes negatively for admissions.

Factors Affecting Persistence and Student Success

College students' persistence and retention are crucial concepts associated with student attrition in higher education. Persistence rate is measured by the percentage of students who return to college at any institution for their second year. In contrast, the retention rate represents the percentage of students who return to the same institution (National Student Clearinghouse, 2022). Student persistence in college involves continuing postsecondary education enrollment, sometimes in one or multiple institutions (Seidman, 2012). At the same time, student retention involves what the institutions do to support students to graduation. These concepts are key factors that can help make or break the health of academic institutions, and addressing the sustenance of these concepts will assist institutions in meeting their goals.

Also, the National Student Clearinghouse reported national persistence and retention rates indicated that of the 2.3 million people who entered U.S. colleges and universities for the first time in Fall 2020, only 75% persisted at any U.S. institution by Fall 2021 (National Student Clearinghouse, 2022). The report demonstrates an increase of 1.1% over the previous cohort. An additional 8.6% transferred and continued enrollment at another institution by the second fall. Although this one-year gain is more than the historical average, the persistence rate is still below the prepandemic level (National Student Clearinghouse, 2022). At the same time, despite the improvement in overall persistence rates, first-time students' persistence declined sharply. Notably, the report indicated progress was uneven across institution sectors: community colleges and private for-profit 4-year institutions led to persistence and retention rate gains in 2022 compared with Fall 2019 (National Student Clearinghouse, 2022). Therefore, with the nation's current economic situation and the lingering effects of the COVID pandemic, students are reconsidering their academic, financial, and situational options for continuing their education.

Different metrics are utilized to measure institutional quality. The National Council of State Boards of Nursing (NCSBN) guideline indicated that among other metrics, graduation rates are a standard metric used to measure institutional quality (Spector et al., 2020). This guideline further indicated that graduation rates are a more helpful assessment tool than employment rates. Additionally, for nursing, the American Association of Colleges of Nursing (2018) requires a 70% graduation (or completion) rate, with some exceptions. Notably, the National League for Nursing Commission for Nursing Education Accreditation (NLN, 2016) allows programs to set their benchmarks and reach them for three typical academic years (Spector et al., 2020). Hence, encouraging student nurses to program completion and graduation is a crucial quality indicator for all stakeholders involved in nursing education.

Costs of Attrition

The costs of student attrition are multidimensional and tend to be a systematic concern for many higher education programs, including nursing programs (Deary et al., 2003; Wells, 2003, 2007). Donnell et al. (2018) explained that when nursing students drop out or require more than the prescribed length of the program to graduate, such students are said to be off track and tend to increase the funding revenue burden. In addition, Donnell et al. (2018) mentioned that if such students attended public nursing programs, taxpayers would pay more for each Registered Nurse produced by the program. When students drop out of college, they suffer the loss of a dream as their intended goal for graduation will be unmet (Lewis, 2020). Also, such students leave with unpaid tuition and without credentials for an appropriate job, suggesting that the intended career mobility for the student is impossible and student loan repayment to the financial institution is affected.

To effectively manage student enrollment, institutions' enrollment management offices routinely calculate the return on the investment made in recruitment, yield, and retention activities; these offices track cost per applicant, cost per enrollee, and net tuition revenue (Marthers et al., 2015). With declining numbers of high school graduates, competition between institutions is stronger than ever, so the cost to recruit a student will only increase (Marthers et al., 2015). At the same time, calculating the cost of attrition is not a widespread practice. Many enrollments management office’s view this as someone else's problem because the student departure occurs after the handoff of the first-year student and transfer classes. To better facilitate effective enrollment management, offices track whether the admitted student enroll and persist to graduation (Marthers et al., 2015). To incorporate such strategic-thinking enrollment strategies, enrollment managers in nursing programs need better awareness that the goal is not

just to admit, yield, and enroll but to create conditions and programs that support students' success and graduation (Marthers et al., 2015).

Student attrition is a concern in any institution of higher learning because of the costs incurred; such costs involve time, resources, and tuition for students, faculty, institutions, and other members of society (Schneider & Yin, 2011). The American Institute of Research's (AIR) five-year longitudinal study concluded that state and local governments spent approximately three billion dollars to help pay for the education costs of students who dropped out of community colleges (Schneider & Yin, 2011). Furthermore, Schneider and Yin (2011) asserted that the cost of the federal appropriations allocated to these students was estimated to be almost four billion dollars. Specifically, the cost for first-year higher education students who did not return for a second year was $1.35 billion (Schneider, 2010). Although the actual price of nursing student attrition is unknown, as there are many nursing programs, knowledge of the cost of student attrition in nursing programs is essential. This awareness will better equip the nursing leadership and state policy executives to set effective short- and long-term goals for reducing attrition and incorporate reductions into future accountability and financing strategies to address this concern. Constant revaluation of costs of student attrition is necessary for all stakeholders so that problems with preadmissions, nonacademic, and academic risk factors affecting nursing students' attrition are promptly addressed.

Nonacademic Factors Related to Nursing Student Attrition

Against this background of deleterious outcomes related to nursing student attrition, the nursing education literature has pointed to nonacademic factors linked with attrition. Among the many reasons for nonacademic attrition, students’ nontraditional status is crucial. College entry by "adult learners" (age 25 and older) started to increase in 2019 (Markle, 2015). The increasing

numbers of "nontraditional" students, who are older and typically have work, family, and other responsibilities, pose added challenges to their academic success (Hittepole, n.d.). Additionally, there is an increase in enrollment of students of color and first-generation students (i.e., neither parent attended college; Bill and Melinda Gates Foundation, 2020; Higher Learning Advocates, 2018). With this increase in enrollment of nontraditional students in university programs over the past 2 decades, there is a need to investigate factors that may affect their inability to succeed academically and persist in graduation.

Family Conditions

The most common challenge affecting many nontraditional students' completion rates is the likelihood of increased family responsibilities. Today's college students are parents with children, caregivers providing care to elderly parents, full-time employees, and retirees; this profile depicts an estimated 40% of the current undergraduate population at American colleges and universities considered nontraditional (CLASP, 2015). For example, a study by Forbus et al. (2011) reported that about 39% of the nontraditional student sample were married or living with their partner, in contrast to about 9% of traditional students. Also, Lovell's (2014) survey of nontraditional students indicated that parents with older children had significantly higher motivation levels and were more successful academically than parents with younger children. Additionally, research on the persistence of nontraditional students listed environmental factors, such as family responsibilities, financial status, transportation arrangements, and financial aid, as the leading factors that helped or hindered these students' ability to persist in their efforts toward degree completion (Jeffreys, 2015).

Similarly, Taniguchi and Kaufman (2005) found that nontraditional divorced students with young children were inclined to have problems completing their intended program

successfully. Nontraditional students have positive and negative family responsibilities that will require effective management during their identified program of study (S. Williams, personal communication, November 19, 2022). While some of these family obligations might support students' goals, some may be a distraction that would determine if the student departed or persists in school.

Financial Obligations

Nontraditional students have more financial obligations than traditional students and need to sustain employment with salaries that will afford a decent standard of living for themselves and their families (Hout, 2012; Woods & Frogge, 2017). Forbus et al. (2011) conducted a survey that found that 58% of nontraditional students depended on their income, while only 27% of traditional students relied on their income. At the same time, students of all ages who worked more hours off-campus tended to drop out before graduating (Gilardi & Guglielmetti, 2011). Financial stress is a reality that tends to affect nursing students' academic focus, sometimes resulting in a departure from school (P. Perryman, personal communication, November 19, 2022). As a result, nursing leaders must effectively manage nontraditional students' financial challenges so that this student population can complete their education successfully.

Technology Challenges

Keeping up with emerging technology is a problem for older nontraditional students who lack this necessary skill set (S. Ford, personal communication, November 19, 2022). Transitioning into postsecondary education is often a challenging experience for students, especially when accompanied by fears and anxieties about the use of technology. When such fears and apprehension multiply, it affects students' performance on written assignments, including navigating the internet for projects and utilizing student learning management systems

such as Blackboard or the Canvas system (Safford & Stinton, 2016). For example, the survey conducted by Darney and Larwin (2018) on 205 traditional and nontraditional college students indicated that nontraditional students face more technological learning barriers than traditional students. The study concluded that nontraditional students' fears and challenges must be identified, and appropriate resources provided to support these needs (Darney & Larwin, 2018) and providing nontraditional students with additional remediation and support will assist in alleviating students' frustrations that could lead to reasons for departure and nonpersistence in college.

Challenges of Nontraditional Student Attrition

Historically, nontraditional students have demonstrated a high attrition rate (Ellis, 2019). Nontraditional students are different from traditional students. Characteristics such as age (i.e., especially being over 24) have been the defining characteristics for nontraditional students (NCES, 2016). Nontraditional students have unique needs; among other things, these needs include timely instructor feedback, flexibility, accessibility, the convenience of scheduling classes, and family support (Remenick, 2019). At the same time, in many nursing programs, the nontraditional student population includes older students, second-career seekers, minorities, and men (Mooring, 2016). Older students often enter a nursing program with nonacademic challenges, like family obligations, work responsibilities, and other life circumstances, which can interfere with completing educational objectives (P. Perryman, August 21, 2022). Therefore, nurse educators and nursing leaders should identify these nonacademic and academic challenges. At the same time, developing effective strategies to help nontraditional students persist in nursing programs through graduation is vital.

Many factors influence nontraditional students' progression and completion of the nursing program. Some nontraditional students reenter nursing programs as transfer students (Mooring, 2016). Typically, nontraditional transfer students bring preconceived ideas of nursing education and how postsecondary education works. Previous negative academic experiences and the rigor of the nursing curriculum will further influence students' decision to depart or to progress to program completion. It becomes increasingly essential for faculty and nursing programs to know the characteristics of their enrolled students. While nontraditional students need to develop effective coping strategies and improve self-esteem and academic confidence required for program completion, nursing leadership will need awareness to create suitable programs for the students' successful program completion.

Student Attrition Among Nontraditional Students

Nontraditional students struggle with persistence in school for several reasons, often related to the unique needs and characteristics of this demographic of students. Ellis (2019) examined nontraditional student persistence in a single course and through related course activities. The study's descriptive data analysis suggested a significant relationship between the age group of the participants and their attrition in the activities. This study further indicated that the nontraditional students persisted even in their willingness to participate in the survey; many traditional students agreed to participate and did not follow through and complete the expectations. The findings suggested that nontraditional students persist in the short-term but not long enough to complete a degree (Ellis, 2019).

Specifically, the study concluded that nontraditional students persist short-term in single courses and related assignments but not long enough to complete a degree. Ellis (2019) suggested that recognizing the needs of nontraditional adult learners with early interventions in

degree programs is crucial: such programs provide critical initiative-taking interventions from the outset and throughout the program to address student retention and graduation. Overall, this group of students experiences a dilemma. That is, nontraditional students are motivated, interested, and capable and can focus on short-term outcomes but struggle with long-term persistence in school for several reasons, often related to the unique needs and characteristics of this demographic of students.

Nontraditional learners have a higher probability of dropping out and lower overall chances of graduating in the first 5 years of enrollment (Carreira & Lopes, 2021). Their motivation, family and professional background, social integration, and peer effects, more than their traditional counterparts, influence their dropout behavior and graduation achievement (Lopes & Carreira, 2020). There is a need for proper evaluation of the needs of traditional students and a measure for finding out if the student's needs for persistence to foster successful completion are being met. Therefore, nursing leadership must carefully consider educational policies for traditional students and nontraditional learners. Putting in place such effective national and state policies will also help address nursing students' attrition and support retention.

At-Risk Student Status

At-risk students' status is another nonacademic factor that sometimes affects students' academic outcomes. Socially, economically, or educationally disadvantaged students are classified as at-risk learners (Barbé et al., 2018; Ferrell & DeCrane, 2016; Horton, 2015). Characteristically, an at-risk student has difficulty completing a nursing course or program (Jeffreys, 2015; Schrum, 2015). A poor academic history places students "at risk" due to lack of academic preparation or decreased self-efficacy (Freitas & Leonard, 2011; Horton, 2015). The

at-risk student population poses some challenges to the leadership of nursing programs and must be carefully identified and catered to in any higher educational setting.

Identifying academically at-risk students in a learning environment is crucial to better supporting this category of student learners. At-risk students are more likely to be unsuccessful academically or drop out of school (Eitzen et al., 2016). Furthermore, "at-risk" students have been shown to have difficulty completing a nursing course or program (Jeffreys, 2015). These at-risk learners are confronted with academic and nonacademic deficiencies that affect their decision to persist to completion or depart before completion. The intellectual factors contributing to at-risk students' attrition in nursing programs include learning disabilities, poor study habits, test anxiety, a native language other than English, low critical thinking skills, and low technological competency to complete assignments and testing. These deficiencies have been indicated to affect the academic progression of at-risk students (Betts et al., 2017). Consequently, these deficiencies have resulted in stigmatization in that they are sometimes considered innate when they are situational deficiencies.

Improving diversity in nursing education is an essential ongoing topic of importance. In the healthcare sector, increasing diversity has been shown to improve performance and quality of care (Gomez & Bernet, 2019). To improve diversity in the nursing workforce that positively affects the quality of care provided to minority patients and underrepresented groups, leadership in nursing programs must increase the number of students from diverse backgrounds entering nursing programs (AACN, 2023). Identifying the benefits of diversity and an inclusive learning environment, needs to be supported with adequate resources in response to the number of risk factors identified in such students (Harris et al., 2014). Utilizing a self-assessment tool by faculty

advisors will be crucial in determining students' individual academic needs and evaluating a combination of factors is essential when identifying students at risk for attrition.

A reasonable argument could be made that colleges and universities must consider at-risk students while increasing nursing program enrollment to address the looming nursing shortage. Despite an increase in enrollment, attrition remains an issue. While there is an urgent call for higher education to create an inclusive environment, college environments must support accommodations for students to thrive academically (Barbé, 2018; Merritt, 2021; Pusey-Reid et al., 2021). As traditional and nontraditional students are admitted into nursing programs, tackling at-risk students' issues is crucial (Pusey-Reid et al., 2021). To support these students, colleges, and universities must develop new ways to work with at-risk students.

Although higher education literature continues to emphasize academic ability as the primary critical issue interfering with student success, students pursuing higher education are also considered at-risk for other reasons, including environmental and institutional factors (Horton, 2015; Pusey-Reid et al., 2021). Therefore, being mindful of students' academic abilities is essential when considering the at-risk nursing student population. Higher institutions must also assume more responsibility for supporting students to achieve their educational goals. Interventions, particularly early identification of at-risk students due to low reading comprehension scores, might need to begin before nursing school (Donnell, 2015). Therefore, the awareness of student and institutional factors affecting student attrition and implementing effective strategies for combatting these factors will assist in ensuring that a nursing student is successful.

Providing timely support and appropriate interventions affects the outcome of at-risk students. Kramlich et al. (2020) conducted a multivariate descriptive correlational study to

identify academic risk factors and develop strategies to promote academic success for timely progression to graduation and licensure. The study revealed that there is an increase in students identified as at-risk accessing collaborative interventions (Kramlich et al., 2020). These targeted interventions were collaboratively developed for the at-risk student by the core nursing faculty and the Student Academic Success Center (SASC) learning specialist.

Individualized interventions were also developed as a contract between students and faculty to include monitoring and accountability. Such systematic, targeted, and multifaceted remediation, when administered early and individualized, supported student success. Results of the study showed that for risk analysis, there was an increase, from 58% to 89%, in students who completed the program with their cohort after utilizing collaborative intervention. Program completion without delayed progression for at-risk students increased from 75.7% to 87.5%. At-risk students needing extra semesters to complete the program decreased from 21.6% to 6.3%, and students leaving the program due to persistent academic challenges decreased from 5.4% to 4.2%. First-time pass rates on the nursing licensure exam also increased from 87.9% to 97.9% (Kramlich et al., 2020).

The study concluded that students with combined reading and writing sub-scores of less than 150% on the admissions test were found to be at risk of failing the first-semester foundational nursing course (Kramlich et al., 2020). Additionally, student success in the foundational nursing course predicted success in other classes during the first two semesters. Moreover, this study noted that students needing targeted remediation and seeking academic support through tutoring or consultation with a learning specialist tend to earn satisfactory grades. Importantly, students identified as at-risk who accessed the designated success center services only once remained at risk. Of the students who accessed the collaborative intervention

services, 100% indicated modification of their study techniques, critical reading, and test-taking strategies, and two-thirds of the students felt that these improvements were significant to their success (Kramlich et al., 2020). This study's findings further emphasized the importance of the early identification of academically at-risk students and the development of an effective formalized, structured, evidence-based algorithm for the at-risk student population to support at-risk students in achieving academic success. Kramlich et al. (2020) concluded that consistency in identifying intellectual triggers, low writing scores on the admission assessment and course examinations, and other student behavior triggers are crucial for identifying students at risk of attrition.

This study aligned with findings from Merritt (2021), who claimed that their educational barrier is overcome when at-risk students receive individualized faculty support. Merritt's study findings showed that 90.3% of at-risk students successfully passed their courses and increased their final grades by implementing appropriate student sessions. Therefore, regular ongoing evaluation of at-risk interventions is vital for nursing programs; when such a program is well-coordinated collaboratively, students benefit, attrition rates decrease, and fewer students experience delayed progression or dismissal from the program.

Additionally, nonacademic, and academic qualities, such as time management, study skills, stress, and motivation, have been linked to the academic performance of at-risk students, leading to attrition (Rix et al., 2021). As a result of both students' academic factors and nonacademic qualities, students would require temporary or ongoing interventions to persist to graduation. Hence, enrolling at-risk students creates an inclusive campus, providing amenities, tools, and a student-centered supportive environment ensures this student population completes

the program. Therefore, identifying, understanding, and supporting at-risk students onward to graduation is vital.

Transfer Student Status

Transfer student status is another nonacademic factor that affects the academic outcomes of this population of students. The current higher education student population is highly mobile due to family reasons and work-related issues. Transfer students are learners who leave one institution before or after attaining a degree and enroll in another (Pretlow et al., 2020). Transfer students represent a large segment of the U.S. higher education student population. The American Council on Education (2023) reported that in the 2020–2021acadmic year alone, over two million students transferred to a new institution.

Students are transferring more currently from one higher institution to another. Furthermore, based on a study from 3,443 institutions, the NCES (2022) reported that in the Fall of 2020, the number of undergraduate students seeking degrees in postsecondary institutions as transfer-in students was 1,243,471. Understanding these students' reasons for transferring (e.g., laterally, vertically, or reverse transfers) is essential when formulating policies that support transfer students.

Transfer students typically differ from traditional students. Transfer students are older, have full-time or part-time jobs, support dependents, are financially independent, and are more likely to come from underrepresented backgrounds; such demographic attributes resonate more with nontraditional students (Paterson, 2022). Additionally, transfer students are confronted by peculiar challenges, including transfer shock, declining academic results as reflected by their GPAs, campus culture shock, and feelings of demotion (Ching et al., 2020; Gentsch et al., 2022). It is crucial to have efficient transfer structures because inefficiency in these structures increases

student debt, as students would spend more money without earning their degrees (American Council on Education, 2023). At the same time, when the transfer structures are inefficient, the broader U.S. economy cannot fill the workforce, particularly the nursing workforce. Therefore, since the population of transfer students is significant, colleges and universities need to be better prepared to meet the needs of these transfer students by identifying obstacles that can affect the completion of their programs at their new institutions.

Some nontraditional students reenter nursing programs as transfer students, meaning these students have been previously enrolled in other programs (Mooring, 2016). Transfer students sometimes bring negative previous educational experiences, which, together with the rigor of the nursing curriculum, can influence their persistence in the nursing program (Mooring, 2016). It becomes increasingly essential for nursing faculty and nursing programs to know the characteristics of all enrolled students. The nursing leadership needs awareness to develop suitable programs for the students' successful program completion. Therefore, transfer students must develop effective coping strategies, and improve self-esteem, and academic confidence for progression and the program's completion (Mooring, 2016).

Ching et al. (2020) found that students anticipated enjoying university life at the beginning of their studies. However, Ching et al. (2020) explained that the challenges transfer students experienced, compounded by the limited time of the 3-year study, forced them to develop coping strategies to reconcile and prioritize their preconceived negative notions. Study participants' high prioritization of academic performance restricted their university lives to the small world of the academic arena. This study identified nursing transfer students' challenges in adjusting to university study. At the same time, the study findings from Lazarowicz and McGill (2022) indicated that participants relied upon various support structures during their transition.

Although the study revealed that many students claimed the need for active and implied support at the community college and university levels throughout the transition process, study analysis noted two primary support agents. According to this study, the initial support agents were academic advising, indicating that this support was time-sensitive and designated as pretransfer and post-transfer advising support.

Additionally, another support agent identified was personal relationships. The study concluded that transfer students need appropriate resources, help, and strategies to navigate new systems to be successful at their new institutions. The study suggested the importance of making transfer students an institutional priority by having transfer-specific advisors support transfer students in pre- and posttransfer periods. This study concluded that advising-related activities, such as orientation programs and mentoring availability of advisors, would be beneficial to decrease student attrition and better promote transfer student success. Therefore, identifying this population is essential since transfer students are predominantly nontraditional students with peculiar needs. Consequently, it is crucial for nursing leadership to mindfully address transfer students' issues at the beginning and middle of their programs to ensure persistence to program completion and enhance learning experiences at the university.

To fully comprehend and effectively address student attrition, the knowledge of the personal attributes, particularly the demographic qualities and academic preparation and qualities of nursing students in the identified nursing program, is paramount. The importance of the interconnectedness of student attrition was highlighted in the findings of the Texas Center for Nursing Workforce Studies (TCNWS) that revealed that 50% of nursing students are nontraditional students, and the majority of these students (84%) are women (Texas Department of State Health Services, 2021). Since colleges and universities, to this point, have often catered

to traditional students and white men, there is a need to reconsider visions, missions, policies, and services to retain students.

Influence of Students' Perceptions

Students choose nursing for several reasons that could affect their intention to depart prematurely from the nursing program. One reason is the student's perception that they possess a caring and compassionate quality. Other students' main reason for choosing a nursing major is the job situation, as nursing offers job security by providing easy access to jobs and diverse opportunities in the career (Marcinowicz et al., 2016; Ten Hoeve et al., 2017).

Additionally, findings from Marcinowicz et al. (2016) asserted that job situation came out on top because students sought an occupation where they would not likely become unemployed as nursing was perceived as favorable for its ability to provide security of employment and a steady income. On the other hand, some prospective students choose nursing because their parent is/was a nurse, or every family member is in the medical profession (B. Carson, personal communication, November 19, 2022). Also, students choose the nursing profession because of the desire to work abroad, failure to get into another course, pure chance, and low admission requirements (i.e., relative to medical studies; Marcinowicz et al., 2016). Despite the many reasons prospective students have for choosing the nursing profession, nursing programs would benefit from a robust program to provide a realistic view of the nursing profession.

To understand male high school students' perceptions of nursing as a professional career choice, Palazzo and Erickson’s (2022) study findings indicated that male students scored higher (i.e., meaning they had a less positive perception of nursing) than female students on all scales. The study concluded that self-identified female individuals and gay and bisexual individuals have more positive perceptions of the nursing profession than other self-identified male

individuals (Palazzo & Erickson, 2022). Nurse educators should collaborate with high schools, schools of nursing, and nursing professional organizations to implement strategies to recruit male high school students. Literature suggests that there is often a discrepancy between beginner nursing students' expectations of their training programs and the nursing profession and what they encounter during their studies and practice (Ten Hoeve et al., 2017). Therefore, when such differences in students' perceptions, expectations, and practices exist, it is often at the root of students' premature attrition. Thus, with the projected continuing shortage of nurses and the connection of students' perceptions to early departure, nurse recruiters must expand the informational sources about nursing by facilitating recruitment and correcting misconceptions about nursing.

Role of Psychosocial Factors

Psychosocial factors can be described as a cluster of dynamic conditions such as social support, loneliness, marriage status, social disruption, bereavement, work environment, social quality, and social integration. Students sometimes face severe psychosocial challenges, such as financial distress, family separation, domestic violence, and child abuse, when in school (P. Perryman, personal communication, May 1, 2023). These challenges affect students' ability to focus on school, consequently affecting their academic performance. Anecdotal communication indicated that other significant psychosocial factors, such as a flawed concept of self, limited persistence, and inappropriate self-appraisal, influence student attrition (P. Perryman, personal communication, May 1, 2022). Additionally, unpleasant clinical placement, staff attitudes, and being male have also been found to affect student nurses' attrition (Merkley, 2016; Ten Hoeve et al., 2017).

Students' psychological state influences their decision to persist or depart from the nursing program. For example, resilience, particularly psychological resilience, is believed to be a critical characteristic of nursing students; this nonacademic factor is essential for students' persistence in nursing programs (Cleary et al., 2018; Jeffreys, 2015; Mcdermott et al., 2020). Environmental factors are external to the educational process; such factors may influence students' academic performance and decision to depart. Some of these supportive environmental factors are family financial and emotional support; others are more restrictive, such as employment hours and responsibilities, interfering with student studies and school scheduled programs (S. Mathew, personal communication, July 1, 2022).

Summary of Nonacademic Factors

The leadership of nursing programs should carefully consider nonacademic factors to reduce attrition rates. The unexpected sudden loss of a job by a student and family member, unexpected loss of carpool arrangements, and sudden daycare closures are all environmental concerns that contribute to students' attrition (P. Perryman, personal communication, October 19, 2022). Many students struggle to regulate their studies and their external lives. However, Adams and Blair (2019) asserted that suitable time management skills-are-crucial as they correlate with higher performance and lower stress and anxiety in higher education. Although addressing nonacademic factors could be complicated, it is essential to conduct additional research in this area so that students are better supported and empowered to complete the nursing program through practical assessment and the provision of effective and adequate resources.

Academic Factors Related to Nursing Student Attrition

Several reasons are connected to students' departure from nursing school before degree completion. Apart from nonacademic reasons, some students depart from the program for

academic reasons. A plethora of literature has laid out the educational factors contributing to attrition in nursing programs (Betts et al., 2017; Caponnetto et al., 2021; Donnell, 2015; Donnell et al., 2018). Betts et al. (2017) identified academic challenges as learning disabilities, poor study habits, test anxiety, English as Second Language (ESL), low critical thinking skills, and low competency with computer skills needed to complete assignments and testing as crucial. Particularly, nontraditional first-generation college students with dependents in the family to support and employment responsibilities struggle with poor study habits, inadequate computer skills, and low comprehension of the recommended textbooks (T. Williams, personal communication, Nov 1, 2022). Therefore, identifying academically at-risk students early in the nursing program and having a comprehensive outreach to support the needs of these identified students will be beneficial.

Standardized Tests Used in Nursing

There are some standardized tests utilized in nursing programs as entrance and exit exams. The standardized entrance exams are a valid predictor of success in a nursing program, including tests like the Health Education Systems, Inc. (HESI) test, Kaplan test, and Test of Essential Academic Skills (TEAS; Manieri et al., 2015; Wambuguh et al., 2016). For example, the HESI entrance exam (HESI Admissions Assessment Exam or the HESI A2) is used nationwide by nursing programs to assist in screening applicants (Elsevier Education, 2023). The HESI A2 comprises two sections--- an academic and a personality portion. As part of the academic portion, eight included subtests examine students' math, reading, vocabulary, grammar, biology, physics, anatomy and physiology, and chemistry abilities. At the same time, the personality portion of the exam consists of two sections: the learning style assessment and the personality profile (Elsevier Education, 2023).

Prospective nursing students when applying for nursing school (Granger, 2022) take the TEAS, a different standardized exam. The TEAS examines students' knowledge on various subjects to see if they are academically proficient enough to succeed in either an associate degree of Nursing (ADN) or bachelor' degree in Nursing (BSN) program. This standardized test examines students' knowledge in four general subjects: reading, math, science, and English and language (Granger, 2022). Universities utilize the TEAS test because studies have shown that students who perform academically well on this test have been linked to better academic outcomes in higher education. Both the TEAS exam and the HESI A2 exams are similar standardized exams. Notably, all these exams aim to determine if applicants possess the foundational knowledge necessary for learning complex nursing curriculum content. Therefore, nurse educators need a good knowledge of standardized tests in nursing to support student nurses adequately.

Admission Testing

Many health profession education programs, including nursing, have used predictive analytics to identify risk for academic difficulty among applicants and essential attributes for completing academic expectations needed to produce successful healthcare providers. A multivariate program evaluation by Reinhardt et al. (2019) linked a standardized admission exam to nursing program outcomes. In this study, Admission Assessment HESI (A2) scores showed a statistically significant correlation to the course grades (the higher the test score, the higher the course grade; $n = 350$). Using multiple regression models revealed that some HESI scores predicted course success. The HESI exams in anatomy and physiology (.164, $p = 0.02$), grammar (.166, $p = 0.02$), and math (.162, $p = 0.01$) were predictive of successful completion of the Health Assessment course. The HESI exams in anatomy and physiology (.158, $p = 0.02$),

grammar (.137, $p = 0.04$), and math (.256, $p < 0.0001$) were predictive of successful completion of the Pharmacology course.

The HESI exams in anatomy and physiology (.161, $p = 0.02$), grammar (.162, $p = 0.02$), and math (.255, $p < 0.0001$) were predictive of successful completion of the Pathophysiology course. Consequently, the greater the score on the HESI A2, the higher the grade was in the first-semester system. Therefore, nursing programs need ongoing assessment and effective management of admission assessment exams to support the learner's progress better. Wambuguh et al. (2016) showed that students' scores on the TEAS and science GPA predicted nursing program outcomes. The study suggested that students with TEAS ≥ 82 had an 8% greater probability of graduating and a 13% greater likelihood of a GPA≥ 3.25 than students with TEAS < 82. Despite some limitations of this study (Wambuguh et al., 2016), not addressing other nursing successes, such as empathy, caring, communication, professional collaboration, or resourcefulness, the survey measured success by utilizing program completion, nursing program GPA, and NCLEX-RN pass rates. The study concluded that preadmission TEAS scores and science GPAs are academic factors that help select students with a higher likelihood of success in nursing school programs. This study emphasized the need for nursing programs to carefully assess the incoming preadmission attributes of their student population and know what the institutions need to initiate as necessary supportive interventions to address the students' needs to set them up for success.

Furthermore, Gartrell et al.'s (2020) study findings indicated that preadmission cumulative GPA and prerequisite science GPA predicted success in the pathophysiology-pharmacology course. In contrast, preadmission cumulative GPA and the TEAS composite score predicted success in the health assessment course. This study indicated that preadmission

cumulative GPA and the TEAS composite score predicted success in the Kaplan Foundation's course.

Importantly, the study emphasized that higher preadmission cumulative GPA, prerequisite science GPA, and TEAS composite score predicted higher pathophysiology-pharmacology-KAPLAN, Inc. test scores. Preadmission cumulative GPA (B = 14.19, $p < 0.01$), prerequisite science GPA (B = 12.62, $p < 0.01$), and TEAS composite score (B = 0.48, $p < 0.01$) significantly predicted a higher Pathopharmacology-KAPLAN, Inc. test score (Gartrell et al., 2020). Ongoing practical evaluation by nursing school programs will identify academically at-risk students and assist in developing initiatives to support this student population; such initiatives will also help reduce students' attrition from nursing programs.

Marshall (2020) published a study to evaluate the relationship between preentrance factors and students' success in a nursing program. Findings revealed that the mean HESI A2 scores were higher in those students that completed the Nursing program than those that did not. Also, study findings revealed a statistical significance between gender and program completion, with females more likely to complete the nursing program than male students. Interestingly, the study indicated that the factors that had no significant relationship to successful completion were age, high school GPA, prenursing GPA, and holding prior licensure.

Additionally, a multivariate, correlational research design by Robert (2018) asserted a statistically significant relationship between preadmission examination scores and successful NCLEX-RN passage on the first attempt. This study also reported that program completion positively correlated with preadmission science grades and HESI A2 scores. Therefore, nursing leadership needs to mindfully calculate preentrance factors that could affect the successful completion of the nursing program.

Academic Selection Criteria

Nursing programs must constantly review their criteria for candidate selection into the program. In the last decade, nursing students have been selected based on two criteria: *cognitive-academic abilities* and *noncognitive abilities* (Zamanzadeh et al., 2020). At the same time, cognitive-academic abilities were assessed in four main dimensions: mathematics, language, natural sciences, and reasoning skills through standardized tests and academic records.

The wide range of noncognitive characteristics evaluated in nursing applicants includes morality, interpersonal communication skills, and psychological strength (Zamanzadeh et al., 2020). The quantitative selection criteria often include GPA, science grades, and standardized test scores, while the qualitative criteria may include personal statements, interviews, or emotional intelligence characteristics (Jones-Schenk & Harper, 2014). Of note, some research supports scholastic ability, GPA, and grades in science courses as indicators of early academic success in nursing programs (Abele et al., 2013; Lancia et al., 2013; Mthimunye et al., 2018). While there are no universally acknowledged nursing program selection criteria, each program decides to utilize either solely the quantitative selection method (i.e., GPA, standardized test scores) or qualitative selection process (e.g., entrance interviews, etc.) or sometimes a combination of the two methods. So, not having universally accepted selection criteria might not be advantageous to the selection process as this will affect the caliber of students admitted into nursing programs. Therefore, for better outcomes in nursing education selection and recruitment, nursing education policymakers and institutions need a well-designed program for student selection practices.

The nursing program selection process is essential. A poor selection process influences student attrition, failures on NCLEX-RN, the provision of practice-ready students qualified for

entry into the nursing workforce, and the future projected nursing shortages (Schmidt & MacWilliams, 2011). In addition, the nursing profession must rethink the selection process and not base it solely on academics because nursing is both a science and an art (Horkey, 2015). Effectively addressing these factors when applicants are selected is crucial and contributes to student attrition as well as ensuring that adequate nurses are available to meet the nursing healthcare needs of society.

Admission criteria plays a significant role in student attrition. The admission criteria vary across schools and disciplines; some schools choose applicants based on their GPA, standardized tests application essays, volunteer experience, interviews, and other ways (College Board, n.d.). Earlier research found that grades in science courses, nursing aptitude entrance examinations, and earlier work experience in health care can be used to predict success in undergraduate nursing programs (Zimnicki, et al., 2022). Most nursing schools' traditional admission process have solely been based on the metrics approach; however, with the increased diversity in the nation, the nursing workforce needed to reflect more diversity (DeCoux Hampton et al., 2022; Zimnicki et al., 2022). Consequently, the metric approach needed to be reevaluated to accommodate diversity as well as capture the applicant's strengths beyond the conventional metric approach.

Holistic admissions review (HAR) is defined as a balanced assessment of an individual student's likelihood of academic success in a collegiate environment (DeCoux Hampton et al., 2022). Apart from acknowledging the importance of an applicant's life experiences and personal qualities or attributes, the HAR strategy also reflects the research showing that quantitative metrics only are not sufficient in the prediction of success in a program or the nursing profession (DeWitty, 2018). A cross-sectional study evaluated the integration of HAR in 1,547 nursing

programs. The study claimed that only 43% of nursing programs considered holistic admissions criteria with rates varying regionally from 35% in the South to 54% in the West. Findings from this study noted that HAR integration exceeded 67% in only six states (DeCoux Hampton et al., 2022). Nursing programs need to consider their resources and context to plan effectively when integrating HAR (Mann et al., 2022). At the same time, it is equally important for admission committees to consider their own bias and the influence such biases may have on applicants to nursing programs (DeCoux Hampton et al., 2022; Zimnicki et al., 2022). Therefore, nursing programs have not widely integrated HAR despite evidence that academic metric use alone disadvantages qualified underrepresented students.

Associated Academic Concepts to BSN Nursing Program Attrition

While educators may rely on test scores and the like for admission and as predictors of completion, a set of conceptualizations interrelated with or allied with academic evaluation also contribute to attrition.

Study Management

Elkins (2019) categorized the reasons students fail to graduate from nursing programs into four key themes. These four themes included the importance of early intervention, the role family and work played in students' success, the importance of good study habits and time management skills, and the importance of faculty support. The themes from the findings of this study emphasized the importance of the student's interaction with both their academic and social environments as this determines whether the student will leave or persist to graduation. Elkins (2019) concluded that nursing programs must identify the incoming students' educational needs and develop student-centered supportive environments to address these needs effectively. Also, the study noted that developing a new course for first year students and newly admitted

sophomore nursing students will help prevent attrition and prepare students for success in the BSN program. Early intervention included identifying and referring academically challenged students for tutoring assistance as needed.

Some of the students commented that though school was tough, the nursing field is tougher in comparison to high school, and by the time they realized that they needed to study harder, it was too late (Elkins, 2019). The second theme included the role family and work played in students' success, and some study participants reported that lack of family support was detrimental to their completion of their nursing programs. Such students lacked both family emotional support as well as family backup for unexpected childcare emergencies. In addition, some students also reported that work scheduling conflicts with school attendance and creeps into study times. Thirdly, some study participants reported they lacked good study habits and time management skills as negative support factors for their success. Some students reported being available to read their textbook and prioritize what they need to study was an issue of concern. The last theme reported that some students indicated the need for faculty to demonstrate a supportive and caring role in academically advising students to better assist students to persist and complete the nursing program (Elkins, 2019). Also, the study noted that developing a new course for first year students and newly admitted sophomore nursing students will help prevent attrition and prepare students for success in the BSN program.

Perception of Career Suitability

Additionally, Canzan et al. (2022) conducted a qualitative descriptive study to investigate the reasons behind nursing students' attrition: (a) understanding that they were not suited to be nurses, (b) perception of missing/lack of psychological resources, (c) physical and practical resources needed to cope with both nursing school and the nursing profession successfully, (d)

inconsistencies between the image of the profession and the reality of the job, (e) feelings of disappointment from the experiences of the internship, and (f) perceived lack of support from the clinical teacher while going through difficult experiences (Canzan et al., 2022). The study further emphasizes some preadmission factors, such as students doubting the validity of their decision early and beginning to question their decision during the first semester. However, the turning point for the decision to leave the BSN program is more often represented by the first clinical placement. This study concluded that it is crucial to provide incoming nursing students with adequate counseling and prepare them with the essential tools to cope and excel during nursing training and in the future as health professionals. Among other things, this study recommended supportive mentorships and the intervention of peer leaders as an essential strategy to prevent avoidable dropouts (Canzan et al., 2022).

Critical Thinking Skills, Academic Performance, and Progression

Student nurses need critical thinking skills for progression and good academic outcomes in their nursing education. A longitudinal correlational study by Pitt et al. (2015) used the Health Sciences Reasoning Test to measure critical thinking skills in a sample (n = 134) of students at entry into a program and when exiting (i.e., 3 years later). Academic performance, clinical performance, and progression data were collected and examined as correlations with entry critical thinking scores. Pitt et al. (2015) reported significant relationships between nursing students' entry elementary thinking scores, academic performance, and progression. Pitt et al. (2015) asserted that entry critical thinking scores were positively related to academic performance across all 3 years of the study.

This study also found that students' entry essential thinking scores predicted a student's risk of course failure during the 3 years of study, with the strongest predictor of students' chance

of failing reported in the first semester of study. With the increasing complexity of patients' health conditions and technology in the healthcare sector, critical thinking is necessary to recognize essential cues, analyze these cues, and make clinical decisions and judgments.

Developing critical thinking skills is crucial for academic success in a nursing program. Yeung et al.'s (2023) systematic review of experimental and quasi-experimental studies examined the efficacy of team-based learning (TBL) in developing problem-solving ability and critical thinking skills among nursing students. In this study, Yeung et al. (2023) determined that TBL may be considered a potential active-learner-centered approach to developing necessary critical thinking skills in nursing education. Additionally, López et al. (2020) conducted a prospective quasi-experimental study that assessed students' knowledge before and after an educational intervention. Study findings indicated that the educational intervention improved the critical thinking skills of undergraduate students and had a more significant impact on men than women.

This finding underscores the need for educational interventions to enhance necessary thinking skills. Therefore, the results of this study support the early assessment of students' critical thinking skills, and the need for targeted support or remedial strategies based on the students' and cohort's needs is essential. Notably, these studies emphasize the importance of assessing entry critical thinking scores as a valuable way of selecting students who can best progress through a nursing program.

Students' Background Variables

The background variables of enrolled students include gender, age, marital status, ethnicity, employment status, family income, and the number of children; these variables significantly impact students' decision to depart from school before completion or persist to

graduation (Lott & Davis, 2018). These contextual variables have been considered essential nonacademic variables important to students' intentions to drop out of college or persist to completion (Biangone, 2020; Dries, 2020; Priode et al., 2020). With the interconnection between nonacademic and academic risk factors, an academically qualified student could be challenged by nonacademic factors. Therefore, careful consideration must be given to demographic variables that significantly impact students' decision to drop out and not complete the nursing program. Despite the highly competitive admission process for nursing schools, many applicants continue to apply, vying for limited seats each year.

According to new data from the American Association of Colleges of Nursing (AACN), student enrollment in entry-level baccalaureate nursing programs increased by 3.3% in 2021, despite concerns that the pandemic might discourage career seekers from entering the profession (AACN, 2022b). The baccalaureate curriculum of nursing programs is intense, and students must be in class and clinical 4 to 5 days per week, sometimes up to 8 to 12 hours a day (Betts et al., 2017). It is essential to carefully consider the background variables of enrolled students to effectively provide suitable needs to ensure they are set up for success (Betts et al., 2017). This consideration provides a solid foundation to assist the students in better coping with the program's intensity.

Nursing student attrition is a phenomenon that requires ongoing evaluation. Improving student outcomes with a focused, data-driven approach is essential. Effective results require careful planning and purposeful actions based on analyzing data, determining needs, developing targeted plans for improvement, and monitoring the implementation and impact of these plans (Education Service Center, 2020). Continuous school improvement is a dynamic process needed for sustainable improvement, and the work must be grounded in research-based best practices for

planning (Education Service Center, 2020). Therefore, although continuous school improvement that focuses on developing actionable plans that identify students in need and implement supportive programs that improve student retention rates is a constant challenge for nursing school leadership, it is crucial.

A View of Systemic Factors Influencing Program Completion

While nonacademic and academic factors, and the related associations under these categories, play a role in explaining attrition, in another sense, programmatic and systemic progression issues intervene in program completion. For instance, Wray et al. (2017) conducted a multivariate study of five cohorts of nursing students in a single institution. The study aimed to outline student characteristics at the entry to the program against Year 3 completion data and investigate non progression and successful progression.

In this study, the outcome measured was program completion. Program completion was categorized into three groups; firstly, successful completion of the program (student graduated), and secondly, noncompletion of the program for academic reasons (student left the program at any stage because of academic failure). The third group included students who did not complete their program due to nonacademic reasons. These nonacademic reasons included medical reasons, professional reasons, transfer to another university, transfer to another academic department, or other reasons (Wray et al., 2017).

Study findings reported that 76% (554/725) of those students included in the analysis completed their courses (Wray et al., 2017). The study also reported that there is some evidence that completion is more likely for those students with a Level 4/5 entry qualification (e.g., a foundation degree, diploma, or certificate in higher education) than those with a Level 2 entry qualification. The study findings further suggested two critical variables of significance: age (and

academic noncompletion) and domicile (and noncompletion for 'other' reasons). This study supports the argument that older students are more likely to progress than their younger peers. Therefore, with today's nursing student population increasingly becoming more of the older nontraditional students, it becomes increasingly paramount to identify the academic needs of this student population to support them in completing their nursing program.

The nursing shortage continues to be an ongoing concern. According to the Bureau of Labor Statistics Employment Projections 2019-2029 (AACN, 2022a), nursing is among the top occupations in job growth through 2029. Also, the RN workforce is expected to grow from three million in 2019 to 3.3 million in 2029, an increase of 221,900 (7%). The Bureau also projects 175,900 openings for RNs annually through 2029 when nurse retirements and workforce exits are factored into the number of nurses needed in the United States (AACN, 2022a). The nursing shortage in the United States is driven by numerous factors, including nursing student dropout, nurse burnout, rapid turnover, economic downturns, waves of retiring nurses, and increased healthcare demand (AACN, 2022a; Rege & Curnow, 2020). With the continuing challenges of nursing shortage, patient health and safety remain a concern.

This shortage of registered nurses (RNs) is expected to intensify as Baby Boomers age, and the need for health care grows. At the same time, adding to the complexity of the problem is that nursing schools across the country are struggling to expand their capacity to meet the rising demand in the availability of nurses for patient care, which is further complicated by the increase in complexity of emerging diseases. Specifically, the average age of working registered nurses (RNs) is 43.3 years, with less than 10% working RNs under the age of 30 (AACN, 2020a). With the pressing need for more nurses to meet growing healthcare demands (AACN, 2020a), the current situation of an aging workforce and a limited number of future nurses in the academic

pipeline is likely to lead to a nursing shortage that will become more critical over time (AACN, 2020a). Nursing faculty need to become literate in addressing nursing students' untapped potential to impact attrition, retention, graduation, and completion rates.

Though AACN (2022b) reported a 5.1% enrollment increase in entry-level baccalaureate programs in nursing in 2019, nursing school enrollment is not growing fast enough to meet the projected demand for RNs. Notably, AACN (2022b) reported that U.S. nursing schools turned away 80,407 qualified applicants from baccalaureate and graduate nursing programs in 2019 due to insufficient faculty, clinical sites, classroom space, clinical preceptors, and budget constraints. So, how do we then manage this public health concern of a nursing shortage before it becomes catastrophic? In the nursing education sector, to help address this public health concern of a nursing shortage, reducing the student attrition rate in our nursing programs and encouraging student persistence into graduation will be crucial.

The shortage and completion issues are apparent. However, whenever the problem of student attrition is stated, discussions of retention often exist in parallel. Invariably the issue of student attrition is focused on the problem of the students, which stems from students' deficiencies. However, Seidman (2012) asserted that higher institutions, specifically nursing programs, need to reconsider their impact and contribution to student retention. According to Hamshire et al. (2019), this ongoing challenge of student attrition demands a never-ending series of proposed solutions with variable and context-dependent success. Therefore, when considering the ongoing challenges of nursing student attrition, the role of nursing programs in student retention is crucial. As identifying students' academic difficulties and personal factors is essential, practical strategies to support these students' deficiencies are paramount.

The increased desire to enter the nursing profession in the United States (Eudy & Brooks, 2022) is followed by many qualified applicants turned away from prelicensure nursing programs (National League for Nursing [NLN], 2018). According to reports from NLN (2018) and AACN (2021), 38% of qualified applicants were rejected from associate degree nursing (ADN) programs, and 29% of qualified applicants were turned away from Bachelor of Science in Nursing (BSN) programs. Many applicants to select from should result in lower attrition rates; however, according to Horkey (2015), an average of 18% of students that enter nursing programs in the United States leave before graduation. Nursing education programs are experiencing high attrition rates worldwide, from 9% in Finland to as high as 50% in some programs in the United States (Kukkonen et al., 2016). Remarkably, program success contributes to the accreditation standards, which dictates the need for nursing programs to implement strategies to improve student success (Elder et al., 2015; Kukkonen et al., 2016). So, nursing programs and educators need to implement innovative approaches to address nursing students' attrition rates.

Innovative approaches to address the issue of increasing nursing students' attrition rates need continuous improvement. So, nursing programs and educators need to implement innovative approaches to address nursing students’ attrition rates, and these approaches need constant evaluation to determine their effectiveness. To begin with, nursing schools need to initiate a needs assessment that outlines the characteristics of students who are usually targeted for strategy delivery; such learner populations would include students from underrepresented minorities and students underperforming academically (Mitchell et al., 2019). While it is essential to begin the intervention to support student nurses' attrition issues, Mitchell et al. (2019) further iterated that the duration of these interventions is vital. The study asserted that most effective whole-program studies support cohorts at academic risk and preidentified via admission

testing or other screening processes, which need to be timed from preadmission to graduation (Mitchell et al., 2019). However, nursing programs must evaluate innovative strategies consistently with the ever-changing student populations.

There are practical, innovative approaches that nursing programs must consider. Earlier studies on student retention focused on narrow aspects of the retention problem. For example, some narrative reviews focused on the academic advising of specific minority populations, including Indigenous underrepresented minorities and English as an additional language student (Milne et al., 2016; Mooring, 2016). Alongside academic advising, retention efforts that instruct students about personal responsibilities are crucial. It is vital to be mindful of systemic issues in higher education that function as barriers to specific student groups (e.g., minorities, first-generation students, and economically disadvantaged learners) that significantly impact retention and student success. Murray (2015) stated the importance of faculty understanding their thoughts and feelings beyond conscious control, as this is crucial in developing a positive and inclusive student climate. Therefore, being mindful of systemic issues, like discrimination, socioeconomic, and lack of educational preparation, is essential.

Current recommendations will need comprehensive retention efforts to manage the attrition problem. Curriculum developers planning retention efforts need to implement the most effective strategies to address the existing retention gaps. Mitchell et al. (2019) recommended that systems need to be whole-program strategies initiated at the recruitment or preprogram phase and monitored to assist with licensure exam preparation. Also, retention goals should be guided by regional supply-demand needs for nurses; however, if an alternative pathway is needed for a specific group of students, their placement on that pathway should be due to academic deficit and not exclusively by race.

Second, nursing schools admitting students into programs who have some academic deficits must be supported. While retention strategies described in the literature are single program and multifactorial, with mentorship, study skills, literacy, and language approaches, and tutoring the most common components, on the other hand, whole-program strategies that provided pathway options to students based on reading assessments or other academic criteria were the most comprehensive and effective strategies presented in the literature (Mitchell et al., 2019). Additionally, such retention strategies must avoid being labeled with titles that include deficit language, such as "at-risk," to limit stigma perceptions or the sense of being "singled out" for personal characteristics (Mitchell et al., 2019). Therefore, support strategies should stimulate community building between students, peers, and faculty to avoid disconnects between the program requirements and the support service.

Nursing programs need strong relationships with support service delivery partners or to deliver the services within the nursing departments for context-specific effectiveness. Murray and Loyd (2020) discussed ensuring students feel welcome, seen, and supported. Racialized populations learn best when they feel cared for, respected, and valued (Murray & Loyd, 2020). Descriptors of nursing educators that promoted success for racialized populations identified by Ackerman-Barger and Hummell (2015) included: "being approachable," "caring," "support," and "boosting confidence" (p. 45). Whitcomb and Singh (2021) discussed the importance of providing appropriate mentoring, guidance, and support to break down the barriers these students encounter at no fault. These are all things nursing faculty need to remember as they interact with and educate students to assist with promoting their success.

Another important implication for the success of racialized populations is a diversified faculty group (Murray & Loyd, 2020). Having a diverse faculty group to mentor students can

have a powerful impact on the student's confidence level, success, and sense of belonging at the institution (Murray & Loyd, 2020). Importantly, Eudy and Brooks (2022) asserted that mentors engaging in courageous dialogue with historically underrepresented groups promote positive gains in networking, personal organization, study skills, and stress management, which ultimately support their goal attainment in nursing school.

Program Solutions Addressing Student Attrition

Many solutions could address student attrition, and creating a supportive environment is one—creating a classroom setting from the first day of class that fosters the expectation for collaboration, engagement, and inclusiveness (Barbaro, 2021). Creating such a collaborative environment from the onset by not letting students choose their groups for activities in class encourages students to work with new students across the semester. Providing student services support within the campus setting can also assist students academically, financially, and emotionally (Gaberson et al., 2015). Meeting with academic faculty in person has been shown to help many students struggling to access available support (Custer, 2016). These solutions build a learning community among the students and foster belonging to the campus community, commitment, and persistence in the program.

Another key solution to the ongoing problem of student attrition is faculty involvement. Faculty involvement is critical in supporting nursing students. When faculty participate in student engagement in the classroom and clinical setting, this creates a positive learning environment where students feel supported by faculty (Sportsman, 2020). However, the increasing number of students admitted to nursing education programs and nursing faculty shortages, which leads to high student-to-faculty ratios, create difficulty in forming meaningful connections with students in both the classroom environment and the clinical setting (Palese et

al., 2020). In addition, within the clinical setting, faculty must provide students with timely feedback (Jakubec et al., 2020).

Also, early identification of areas requiring improvement is the first step in assisting students in professional growth and improvement of clinical practice (Thilges & Schmer, 2020). Conducting screening before admission into nursing programs identifies students at risk of academic failure (Bulfone et al., 2021). Suppose early identification of at-risk nursing students occurs. In that case, faculty members can then address the diverse learning needs of the students, offer support, and direct students to support services available in the university setting (Jeffreys, 2022). Providing verbal and written feedback promotes student growth, and identifying areas that require further development reinforces safe clinical experiences. Therefore, creating such a trusting relationship with students and constructive feedback will help develop professional and personal growth for the students involved.

The emphasis on integration and socialization within the nursing profession is essential. Another recommended solution for addressing the many student attrition concerns is professional integration. Encouraging professional integration will enhance students' interaction with the social system of the college environment within the context of professional socialization and career development (Jeffreys, 2022). These include nursing faculty advisement and helpfulness, professional events, memberships in professional organizations, encouragement by friends in class, peer mentoring and tutoring, and enrichment programs (Jeffreys, 2022).

In addition, administrators need to recognize the faculty's influential role in influencing student persistence and success, provide faculty and staff development, assignments, incentives, and support, and have in place rewards that value student advisement and mentoring (Jeffreys, 2022). Therefore, well-coordinated, collaborative, well-planned, proactive, and ongoing

evidence-based strategies have the potential to positively influence student performance, persistence, retention, and success.

Conclusion

This chapter has elaborated on students' attrition and multiple factors influencing this phenomenon. While academic preparation and student academic acumen are often reasons articulated behind student success or failure, this chapters outlined the multiple arrays of nonacademic, academic, and potential educational systemic factors contributing to attrition or completion, research is needed to organize clusters of variables that potentially assist program leaders in selecting, mentoring, and intervening with a nursing student’s progression toward completion. While some researchers hypothesize single or simple clusters of variables, this scholarly study will investigate additional variables potentially contributing to completion. Additionally, this chapter explored some theory related to nursing students’ attrition as well as some program solutions addressing students’ attrition.

Chapter 3 will elaborate on the research design and methodology for this study. This chapter will also include the origin of the data sources, the independent and dependent variables from the dataset, and the data analysis procedures. Additionally, this chapter will explain the limitations of the study, delimitations of the research design, and ethical issues.

Chapter 3: Research Methods

This chapter presents the research methodology for the study. The first section offers details regarding the students in the sample, the second section presents the procedures for gathering data, and section three introduces the variables and their measures in the study. While section four identifies data analysis methods, the last section discusses ethical considerations, assumptions, and limitations. This study examined potential correlations between academic and demographic factors on nursing students' progression and completion at a university college of nursing (UCN). This quantitative retrospective study utilized archival data from a nursing program to answer research questions. These research questions were designed to illuminate future nursing student recruiting, mentoring, and programming models.

Respondent Sample

The sample for this study was drawn from archival data requested from UCN. The sample includes students who enrolled in a 5-year period from January 2017 to August 2023. To preserve data anonymity and integrity, the UCN Registrar provided de-identified student data presenting as many of the requested variables per student as allowed for confidentiality or other unstated reasons by their selection committee. Unfortunately, their guidelines did not provide typical academic preadmission data, nor time-sequenced data for admission, withdrawal, or graduation (other than first, and second-year courses and students graduating during the selected time period). Academic Progression was assumed because of successful course completions.

The college of nursing is a 130-year-old historical for-profit college with a 3-year Bachelor of Science in Nursing (BSN) program at 25 online campuses across the United States, online, and with multiple enrollment options. This study secured data from one of the 25

campuses known for providing opportunities to students with uncertain success predictors and to transfers who demonstrated first-year course success.

This study represented a large population of UNC students which heightens the possible generalizability to other populations similar to this sample (Andrade, 2020). The study included a total n of 1,382 students from the archival records. Because the data did not contain time series, some students still in progress were usable for some data analyses but were unusable for overall outcome analyses such as graduation and NCLEX pass rates. Still, other data were missing because of transfer cases or confidentiality according to the university policy on final archival deliverables. All sample data, some much smaller than the overall sample, were used where applicable. The overall N-size resulted in a sampling error of ±2.8% (Babbie, 2013).

Nationality included 1,344 from the United States (97.3%), 26 from African countries (1.9%), and 11 (<1%) from Mexico, the Philippines, India, and others. These later N sizes were so small they could not be used in the final analyses. Race included in this archival data included White 330 (23.9%), African American 583 (42.2%), American Hispanics 226 (16.4%), Asians 173 (12.5%), and 9 (69%) of Hispanics, American Indian/Alaskan Natives, and Native Hawaiian/ Other Pacific Highlanders. Students defined as At Risk included 291(21.1%) at risk and 1090 (78.9%) not at risk. Transfer students 866 (62.7%) included in the study are students who transferred from another state or national nursing program or another campus of the 23 campuses across the United States. Gender differences reported are 117 (12.9%) males and 788 (87.1%) females.

Table 1

Frequency Table Describing Variables

Independent variables	*f*	%	Valid %
Nationality			
U.S.	1344	97.3	98.1
African	26	1.9	1.9
Total	1370	99.2	100.0
Missing other	11	0.8	
Total	1381	100.0	
Race			
African American	583	42.2	44.4
American Hispanic	226	16.4	17.2
White	330	23.9	25.2
Asian	173	12.5	13.2
Missing other	9	69.0	5.0
Total	1381	100.0	
At-risk status			
Not at risk	1090	78.9	78.9
At risk	291	21.1	21.1
Total	1381	100.0	100.0
Transfer status			
Not a transfer	514	37.2	37.2
Transfer	866	62.7	62.8
Total	1380	99.9	
Gender			
Male	117	12.9	
Female	788	87.1	
Total	905	100.0	

Procedures and Design

The respondent data originated from an archival database representing UCN students entering from January 2017-August 2023, who graduated, withdrew, or are students in progress. The UCN research office provided de-identified data for anonymity. The data provided were carefully coded to clean up the extracted data, as there was missing data. The ethics committees involved were concerned about the release of data and security. Although multiple security assurances were presented, the Registrar's Office was only able to provide limited data. The data ranged across current and recent graduates but also included a large number of students currently in progress.

The data were downloaded in Excel and coded for statistical analysis. These recoded data were downloaded into SPSS 27.0. The procedures aligned with the use of secondary statistical data to explain student outcomes (Muijs, 2011) and input of social phenomena (Locke et al., 2010). The procedures were linked in ways to facilitate the correlations and comparisons required for the research questions.

Variables and Their Measurements in the Study

The independent variables for some of the research questions were at the nominal level. The independent variables measured nationality, race, gender, transfers, and at-risk students. At-risk students in this study are students with failures in any course, quiz/exam, Medication Calculation Exam, or those students with learning/technology challenges. Course grades for statistical sorting analyses were converted from letter grades to a numerical grade. An A grade ranged from 94% to 100% and was coded as 94, A- grades ranged from 92% to 93% and was coded as A-, B+ grades ranged from 89% to 91% and was coded as 89, B grades ranged from 86% to 88% and was coded as 86, B- grades ranged from 84% to 85% and was coded as B-, C+

grades ranged from 81% to 83% and was coded as 81, C grades ranged from 76% to 80% and was coded as 76, and F grades ranged from 75% and below and was coded as 75. Students with no grades were coded as missing data. Since one focus of the study was graduation outcomes, it should be noted again that current students have not been in the system long enough to be utilized for graduation, even though those in-progress students were included in other analyses were meaningful.

For context in this chapter, the graduation and NCLEX pass rates are presented. Graduation rates were anticipated in this study comparing with university withdrawals or drop-outs, data which unfortunately were requested but denied. Thus, the graduation comparisons in the next chapter's analyses are defined as graduating completions and nongraduates who are in progress. Because of data denial, I cannot separate progress from dropouts/withdrawals. For instance, statistical differences in grades for graduates and in-progress is compared, but not graduates vs. dropouts. Interestingly, the archival data on NCLEX pass rate revealed that 87 (6.3%) graduated but failed, 415 (30.1%) graduated and passed, while 49 (3.5%) have graduated but not yet taken the NCLEX. The remainder of the sample 829 (60.0%), is not usable since they are still in progress.

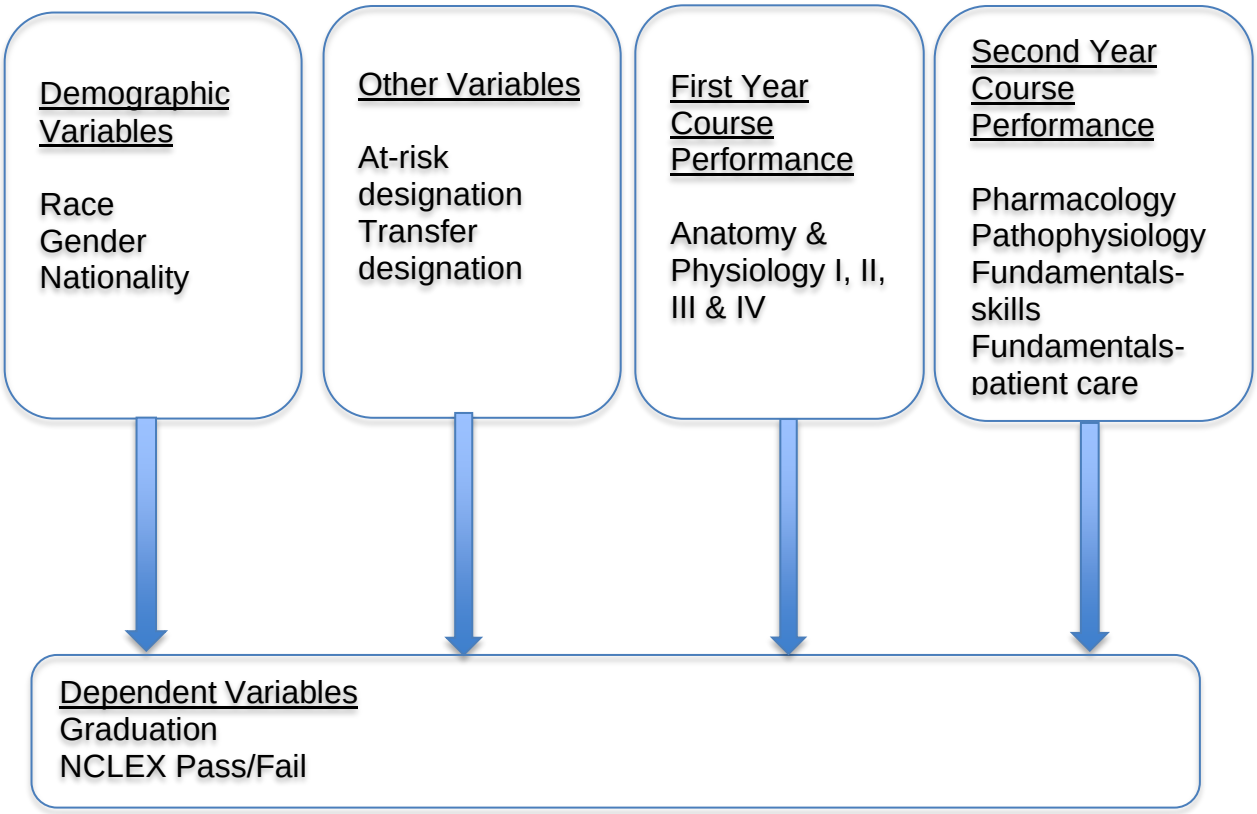
Methods of Data Analysis

Several appropriate statistical tests will address the RQs in each section of Chapter 4, utilizing the latest version of SPSS 27.0. The statistical tests applied included Frequencies, tests for Skewness and Kurtosis, Chi-Square association for categorical differences, *t* tests for Independent Samples, Pearson correlation, and two types of multiple correlations (Regression and General Linear Analysis for dichotomous independent variables). The p-values are set at .05,

as indicated earlier, and the data analysis was organized by each research question. Figure 1 illustrates a methodological guide to view the statistical data analytics systematically.

Figure 1

Model Guiding Statistical Data Analytics: Associations and Differences With Graduation and NCLEX



Ethical Considerations, Assumptions, Limitations

Ethical concerns and limits are meaningful methodologically to address research utilizing data from human participants, such as do good and not harm, and protection and confidentiality. This study protected all students' identities and confidentiality since the data were deidentified for anonymity and data collection began after Abilene Christian University Institutional Review Board (IRB; see Appendix) approved the study. The research office of UCN granted data

permission although limited in their final presentation for policy and perceived confidentiality reasons. All data were secured in a locked filing cabinet and stored on a secure, external hard drive. Finally, based on research by Terrell (2016), not only were data deidentified but they were stored in a locked filing cabinet and will be destroyed after 1 year. Overall, this study's approach, applying quantitative methods, respondent anonymity, administrative data selection from the Registrar, nonmanipulation of variables, and nonintervention by my presence with respondents, jointly offer meet the ethical elements for research validity (Jhangiani et al., 2019; Pajo, 2017).

Conclusion

This chapter describes sample profiles. Also, the chapter elaborated on how variables were measured, and how the data were procedurally processed, and analyzed. Additionally, the chapter identified ethical processes and limitation concerns.

Chapter 4 will study statistical associations of student classification (demographic, race, gender, nationality) and academic performance variables associated with academic progression, graduation rates, and NCLEX pass rates at a for-profit university college of nursing (UCN). The statistical analyses will be done to explore the relationship between the variables and each research question to answer the central question that explores potentially predictive of academic performance outcomes.

Chapter 4: Results

This study examined statistical associations of student classification (i.e., demographic and other) and academic performance variables associated with academic progression, graduation rates, and NCLEX pass rates at a for-profit university college of nursing (UCN). The analyses statistically compared and contrasted variables related to each research question to answer the central question that explores potentially predictive academic performance outcomes.

To complete an overview of the results, first, the research utilized language of the antecedent variables as independent and sometimes predictor variables, to mean they potentially could be a reason for a particular outcome. The independent variables in this study were students classified by nationality, gender, race, while transfer status, and being at-risk were other variables considered. Depending on the RQ, sometimes grades were the independent variables statistically associated with the dependent variables of graduation and NCLEX rates. The university defined the at-risk students reported in Chapter 3. The dependent variables represent targeted outcomes of academic performance (grades), graduation rates, and NCLEX pass rates.

Second, to add further context to the results, the university data committee did not offer admission, mental health designations, disability accommodations, or time-sequenced records. For whatever reasons not provided, a number of requested variables for this study were not offered. Consequently, the RQs necessarily are limited in their previous ambitious wording.

Third, prior to all statistical analysis, variables were tested for skewness and kurtosis by applying the +1.0 to -1.0 range test. None of the variables in the study revealed skewness or kurtosis outside these parameters except for nationality (skewness = 7.4), explained by the large concentration of U.S. students. Appropriate statistics, such as Chi-Square, correct for such an

anomaly. Also, *t* tests were examined for equality of variances with Levene's F-test and noted when relevant.

Variables Associated With Being At-Risk and Academic Performance

The first research question fundamentally asked, RQ1: What are statistically significant correlations between students' demographic categories (noted in pre-admission) and academic performance (grades) explaining students' likelihood of being identified as at-risk or in attrition at the end of the second-year courses? The statistical analysis of this question is organized first by examining student classification variables of nationality, gender, race, and transfer by at-risk designations. A second part to this question is best answered with the examination of at-risk students differentiating academic performance in second year courses.

Student Classifications and At-Risk Designations

At risk students were not significantly associated with nationality X^2 (3, N = 1,381) = .68, p = ns. Also, there was no significant difference or association of gender with being at-risk, X^2 (1, N = 1,374) = 1.49, p = ns. Additionally, no significant differences or statistical associations regarding transfer students, X^2 (1, N = 1,380) = 3.45, p = .063. However, as indicated in Table 2, although not meeting the .05 significance, an interesting result notes a marginal trend of nontransfers designated at-risk (41.9%) than transfers (58.1%).

Table 2

At-Risk Designation and Transfers

Transfer Student			At risk: Not at risk	At risk: At risk	Total
	Not a transfer	Count	392	122	514
		% within at risk	36.0%	41.9%	37.2%
	Transfer student	Count	697	169	866
		% within at risk	64.0%	58.1%	62.8%
Total		Count	1089	291	1380
		% within at risk	100.0%	100.0%	100.0%

Chi square = (1, *N* = 1,380) = 3.45, *p* = .063

Table 3 shows a significant difference among racial identities X^2 (7, *N* = 1,370) = 17.04, *p* = .017 indicating African Americans indicated a significantly higher rate of being designated at risk (50.5%) than not at risk (40.0%) whereas other groups were either not significantly different or statistically significantly different such as Whites' (26.0% rate of not at risk vs. 16.2% at risk).

Table 3

At-Risk Designation and Race

Race		Rate of at risk		Total
		Not at risk	At risk	
African American	Count	436	147	583
	% within	40.0%	50.5%	42.2%
Hispanic	Count	179	47	226
	% within	16.4%	16.2%	16.4%
White	Count	283	47	330
	% within	26.0%	16.2%	23.9%
Asian	Count	134	39	173
	% within	12.3%	13.4%	12.5%
Two or more races	Count	28	4	32
	% within	2.6%	1.4%	2.3%
Race, ethnicity unknown	% within	21	5	26
	Count	1.9%	1.7%	1.9%
Total	% within	1081	289	1370
	Count	100.0%	100.0%	100.0%

Chi-square = 17.05, $df = 7$, $p = .017$

Second Year Courses and At-Risk Designation

Table 4 reveals the answer to the second part of RQ1 indicating significant *t*-test differences for students at risk across second-year courses (mean differences ranging from mean differences 4.32 or greater).

Table 4

T Test of At Risk by Second Year Courses

Second year course	At risk	*N*	Mean	Std. Deviation	*T* test	*df*	Sig.
283 Pathophysiology	Not at risk	805	84.80	4.609	11.08	945	.001
	At risk	142	80.14	4.684			
293 Pharmacology	Not at risk	790	84.61	4.541	8.28	861	.001
	At risk	73	79.95	5.233			
224 Fundamental Skills	Not at risk	834	85.20	5.075	8.82	928	.001
	At risk	96	80.38	5.083			
226 Fundamental Patient Care	Not at risk	820	85.03	4.766	8.25	889	.001
	At risk	71	80.18	4.682			

Student Classifications as Predictors of Program Completion

This section reports the assessment results related to RQ2: What are statistically significant correlations between students' category/demographic and academic variables explaining students' program completion? Academic variables and program completion logically expand into three sub sections by sorting (1) academic progress (as in second year performance), (2) graduation rates, and (3) NCLEX pass rates.

Student Classification Variables Associated with Second Year Academic Performance

One important marker defining student progression is academic performance in second year courses and the relationship to student classifications. In that sense, the second part of RQ1 indicated above previously answered part of this RQ where at-risk students performed significantly less on all second-year courses.

Table 5 depicts nationality. This table indicates no significant differences regarding nationality apart from between the United States and Africans except on 224 Fundamental Skills where U.S. students (84.81) had a significantly higher mean than African students (81.32), $t(920) = 3.078$, $p = .002$. The *N* for the other nationalities was small and insignificant to run the *t* test.

Table 5

T Test Nationality by Second-Year Courses

Second-year course	Nation	*N*	Mean	Std. Deviation	*t* test	df	Sig. (2-tailed)
283 Pathophysiology	U.S.	916	84.09	4.930	-.695	938	.487
	African	24	84.79	3.551			
293 Pharmacology	U.S.	836	84.18	4.803	-1.124	854	.261
	African	20	85.40	4.083			
224 Fundamental	U.S.	900	84.81	5.268	3.078	920	.002
Skills	African	22	81.32	4.725			
226 Fundamental	U.S.	863	84.63	4.974	-.684	882	.494
Patient Care	African	21	85.38	3.324			

With the application of racial classification and academic progress, there were only two statistically significant differences using *t* tests across second year performance. African Americans compared with Hispanics (Table 6) showed slightly higher grades on Pharmacology for Nursing Practice 293 than Hispanics (84.44 v. 83.44, $t(482) = 2.138$, $p = .033$) and on 226 Fundamental Patient Care African Americans had a higher mean (84.70) than Hispanics (83.68) $t(488) = 2.065$, $p = .039$. All other racial comparisons were not statistically different.

Table 6

Second-Year Performance Comparisons by Race (African Americans vs American Hispanics)

Second-year course	Race	*N*	Mean	SD	*t* test	*df*	Sig.
283 Pathophysiology	African American	387	83.90	4.797	.447	534	.655
	Hispanic	149	83.69	4.879	.444	264.598	.657
293 Pharmacology	African American	345	84.44	4.721	2.138	482	.033
	Hispanic	139	83.44	4.567	2.168	262.866	.031
224 Fundamental Skills	African American	377	84.51	5.331	.480	521	.631
	Hispanic	146	84.27	5.173	.487	271.084	.627
226 Fundamental Patient Care	African American	345	84.70	5.080	2.065	488	.039
	Hispanic	145	83.68	4.798	2.114	285.118	.035

Third in Table 7, transfer/nontransfer students indicated no significant differences except for 224 Fund. Skills where transfers (84.51) scored significantly lower than nontransfers (85.20), t (927) = 2.48, p = .013.

Table 7

Transfer by 224 Fundamental Skills Grade Performance

Course	Transfer Status	*N*	Means	SD	*t*	*df*	sig.
224 Fund. Skills	Nontransfer	377	85.20	5.098	2.480	523	.013
	Transfer	146	84.51	5.357			

Finally, there were no statistically significant differences on second year grades for gender (p values ranged from .070 to .979).

Student Classification Variables Associated with Graduation Pass Rates

The second part of RQ2 asked if student classifications indicate program completion in this section referring to graduation pass rates. Nationality, as Table 8 reveals, a nonsignificant but marginal statistical difference of nationality with graduation rates indicates that African students' graduation is 79.2% compared with U.S. student graduation at 60.6%, X^2 (1, N = 898) = 3.34, p = .066.

Table 8

Nationality by Graduation

Graduation		Nationality		
		U.S.	African	Total
Not graduated	Count	344	5	349
	% within nationality	39.4%	20.8%	38.9%
Graduated	Count	530	19	549
	% within nationality	60.6%	79.2%	61.1%
Total	Count	874	24	898
	% within nationality	100.0%	100.0%	100.0%

Chi-Square = 3.374, $df = 1$, $p = .066$, trend is marginal.

Another potential predictor is gender, and the chi-square results were not significantly different $X^2(1, N = 499) = 12.55$, $p = .289$. A third independent variable shows significant differences among racial identities and graduation (Table 9). African Americans had a graduation rate of 54.7% compared with Hispanics at 56.7%, while Whites at 70.0%, and Asians were at 69.3%, $X^2(3, N = 859) = 18.12$, $p = .001$

Table 9

Differences Among Racial Identities and Graduation

Graduation	Race								Total	
	African American		Hispanic		White		Asian			
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Not graduated	168	45.3%	68	43.3%	65	30.0%	35	30.7%	336	39.1%
Graduated	203	54.7%	89	56.7%	152	70.0%	79	69.3%	523	60.9%
Total	371	100.0%	157	100.0%	217	100.0%	114	100.0%	859	100.0%

Chi-Square = 18.12, *df* = 3, *p* = .001.

A fourth analysis showed that at risk students represent an academic performance quality that was analyzed for significant differences in graduation rates. Table 10 revealed a statistically significant difference such that the at-risk students graduated at a significantly lower rate of only nine of 204 (4.4%) compared with the not at-risk students 548 of whom graduated at a 77.7% rate as indicated by $X^2(1, N = 909) = 358.44$, $p = .001$

Table 10

At-Risk Students by Graduation

Graduation	At-risk status				Total	
	Not at risk		At risk			
	N	%	*N*	%	*N*	%
Not graduated	157	22.3%	195	95.6%	352	38.7%
Graduated	548	77.7%	9	4.4%	557	61.3%
Total	705	100.0%	204	100.0%	909	100.0%

Chi-Square = 358.44, *df* = 1, *p* = .001.

Another independent variable, transfer status, revealed a statistically significant difference such that transfer students graduated at a higher rate of 65.8% than nontransfers at 54.1%, $X^2(1)$, $N = 908) = 12.55$, $p = .001$ (Table 11).

Table 11

Transfers by Graduation

Graduation	Transfer					
	Not a transfer		Transfer student		Total	
	N	%	*N*	%	*N*	%
Not graduated	163	45.9%	189	34.2%	352	38.8%
Graduated	192	54.1%	364	65.8%	556	61.2%
Total	355	100.0%	553	100.0%	908	100.0%

Chi-Square = 12.55, $df = 1$, $p = .001$

Student Classification Variables Associated With NCLEX Pass Rates

A third part of RQ2, focused on classification variables associated with NCLEX pass/fail rates. Results revealed no statistically significant differences or associations for NCLEX pass rates on nationality X^2 (3, $N = 502) = 1.99$, $p = .574$, gender X^2 (1, $N = 499) = 1.12$, $p = .289$., or for students designated as at-risk X^2 (1, $N = 502) = .15$, $p = .696$.

However, significant differences were associated with race and NCLEX pass/Pass, X^2 (3, $N = 472) = 23.28$, $p = .001$, pointing to the following rank order of pass rates: Whites 94.2%, Hispanics 85.9%, Asians 78.7%, and African Americans 74.1% (Table 12). Additionally, as Table 13 reveals nontransfer students pass the NCLEX (88.0%) at a significantly higher rate than transfer students (79.8%), X^2 (1, $N = 501) = 5.40$, $p = .02$.

Table 12

NCLEX Fail/Pass by Race

NCLEX	African American		Hispanic		White		Asian	
	N	%	*N*	%	*N*	%	*N*	%
Fail	45	25.9%	12	14.1%	8	5.8%	16	21.3%
Pass	129	74.1%	73	85.9%	130	94.2%	59	78.7%
Total	174	100.0%	85	100.0%	138	100.0%	75	100.0%

Chi-Square = 23.28, *df* = 3, *p* = .001.

Table 13

NCLEX Fail/Pass by Transfer

NCLEX	Not a transfer		Transfer student		Total	
	N	%	*N*	%	*N*	%
Failed	21	12.0%	66	20.2%	87	17.0%
Passed	154	88.0%	260	79.8%	414	82.6%
Total	175	100.0%	326	100.0%	501	100%

Chi-Square = 5.40, *df* = 1, *p* = .02.

Second-Year Academic Performance and Program Completion

This section investigates RQ3: What are statistically significant correlations between students' second-year academic performance measures and program completion? This question naturally sorts into two outcomes defining program performance: completion as graduation and NCLEX pass rates.

Academic Performance and Graduation Rates

Grades significantly distinguished graduates from nongraduates. As Table 14 indicates, overall grades differentiate graduation rates not only for second-year courses but for first- and second-year courses included in this study. While obvious, this finding nevertheless offers a baseline for overviewing grade interests. As Table 14 reveals, the means of seven of the eight

key courses are significantly different by 5 to 6 points average, with *t* tests ranging from 5.5 to 12. Although 256 A&P IV was not significantly different, the other seven courses indicated significantly higher means among the graduation group than the nongraduation group, again an expected outcome.

Table 14

Overall Grades and Graduation Rates

Course	Graduation	*N*	Mean	Std. deviation	*t*- test	*df*	*P*=
251 A&P I	Not graduated	92	78.78	5.431	5.44	16	.001
	Graduated	70	83.79	6.241			
*252 A&P II	Not graduated	48	77.73	4.593	7.09	115	.001
	Graduated	72	84.54	5.891			
255 A&P III	Not graduated	31	78.65	5.577	4.46	114	.001
	Graduated	85	83.91	5.643			
256 A&P IV	Not graduated	15	84.93	6.584	.03	104	.976
	Graduated	91	84.99	5.925			
*283	Not graduated	92	78.82	4.504	12.21	122	.001
Pathophysiology	Graduated	483	85.00	4.177			
293	Not graduated	16	77.19	3.692	6.99	525	.001
Pharmacology	Graduated	511	84.82	4.309			
224	Not graduated	36	77.75	4.292	8.13	548	.001
Fundamental	Graduated	514	84.79	5.063			
Skills							
226	Not Graduated	11	76.82	5.056	5.50	555	.001
Fundamental	Graduated	546	85.13	4.960			
Patient Care							

* *t*-test differences for unequal variances were used for 252 and 283.

Second Year Academic Performance and NCLEX Pass Rates

A second part of RQ3 showed second year academic performance linked with NCLEX pass rates. Table 15 also presents second year grades that significantly differ on NCLEX pass rates, thus providing another point of interest in the data. Overall, the pass rates among second year courses are not significantly different for 224 nor 226 but the rates are significantly differentiated with 283, t (442) = 2.88, p = .004) and with 293, t (456) = 2.97, p = .003).

Table 15

Academic Performance by NCLEX Fail/Pass

Courses	NCLEX fail/pass	*N*	Mean	*t*	*df*	sig.
283 Pathophysiology	Failed NCLEX	75	83.72	2.88	442	.004
	Pass NCLEX	369	85.21			
293 Pharmacology	Failed NCLEX	77	83.47	2.97	456	.003
	Pass NCLEX	381	85.04			
224 Fundamental Skills	Failed NCLEX	72	84.47	.14	457	.887
	Pass NCLEX	387	84.57			
226 Fundamental Patient Care	Failed NCLEX	83	84.29	1.57	489	.119
	Pass NCLEX	408	85.20			

Model Predicting Outcomes

The final Research Question, RQ4, inquired of an overall model predicting student classification variables and academic variables with successful program completion. Two analytical tools were applied. The first used Multiple Regression with course grades as the independent variables and NCLEX pass/fail as the dependent variable. A significant $R = .373$, $F(1/42), = p$ .013 indicates a model of Anatomy and Physiology I is the only significant predictor (after the constant, Tables 16-17). This form of regression modeling excludes variables that do not appear strong enough compared with the strongest predictor in the independent variable group or are omitted because of collinearity assumptions of R in linear modeling.

Table 16

Regression Model Summary

				Change statistics					
Model	R	R square	Adjusted R square	Std. error of the estimate	R square change	F change	df 1	df 2	Sig. F change
1	.373[a]	.139	.118	.366	.139	6.775	1	42	.013

a. Dependent Variable: NCLEX fail or pass.
b. Predictors: (Constant), 251 Anatomy & Physiology I

I also developed a predictor model using five nominal level (demographic) independent variables with NCLEX pass rates. By applying general linear modeling, the results in Table 17 indicate that race is the only significant variable to predict NCLEX pass rates among the five independent variables, Wald Chi-Square (1) = 447.95, $p = .001$.

Table 17

Tests of Model Effects

Source	Type III Wald Chi-Square	*df*	Sig.
Nationality	.594	1	.441
Race	20.116	3	.000
At risk	.247	1	.619
Transfer student	.787	1	.375

Dependent Variable: NCLEX Only fail or pass.
Model: Nationality, Race, At Risk, Transfer Student

Summary of Results

This chapter indicates that of the total n of 1,382 students from the archival records within 5 years from January 2017 to August 2023, predominately, the sampled nationality was from the United States (98.1%) with African countries (1.9%). Race included in this archival data included Whites (25.2%), African Americans (44.4%), American Hispanics (17.2%), Asians (13.2%), and (5%) of Hispanics, American Indian/Alaskan Natives, and Native Hawaiian/ Other Pacific Highlanders. At the same time, at-risk students included (21.1%) at risk and (78.9%) not at risk. Notably, transfer students comprised 62.8 %, and students who were not transfers were 37.2% of the data. Notably, 87.1% of students identified as female, while 12.9% were male.

The study results indicated there was no significant difference or association of gender with being at-risk. Additionally, the risk status of students was not significantly associated with nationality. However, transfer students at risk were slightly higher at 58.1% than students who did not transfer at 41.9%. At the same time, there was a higher number of students, 50.5%, identified as at risk in the African American race compared with other races.

This study highlighted that there was a very slight difference in at-risk students about second-year courses within the at-risk student population. It was noted that at risk students' mean grades were an average of 80 in the second-year courses (283 Pathophysiology, 293 Pharmacology, 224 Fundamental Skills, and 226 Fundamental Patient Care). In addition, the study's findings indicated no significant differences regarding nationality and second-year courses. The exception was noted between the U.S. and Africans except on 224 Fundamental Skills, where U.S. students (84.81) had a significantly higher mean than African students (81.32), t (920) = 3.078, p = .002.

This study's findings indicated an association between graduation and nationality. As depicted in Table 8, 79.2% of Africans graduated from the nursing program in comparison to 60.6% of United States nationals who graduated. In this study, graduation is evidence of completion. However, when racial identities and graduation were considered, 45.3% of African American, and 43.3% of Hispanics did not graduate, as indicated in Table 9. In this study, the percentage of students not at risk who graduated was 77.7%. However, 95.6% of the at-risk student population did not graduate from the program. Additionally, the study indicated that more students who were not transfer students did not graduate from the program. Therefore, the findings suggest there is a statistically significant difference since transfer students graduated at a higher rate of 65.8% than nontransfers at 54.1%.

This study highlighted that the independent variable, race, affects the student's ability to pass or fail the NCLEX. However, ranking the pass rates in the order indicated Whites 94.2%, Hispanics 85.9%, Asians 78.7%, and African Americans 74.1%, the failure rate in order showed that African American 25.9%. Asian 21.3%, Hispanics 14.1%, and Whites 5.8% were notable.

At the same time, despite the 88.0% pass rate in students who are not transfer students and 79.8% in transfer students, there are more NCLEX failure rates noted in transfer students.

This study suggested an association between graduation rates and overall grades of the selected first year and second-year courses. The students who graduated from the program maintained a mean score higher than 83% from the Anatomy and Physiology I, II, III, and IV to the second-year courses. On the other hand, students who failed to graduate struggled with low scores in Anatomy and Physiology I, II, III, and IV through to the second-year courses, except in A & P IV. In conclusion, this study further indicated that academic performance in the first- and second-year courses is a relevant pointer to a successful pass or failure of the nursing licensing exam, NLCEX.

Chapter 5: Discussion, Conclusions, and Recommendations

This concluding chapter summarizes the study's overall findings in light of interpretation, limitations, and concepts for future research, strategic implications, and conclusions. The increasing inability of United States nursing students to progress and ultimately complete their nursing program continues to attract political, organizational, and social interest for numerous reasons. This phenomenon not only places financial burdens on the students but results in revenue loss for the college and exacerbates the existing nursing shortage. Students' success in a nursing program is crucial for nurses to practice nursing. Therefore, this quantitative, retrospective correlational study exploring the effects of academic and demographic factors on nursing students' completion at a University College of Nursing (UCN) in the Southern United States stands as an evidence-based case analysis guiding future program decisions and student process areas.

The research sample consisted of 1,382 UCN students enrolled at the UCN from January 2017 to August 2023. These students either have successfully graduated from the program or did not graduate/withdraw by December 31, 2022. This study analyzed student classification and academic performance related to graduation and NCLEX pass rates. The findings reveal that student classification and academic variables significantly affect performance.

Summary of Results

The study evaluated various student classification and academic performance variables to examine statistical patterns linked with student outcomes of graduation and NCLEX rates. This section summarizes those findings with tenable explanations. Overall, 97% identified their nationality as United States, while racially Africans, American Hispanics, and Asians comprise

71.1% of the student population. Also, 87% of the student population evaluated from the data were female students. At-risk students were 21.1% and transfers were 62.7%.

At-Risk Designations

Understanding the effect of at-risk designation on academic performance, graduation, and NCLEX pass rates is essential. At-risk students demonstrably have been shown to have difficulty completing a nursing course or program, a point affirmed in previous literature (Jeffreys, 2015). While the at-risk sample (21.1%) of this study's data were at risk and more students, 78.9% of 1381 students were identified as not at-risk; it is essential to notice the associations. Although this study further revealed nonsignificant associations with nationality or gender, something of a racial pattern emerged, indicating that Black Americans were more at risk in this data in comparison with those students not at risk (50.5% v 40.0%). In this study, being mindful of the low n of other racial identities, the combination of African Americans, Hispanics, and Asians, a total of 80% are at-risk students, while at-risk status with whites was 16.2% in comparison.

This study revealed a statistical difference with at-risk students across second-year courses, Pathophysiology, Pharmacology, Fundamental Skills, and Fundamental Patient Care. At-risk students scored exceptionally lower in these second-year courses than students who were not at risk. This statistical difference was indicated by grade mean differences ranging from 4.32 or higher. These second-year courses are science-based courses linked to the preadmission academic knowledge of the student in the sciences, suggesting that a student coming in with a weak science background will struggle in these second-year courses.

The study noted that at-risk students' academic performance affects their graduation rates. A statistically significant difference was revealed: the at-risk students graduated at a significantly

lower rate of only nine of 204 (4.4%) compared with the not-at-risk students, 548 of whom graduated at a 77.7% rate.

The reasons for these outcomes might be explained in several ways. At-risk students are more likely to be unsuccessful academically or drop out of school (Eitzen et al., 2016). The social, economic, and environmental disadvantages of the African Americans, Hispanics, and other minority contributes to their classification as at-risk learners (Barbé et al., 2018; Ferrell & DeCrane, 2016; Horton, 2015). Identifying academically at-risk students in a learning environment and the academic and nonacademic deficiencies that affect their decision to persist to completion or depart before completion is crucial to support this category of student learners better. Understanding and providing for contributing factors such as learning disabilities, poor study habits, increased test anxiety, a native language other than English, low critical thinking skills, affordability of a reliable school laptop, and low technological competency skills to complete assignments and testing, is vital. These deficiencies have been indicated to affect the academic progression of at-risk students (Betts et al., 2017). It is relevant to support at-risk students because this aligns with the principles of equity and social justice in education and reduces achievement gap in education by creating a more inclusive learning environment (Barbé, 2018; Gomez & Bernet, 2019; Harris et al., 2014; Kramlich et al., 2020; Merritt, 2021; Pusey-Reid et al., 2021). Not overlooking this challenge but identifying intellectual triggers, low writing scores on the admission assessment and course examinations, and other student behavior triggers are crucial for identifying students at risk of attrition (Kramlich et al., 2020). Nursing program leadership must do more to engage and support at-risk students socially, economically, and environmentally.

Race

The results showed some notable findings regarding the effect of race on academic performance, graduation, and NCLEX pass rates. African Americans, compared with Hispanics, showed slightly higher mean grades in Pharmacology than Hispanics (84.44 v. 83.44), and in Fundamental Patient Care, African Americans had a higher mean (84.70) than Hispanics (83.68). Also, no significant differences were revealed between transfer/nontransfer students and second-year courses except for Fundamental Skills, where transfers (84.51) scored significantly lower than nontransfers (85.20). In addition, this study revealed significant differences among racial identities and graduation. African Americans had a graduation rate of 54.7% compared with Hispanics at 56.7%, Whites at 70.0%, and Asians at 69.3%. This study highlighted significant differences associated with race and NCLEX Pass/Fail. The study revealed NCLEX pass ranking in the following order: Whites 94.2%, Hispanics 85.9%, Asians 78.7%, and African Americans 74.1%. However, in reversal, when considering NCLEX Fail, 25.9% of African, Americans, 21.3% Asians, and 14.1% Hispanic students failed their licensure exam.

Some contributing elements to these outcomes might be explained in several ways. These statistical associations can be linked to exposure to the healthcare industry as a pharmacy technician, medical assistant, medication aide, or patient care technician. This exposure assists such students in connecting what they see in their part-time jobs to the content and skills taught in the nursing program's second-year courses.

The question is why the graduation rate is lower in African Americans, and Hispanics. The lower graduation rates can be linked to social determinants that affect the students financially. Financial challenges experienced by students often warrant them to work full-time or

part-time during the program to pay their tuition, living expenses, and accommodation to support themselves and their dependent families while in school.

Transfer Students

The study findings revealed 62.7% of the data were from transfer students. Being a transfer student affects students' academic performance, graduation, and NCLEX pass rates. Though a marginal trend, the study noted that 58.1% of transfer students were designated at-risk compared to 41.9% of nontransfers. At the same time, the study revealed that transfer students have significantly low grades in Fundamental skills. Other statistically significant associations were that transfers graduated at 65.8%, but with NCLEX pass rate, 79.8% transfer students compared to 88% of nontransfers.

The increase in transfer students in this study could be traced to the trend that the current higher education student population is highly mobile due to family reasons and work-related issues. Notably, some characteristics of transfer students, such as being older, having full-time or part-time jobs, supporting dependents, and being more likely to come from underrepresented backgrounds, are contributing factors to be considered (Paterson, 2022). These attributes pose peculiar challenges, including transfer shock, declining academic results as reflected by their GPAs, campus culture shock, and feelings of demotion (Ching et al., 2020; Gentsch et al., 2022; Mooring, 2016). At the same time, although only a marginal trend of transfer students being designated at-risk was noted in this study, nursing leadership must be mindful of the transfer student population's at-risk tendencies. Additionally, leadership must have coaching or liaison staff that follows up with students’ post-graduation to support graduated cohorts and ensure students are still focused on passing their NCLEX on the first attempt (Lazarowicz & McGill,

2022). Therefore, continuous check-in with the students and evaluation of students must be done at the start, mid-way through the program, and at the end until the licensure exam is passed.

Nationality

Students' nationality showed 97.3% from the United States, African countries 1.9% and < 1% of the students are from Mexico, the Philippines, India, and other nations. The students' nationality affects students' academic performance, graduation, and NCLEX pass rates. Students' academic performance in the second-year course indicated no significant differences regarding nationality except for Fundamental Skills grades, where U.S. students (84.81) had a significantly higher mean grade than African students (81.32). Nationality and graduation rates indicated a nonsignificant statistical difference; however, a marginal statistical difference was revealed with African student graduation at 79.2% compared with U.S. student graduation at 60.6%.

The study setting, the University College of Nursing, is a for-profit institution, and the high student tuition will be a factor when students enroll. Tuition affordability is a concerning challenge for students considering enrollment. Students must be financially capable of paying the tuition out of pocket or qualified for a student loan. Additionally, Fundamental Skills is the first nursing course in this nursing program to require increasing the confidence level of the students; this can be linked to the academic performance in the Fundamentals Skills course (Eudy & Brooks, 2022). Furthermore, the increased rate of graduation of African students' graduation can be connected to the fact that these groups of students pay a lot and have a lot at stake for them, so they are willing to push hard to the end, to get a good-paying job better to improve the quality of life of their families.

Regression Model

Multiple regression was used with course grades as the independent variables, and NCLEX pass/fail as the dependent variable. The study noted a significant $R = .373$, F (1/42), $= p$ .013, indicating that an anatomy and physiology I model is the only significant predictor. The study further applied general linear modeling; the results showed that race is the only substantial variable to predict NCLEX pass rates among the five nominal level independent variables.

Theoretical Underpinnings

These results lead me to question why these patterns emerged and what relevant theory helps explain several of these findings. Theories related to student dropouts and inability to progress and completion of a program in higher education are complex and multifaceted. Most theories utilized to understand this complex phenomenon's complexity better often involve a combination of individual, institutional, and external factors.

One overall theory, indicated in Chapter 2, is Tinto's theory, which suggests that student departure is influenced by academic and social integration into the institution. This theory advocates that students are more likely to persist when they feel connected to the academic and social aspects of their college experience. For example, a student who is not academically well integrated into an institution will not be familiar with the college's educational resources. Also, the social integration of a student with other classmates and other campus learning communities is essential for academic progression and completion in a nursing program. Considering Tinto's theory, academic and social integration become more vital when the class comprises different nationals with different racial identities, some with at-risk and transfer status. For instance, in this study, the minority student population experiencing cultural shock among internationals,

assimilation challenges to the culture of the nursing school, racial divides, and lack of historical or current structural support might have challenges with both academic and social integration.

Similarly, transfer students bring negative previous academic experiences from another nursing program, and such habits can influence the students' persistence in the nursing program (Mooring, 2016). However, encouraging transfer students to develop effective coping strategies and improve self-esteem and academic confidence will support their progression and the completion of the program (Mooring, 2016). Therefore, it is imperative to support students in integrating both academically and socially effectively, progressing to graduation and ultimately with an NCLEX pass.

Jeffery's Nursing Universal Retention and Success (NURS) model presents a framework for examining some factors related to successful outcomes (Jeffreys, 2022). This framework, focusing on retention and success, was prescriptive identification of at-risk students as one step. This step must be followed by developing diagnostic-prescriptive strategies to facilitate success and innovations in effective teaching strategies that will support these academically challenged students.

Underneath an application of Jeffery's NURS theoretical paradigm lies an explanation of the race, transfer, and at-risk findings that may be tied to Jeffery's and the profile of nontraditional student populations (Jeffreys, 2022). Although measuring traditional/nontraditional categories was not available in the database, a case can be made that the root of some of the negative outcomes for race, transfer, and nationality lies in a likely connection with being nontraditional students. The theory implies that a higher concentration of traditional students is always welcomed and offers fewer program challenges. However, more effort to recruit potential traditional students should not be neglected in light of heightened and

understandable university outreach to recruit nontraditional nursing students, efforts that have significantly increased.

Jeffery's NURS theoretical paradigm emphasizes the role of faculty in students' persistence, retention, and success in the nursing program is crucial. Students' daily interactions with faculty have been shown to have the potential to positively influence students' performance, persistence, retention, and success (Jeffreys, 2022). To ensure this happens, nursing school administrators must recognize the faculty's decisive role in influencing student persistence and success and provide faculty and staff development, assignments, incentives, support, and rewards that value student advisement and mentoring.

Nontraditional students present notable, built-in challenges as they are adults older than the typical age, attending classes part-time, and being independent of their parents (NCES, 2022). In addition, the NCES included attributes like working full time while enrolled, having dependents, being a single parent, and receiving a General Education Diploma (GED) or a high school certificate. Nontraditional students also consist of adults who are not straight from high school but have met the prerequisites, mature adults with life experiences wanting a career change, and seasoned adults who have been practicing in the healthcare sector as Licensed Practical Nurses, medical assistants, pharmacy technicians, and patient care technicians. Anecdotally, most nursing school students fit this nontraditional category (P. Perryman, personal communication, May 1, 2022).

Many nursing students must work to support their families while attending a full-time program, which may contribute to students' stress and inability to complete the nursing program. Nursing students' stressors could include academic demands, clinical responsibilities, and personal and family challenges (Labrague et al., 2018). Stress and coping theory is another

framework to assist in understanding how individuals perceive and respond to stressors (Wei et al., 2023). In nursing education, understanding this theory can help explore the stressors students face and the coping mechanisms they employ in persisting and wanting to complete a nursing program. Nursing programs should consider the characteristics of the enrolled student population to provide resources that increase their likelihood of successful program completion. Therefore, even though the enrollment of traditional and nontraditional students is impressive, providing a practical and supportive college environment for these students to continue onward to graduation should be the ultimate consideration.

Limitations

Even though quantitative research is compelling and valuable in providing numerical data and statistical analyses, this research type still has limitations. There are some common limitations noted in this study quantitative research. First, in quantitative research, there is the issue of the lack of depth and details about respondents (Creswell & Creswell, 2017). The challenge of nursing students' ability to progress and continue in the nursing program to graduation and finally to successfully pass the licensure examination is a complex process. Capturing the complexity of this phenomenon could be problematic because, in a quantitative study, this could be oversimplified by using measurable variables. This limitation means that the depth and richness of understanding may be sacrificed for numerical precision, as quantifiable variables, and numerical precision, as indicated in this research, might not be sufficient to adequately measure this complex phenomenon (Creswell & Creswell, 2017). For example, one of the study's limitations is the emotional aspects that affect students' ability to complete their nursing program and pass the NCLEX.

Secondly, the use of a quantitative design did not allow for the capture of the context. The contextual nuances surrounding a phenomenon were not captured because of the emphasis on numerical data in this study. For example, with the numerical focus in this study, the archival data may overlook the broader social, cultural, or historical context that could be essential for a comprehensive understanding of the phenomenon being studied (Creswell & Creswell, 2017).

Thirdly, quantitative research often relies on predefined variables. Independent and dependent variables guided this study in addition to closed-ended questions (Creswell & Creswell, 2017). Using these predefined variables is another limitation of the study as this does not make for investigating the nursing students' perspectives and experiences. In addition, the independent variables had to be adjusted to accommodate the research committee allowances of the study site. The research committee headed by the study setting's provost and registrar had stringent policies to be followed cutting off data access the researcher had requested.

The initial intent of the archival data for registration and enrollment purposes was also a limitation. Despite these limitations, the independent and dependent variables and the research questions were adjusted accordingly to make allowance for these limitations. In that regard, the data obtained did not offer a time sequence of who dropped out, who was labeled at risk and when they may have received mentoring or intervention, any types of intervention strategies that might have been used, and the like. These features would have allowed me to sort out more potential remediation and causality to explain the outcomes.

Implications and Recommendations

These findings document that categories related to student success are not shattering new science. In many ways, previous research stated similar findings. However, this research is confirmatory, not unlike studies that replicate scale factor analyses and yet still produce the same

or similar scale factors. What uniquely stands out in this study is the university case specificity, such as the importance of categories UCN experiences and must confront. We might overlook potential university policy or student-based reasons for outcomes without such specificity. Research like this offers security, knowing the essentiality of these evidence-based profiles in a particular system where complex data can awaken intervention solutions.

This study's demographic variables were nationality, race, and gender. Study findings indicated that race in this archival data included Whites (25.2%), African Americans (44.4%), American Hispanics (17.2%), Asians (13.2%), and (5%) Hispanics, American Indian/Alaskan Natives, and Native Hawaiian/ Other Pacific Highlanders. Since study findings suggested that over 70% of the student population are minority students, it is highly recommended that more initiatives be geared toward supporting minority students in nursing programs. This study implies that it is relevant in revealing the disparities in educational advancement based on demographics such as nationality, race, and gender explored in this research.

Graduating from a nursing program and passing the NCLEX is crucial to the student, the nursing program, and the profession. The significant difference between racial identity and NCLEX Fail/Pass is vital. It could be linked to the need for robust interventions that will adequately support the minority in the academic progression to graduation and after to ensure this population of students continues to pass their NCLEX and further on to practice as nurses. Also, the significance of the academic performance in Pathophysiology and Pharmacology must be followed up on as indicated. Additionally, the significant association between NCLEX Fail/pass and Transfer needs to be carefully considered. Lastly, the significance of the student's academic performance in Anatomy & Physiology 1 and NCLEX Pass/fail must be regarded as in both transfer and year one students.

All these significant associations further emphasize the importance of maintaining and continuing with the availability of support academic interventions until students pass their NCLEX and are practice ready. Also, this study implies that revised or new models are essential for the informed decision-making necessary for nursing colleges to provide academic support services, resource allocation, and program improvements based on identified patterns and associations. Evidence-based decision-making ensures that decisions that inform nursing education processes, practices, and policies are grounded in empirical findings (Damschroder et al., 2009; Grol et al., 2013).

When the University College of Nursing understands how demographic and academic factors correlate with academic progression, institutions can tailor support services to the specific needs of different student populations, contributing to increased retention and success rates. Early identification of at-risk students based on demographic and academic variables can lead to targeted interventions, mentoring programs, or proper disbursement of academic resources (Bettinger & Baker, 2014; Tinto, 1997). Therefore, institutions can use data to assess the effectiveness of their educational programs and identify areas for improvement, which ultimately contributes to ongoing quality enhancement in nursing education.

The study setting informs benefits from reviewing current initiatives for minority students and infusing newer initiatives such as Community Outreach and Partnerships, Mentorship Programs, Retention and Support Programs, Holistic Admissions Practices, as well as Financial Aid and Scholarships programs (Blake-Beard et al., 2011; Hiss et al., 2019; Page & Scott-Clayton, 2016; Terenzini et al., 1996). Therefore, addressing and putting in place appropriate initiatives will be necessary to support the minority student population of this college of nursing.

Notably, 21.1% of at-risk students and 78.9% were identified as not at risk. In this study, there was a higher number of students, 50.5% identified as at risk in the African American race compared with other races. Even though most higher education institutions have some initiatives for at-risk students, the University College of Nursing utilized in this study will benefit from having an ongoing process that regularly evaluates at-risk student initiatives to ensure that they match the needs of the currently enrolled nursing students.

Providing a robust support base for academically at-risk students is crucial. The College of Nursing utilized in this study will benefit from a compelling need assessment process that identifies requirements to support the at-risk student population in this study. Some common interventions that would be essential are setting up presemester workshops on study skills, time-management, and goal-setting workshops, encouraging the formation of learning communities, establishing peer tutoring and mentoring programs, early alert systems, well-funded academic/counseling programs as well as an educational support program (Bettinger & Baker, 2014; Kim & Saxberg, 2017; Rutschow et al., 2018; Schippers et al., 2017; Yeager et al., 2016; Zhao et al., 2005). In this study, although the students not at risk graduated 77.7%, 95.6% of the at-risk student population did not graduate from the program. Additionally, since this study indicated that academic performances in the first- and second-year courses are a relevant pointer to a successful pass or failure of the nursing licensing exam, NLCEX, putting these workshops in place would immensely benefit both first- and second-year students in the college of nursing as they progress in the program.

A well-managed academic advising team is crucial. Such an academic advising team includes faculty mentors for small groups of students of specific minority populations, including Indigenous underrepresented minorities and English as an additional language student (Milne et

al., 2016; Mooring, 2016). Alongside academic advising, retention efforts that instruct students about personal responsibilities that ensure success as they persist in the program will be crucial. At the same time, it is vital to be mindful of systemic issues in higher education that function as barriers to specific student groups (i.e., minorities, first-generation students, and economically disadvantaged learners) that significantly impact retention and student success. Murray (2015) stated the importance of emotional intelligence in faculty understanding their thoughts and feelings beyond conscious control, as this is crucial in developing a positive and inclusive student climate. Therefore, addressing systemic issues in higher education and adequate funding of the academic advising unit will be essential and imperative in supporting the at-risk student population in this nursing college.

Recommendations for Future Research

Further research will be needed to explore more demographic variables that affect nursing students' academic progression and completion of the nursing program. Investigating additional academic variables will be beneficial. Time-sequenced variables with measures to discover what students drop out at what point, and any intervention or mentoring strategies need to be analyzed in future studies. A broader scope of demographic and educational variables will provide additional insight to suggest more initiatives to support at-risk and transfer students in the first- and second-year courses and more so until graduation. Programs should innovate as many reasonable student success interventions, mentoring, and pro-choice applications as possible. In turn, innovations should be evaluated for effectiveness. Methodological comparisons of field experiments include experimental-control group design or other sophisticated comparisons (i.e., Solomon 4-group design, etc.), which, in any case, go beyond simple, intuitive observations upon which policy is predicated.

Summary and Conclusion

This retrospective study focused on the correlational effects of academic and demographic factors on nursing students' progression and completion at a university college of nursing. The independent variables investigated in this study (nationality, race, gender, at-risk status, transfer status, and second-year nursing courses) must be regularly evaluated with program outcomes like graduation and NCLEX pass to ensure the University College of Nursing implements appropriate indicators. Therefore, addressing these concerns will support nursing students in progressing on time and graduating with the ultimate goal of being licensed registered nurses.

This study aligns with previous research emphasizing the importance of early identification of academically challenged students. This study highlights the relevance of each nursing program knowing the characteristics of their newly enrolled and transferring students to adequately identify new at-risk students early. Significantly, suppose adequate support is not provided for this population of students; in that case, it affects the educational outcome of the nursing school in terms of academic progression, graduation from the nursing program, and, notably, the passing of the licensure examination. Therefore, this is another meaningful way to support the nursing workforce, as the current and predicted nursing shortage is a crucial problem.

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Appendix: IRB Approval Letter

Date: 9-8-2023

IRB #: IRB-2023-178
Title: The Correlational Effects of Academic and Demographic Factors on Nursing Students' Attrition, Progression, and Completion at a University College of Nursing
Creation Date: 7-27-2023
End Date:
Status: Approved
Principal Investigator: Adebusola Obafemi
Review Board: ACU IRB
Sponsor:

Study History

Submission Type	Review Type	Decision
Initial	Exempt	No Human Subjects Research

Key Study Contacts

Member Carley Dodd	Role Co-Principal Investigator	Contact [redacted]
Member Adebusola Obafemi	Role Principal Investigator	Contact [redacted]
Member Adebusola Obafemi	Role Primary Contact	Contact [redacted]