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AN EXAMINATION OF THE RELATIONSHIP BETWEEN ASSOCIATE DEGREE PROGRAM PREADMISSION GRADE POINT AVERAGE (GPA), AMERICAN COLLEGE TEST (ACT) SCORES AND DEGREE COMPLETION AND SUCCESS ON THE NATIONAL COUNCIL LICENSURE EXAMINATION-REGISTERED NURSES (NCLEX-RN)

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AN EXAMINATION OF THE RELATIONSHIP BETWEEN ASSOCIATE DEGREE

PROGRAM PREADMISSION GRADE POINT AVERAGE (GPA) AND STANDARDIZED

TEST SCORES AND DEGREE COMPLETION AND SUCCESS ON THE NATIONAL

COUNCIL LICENSURE EXAMINATION-REGISTERED NURSES (NCLEX-RN)

by

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Dedication

I dedicate this research project to my wife Hannah. You are the most beautiful, understanding, hardworking, loving, caring, motherly, energetic, thoughtful, charismatic, inspirational, forgiving and nurturing wife that I could ever dream of sharing my life with. Without you, none of this would be possible. I am so thankful for all of your love and support and I look forward to raining our beautiful Sawyer together.

Abstract

AN EXAMINATION OF THE RELATIONSHIP BETWEEN ASSOCIATE DEGREE
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Associate Degree Nursing programs in Alabama have more applicants than available

spots, making them highly competitive programs to gain entry. The community colleges that

offer these programs are facing many challenges including performance based funding, open-

enrollment policies and high attrition rates. Given these conditions, program directors institute an

application grading process in an effort to select applicants whom the programs believe are most

likely to graduate and to be successful on the NCLEX-RN licensure exam. This study examines

the relationship of the American College Testing (ACT),) and students' pre-admissions GPAs in

an attempt to interpret which academic factor makes a better predictor of student success. The

study revealed that GPA was the only statistically significant indicator for student success in

both program completion and NCLEX-RN pass on first attempt.

Keywords: Student Success, Alabama Community College Nursing, ACT Scores, GPA

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Chapter 1: Introduction

Introduction

Various academic measures and scores are used as a benchmark to facilitate admission of students into higher learning programs. In this case, Associate Degree Nursing (ADN) programs utilize the Test of Essential Academic Skills (TEAS), American College Test (ACT), and Grade Point Average (GPA) scores to admit students into the program. According to studies, as reported by Auerbach and Staiger (2017), there is a demand for registered nurses (RNs) projected to grow in the coming years significantly. This demand cannot be achieved unless efforts are made to ensure more students pass the National Council Licensure Examination-RNs (NCLEX-RN), which is the licensing examination to practice nursing and currently has a failure rate of 16% of all students who attempt the exam. Grace (2017) argued that the TEAS, ACT, and GPA scores used as prequalification tests for the nursing programs directly affected the success rate of students in this program and that enrollment models for this program can be based on this relationship to reduce student failure.

In the current study, I attempted to identify the relationship of each prequalification measure with success in the program in a bid to develop a model to admit students into the program with a higher rate of success than the current rate to meet the demand for more RNs in the foreseeable future using Bloom's (1976) theory of school learning, which asserts that the variations in student learning can be explained by a student's learning history and the quality of instruction that they receive. I individually examined the relationship between each prequalification criteria and the passing of the NCLEX-RN exam to better understand how the relationship can be utilized to increase the chances of success in the program. I utilized the State of Alabama as the test subject since it has a very high shortage of RNs as compared to other

states and its implemented performance-based funding can lead to severe economic issues if the current underperformance in the nursing program's achievement is not mitigated.

Problem Statement

The demand for RNs in Alabama is projected to increase significantly from 2016 to 2026, surpassing the current number of trained, licensed RNs in the state (Auerbach, & Staiger, 2017). It is estimated that demand will increase a full 15% more than the other occupations, and a shortage of 12,600 nurses in Georgia and South Carolina is predicted by 2030 (Auerbach & Staiger, 2017). In states like Alabama, which holds almost the last position in the ranking of the shortage of RNs, it can prove to be hard to correct and ensure the demand for RNs is met within the stipulated timeframe unless drastic measures are taken (Frith, 2019). Alabama has been chosen as the study location since it is among the states experiencing an acute shortage of RNs while currently implementing heavy use of performance-based funding. Failure by institutions to deliver enough RNs undermines their performance, prompting direct cutting of funding to facilitate education, which in turn worsens the situation of quality education to the state.

One reason for the shortage of RNs is because there are not enough nursing programs to fill the growing demand, while nursing schools in all Southern states are struggling to graduate enough nurses. NCLEX-RN sites another factor affecting these numbers (Brackney, Lane, Dawson, & Koontz, 2017): of the 100,000 potential nurses who attempt the exam, 16,000 (16%) of the total candidates do not pass the exam. This number contributes significantly to the shortage of RNs. Passing the NCLEX-RN exam is the final milestone for nursing students (Rode & Brown, 2019). These individuals cannot get a license to practice as an RN or enter the workforce without passaging the NCLEX-RN exam (Brackney et al., 2017).

Failing to get a license adds stress for both students and institutions. Students endure economic hardship when faced with paying back student loans and institutional leadership use the ratio of students passing the NCLEX-RN exam to determine the effectiveness of their program (Brackney et al., 2017). In a state like Alabama, institutes must provide enough quality nurses to fit in a performance-based model for funding (Rutherford-Hemming & Lioce, 2018); performance indicators include graduation rate, student retention rate, and the number of students awarded Pell grants. It is essential to recognize the factors that contribute to producing successful RNs to help Alabama and other Southern states to get funding and contribute to addressing the shortage of incoming RNs (Cheshire, Strickland, & Ewell, 2019).

Purpose of the Study

My goal in this study is to analyze the relationship between ACT and GPA with student success in an ADN program and how these education metrics affect the success of a student in the NCLEX-RN. The success of the student is defined as retention in the nursing program and passing the NCLEX-RN exam on the first attempt, which warrants licensing to practice nursing (Quinn, Smolinski, & Peters, 2018). Test of Essential Academic Skills (TEAS), ACT, and GPA scores of a student are the most common benchmarks to nursing programs and an analysis of their predictive ability in respect to the passing of the NCLEX-RN can be determined in a bid to create a model that can be utilized in the admission of students to nursing programs while increasing the chances of success during the final exam. This study will help determine how these education metrics affect success in the final exam for nurses, which in turn will help institutions craft better models for nursing program admission with a low percentage of failure— which in turn will address the acute nurse shortage.

States such as Alabama face nurse shortages; however, nursing schools are not producing enough nurses due to attrition. The issue of high attrition rates in nursing is vital to address given that it has continued to exceed the national attrition rates in other areas of study and is a genuine concern in the healthcare field (Jinks et al., 2014; Snyder, 2018; Turner, 2018). The study problem was examined in light of Bloom's (1976) theory of school learning, which posits that future student performance can be explained by past student performance. Consequently, adding to the body of literature relating to the critical success factors and predictors of nursing student success can lead to increased retention rates in nursing programs and, ultimately, more nurses entering the workforce (Olsen, 2017). Understanding these factors can inform nursing school administrators in determining admission criteria and strategies for student support based on these predictive factors.

Context and Theoretical Framework

The theoretical foundation for this study is Bloom's (1976) theory of school learning. Bloom's (1976) theory asserts that the variations in student learning can be explained by a student's learning history and the quality of instruction that they receive. This theory has been applied in the educational setting to analyze the predicting factors of student success. Additionally, this theory has been used to understand and develop competencies and skillsets for capable students (Marjoribanks, 2006; Ross et al., 2018) Several factors must be considered when determining variables that contribute to the successful completion of an ADN program and passage of the NCLEX-RN exam in the first attempt. Evans (2017) conducted a quantitative research study, choosing 13 independent variables that represented predictors for NCLEX-RN success; results of that research indicated that the ACT and pre-nursing GPA were valid predictors of performance (Jeffrey, Harris, & Sherman, 2019). Grades earned during

baccalaureate degree nursing education were especially strong predictors; the strongest predictors were grades earned during the second year of the degree program (Evans, 2017).

Numerous research studies have been conducted to examine this topic to determine a set of reliable predictor variables culminating in the successful completion of a two-year ADN program. The outcomes published by researchers varied widely and often disagreed. For instance, Manieri, De Lima, and Nairita Ghosal (2016) conducted a study to determine which of three preadmission examinations best predicted success in an ADN program, including the TEAS. However, Olsen (2017) reported faculty support, general self-efficacy, affective commitment, and math self-concept played critical roles in academic success along with pre-nursing GPA.

Kaddoura, Flint, Van Dyke, Yang, and Chiang (2017) examined students' academic scores and took demographic factors into account but found the latter failed to have any significant impact on NCLEX-RN pass rates. On the other hand, Chen and Bennett (2016) considered specific predictor variables to examine this relationship. These variables were the ACT composite scores, anatomy and physiology grades, and cumulative pre-nursing GPA scores, which Chen and Bennett (2016) analyzed using both analyses of variance and logistic regression. Chen and Bennett (2016) mentioned that their convenience sample size was too small; the researchers only selected students from two rural community colleges. Chen and Bennett (2016) also determined that the nursing GPA was the only predictor of NCLEX-RN success that was statistically significant in the study. The remaining independent variables did not significantly predict NCLEX-RN success (Chen & Bennett, 2016).

Most researchers have considered GPA scores before obtaining admission in nursing school as an essential indicator for attaining success on the NCLEX-RN (Van Hofwegen,

Eckfield, & Wambuguh, 2018). However, a research study conducted by Van Hofwegen et al. (2018) determined that preadmission GPA at or above the median score (3.41) resulted in higher nursing program graduation rates but did not predict a higher pass rate for the NCLEX-RN; other scores tested did not predict the NCLEX-RN exam pass rates in any case.

Contradictorily, in a separate study, researchers Van Hofwegen et al. (2018) found that the TEAS examination was the sole variable that predicted nursing students' success in a Bachelor of Science in the nursing cohort. Tartavoulle et al. (2018), in their systematic literature review, agreed that the TEAS examination predicted program success and added that they found it did not factor into NCLEX-RN test achievement. The studies of previous researchers included the adoption of too narrow or too specific of an approach in selecting the predicting variables; furthermore, these studies have not individually tested the relationship of each independent factor and its causality effects to determine the validity of each prequalified score to the success in the NCLEX-RN test (Johnson, Sanderson, Hsuan Wang, & Parker, 2017). In this study, I focus on the most appropriate and relevant factors examined based on the relationship to the final score of the NCLEX-RN test and primary causality factors that contribute to the success of students.

Research Questions

The following research questions were formulated as the basis for this quantitative, correlational research design in alignment with Bloom's (1976) theory of school learning, which posits that their learning history can explain a student's learning.

RQ1: How are Alabama ADN preadmission college GPA and standardized test scores related to degree completion?

RQ2: How are Alabama ADN preadmission college GPA and standardized test

scores related to ADN student first-time pass success on the NCLEX-RN?

The pre-college GPA ACT are each indicators of students' prior academic performance. According to the theory of school learning, scores from these assessments can explain later student academic performance. For this study, subsequent academic performance is indicated by degree completion and passing the NCLEX-RN the first time.

Research Design

A quantitative, correlational research design was used to find the correlation between academic input variables and two outcome variables. Before conducting the initial test, it is essential to perform exploratory analysis to see if any relationship exists between dependent and independent variables. Several researchers have already suggested that various preadmission factors contribute to the success of students, including those used in this study.

The variables selected for this study were the American College Test (ACT) and preadmission college GPA. The outcomes were to determine student success. Student success is defined through two dependent variables, i.e., successful completion of the nursing program and passing the NCLEX-RN on the first attempt. The chosen population for this research was registered students in 32 community colleges offering nursing programs in the state of Alabama. A nonprobability sampling method was used to select subjects for this analysis. Data for selected participants was obtained from directors of nursing programs from various colleges. Program directors provided data for student retention and successful first attempt passing of the NCLEX-RN.

In this study, I investigated the association of ACT scores and preadmission college GPA with the success of students in nursing programs. One of the essential tests to determine the magnitude of the correlation between input and output variables was to find the correlation

coefficient. Point-biserial correlation analysis was used to determine whether correlations existed between these variables.

The Significance of the Study

Many states are experiencing a significant shortage of qualified RNs, due in part to nearly 16% of nursing students failing their NCLEX-RN exams. Passing this exam is a decisive factor for nurses deciding whether they can enter the workforce, thus reducing failure rates can reduce the nursing shortage (Moran, Burson, & Conrad, 2016). This study investigates responsible factors contributing to the failing or passing of the NCLEX-RN. Alabama and other states can use the results obtained through this study to focus on implementing models that can ensure a higher success rate for nurses' registration, thus meeting the demand for qualified nurses in the workforce. Southern states, including Alabama, the U.S. Government, institutions, program directors, instructors, students, and ordinary citizens who get sick and need a nurse can all benefit from the results of this study.

Bloom (1976) noted in his theory of school learning that the learning history of a student may shed insight into the student's following learning and academic performance. As I examined preadmission variables to calculate their impact on the successful completion of an ADN program, insights from this study may help to forecast the number of RNs in the future. Results may be of value for both the federal and state governments' ability to predict nurse shortages and subsequently take preventative measures. Additionally, this study's results may affirm the application of Bloom's (1976) theory of school learning to student performance on assessments in ADN programs.

Results of this quantitative research will be shared with nursing institutions, who can then pinpoint students who are at risk of failing to complete their degree or of failing the NCLEX-RN.

Extra focus can be put on those students to help them strengthen their weak areas. Also, because input variables for this study were ACT and preadmission college GPA scores, students who are at risk can be identified at an early stage. Based on these test scores, community colleges could reevaluate their admissions criteria to better select candidates who may have a greater relationship with degree completion and passing the NCLEX-RN on the first attempt.

The National League for Nursing Accrediting Commission (NLNAC), the Commission on Collegiate Nursing Education, and the approval standards of most state Boards of Nurse Examiners use pass-rate data as benchmarks to determine program effectiveness (Olenick, Flowers, Muñecas, & Maltseva, 2019). A consistent pattern of low NCLEX-RN pass rates can potentially place a nursing program's accreditation or state approval at risk. If directors of the nursing programs can figure out which students are at risk of not completing the degree program or passing the NCLEX-RN, they can ensure their institution's degree program will be able to meet the benchmark set by accrediting agencies. Based on this study's results, program directors can formulate proactive strategies to improve the passing rate of students to meet or surpass the desired performance-based funding implementations in states like Alabama where the shortage of nurses is very high.

The results of this study are equally important to students registered in nursing schools, as they are to the institutes offering ADN programs. Students invest a significant amount of their time and money in pursuing a successful career. Being unable to complete the degree program or failure in the NCLEX-RN can bring economic hardship and stress when faced with paying back student loans. The results of this study can help potential nursing students to determine where they stand and allow students to predict whether or not they will be able to complete the degree and pass the NCLEX-RN on their first attempt, before even applying to the program. This

information enables students with an unfavorable outlook to redirect their educational goals to a better-suited career for them, saving them significant time, money, stress, and frustration. Students can work with their academic advisors and counselors to better evaluate the ADN program admissions requirements and requirements for successful program outcomes.

Definition of Terms

- *NCLEX-RN:* The National Council Licensure Examination for RNs is the national exam that issue licenses of RNs to those who pass the exam (Myles, 2018).

- *ACT:* The American College Test is a test used for admissions in U.S. colleges (Dickinson & Adelson, 2016).

- *GPA:* Grade Point Average is a measure of academic achievement as determined by student course grades (Dickinson & Adelson, 2016). GPA for this study is determined before college admission.

- *TEAS:* Test of Essential Academic Skills; Nursing, and Allied Health schools use this exam to measure the academic preparedness of program candidates.

- *ACT composite score:* Total ACT score of students (Dickinson & Adelson, 2016).

- *Admission assessment examination (A2):* Colleges and universities use admission Assessment (A2) tests throughout the U.S. as part of their admissions process (Elsevier, Inc., 2019).

- *Health Education Systems Inc. (HESI):* Health Education Systems Incorporated is a U.S.-based company that helps prepare students for their professional licensure exam by providing exams and other study materials (Elsevier, Inc., 2019).

Assumptions

The data given to the researcher and used for this study was obtained from the directors of 2-year ADN programs in the state of Alabama. It is assumed that this data is accurate and reliable because participating directors extracted preexisting, secondary data from student records obtained from the Alliant or Banner databases. The second assumption made for this study is that the samples chosen for this research represent the actual population, i.e., nursing students of the Alabama Community College System. A third assumption is that the students' pass or fail results were entirely dependent on that person's preadmission college GPA, ACT, and TEAS scores. The research does not account for the possibility of student drop out or failure to attempt the NCLEX-RN due to health concerns or other personal situations (causing the student to fail or quit).

Delimitations

In this study, I examined the U.S. nursing shortage both now and projected shortages for the future. I focused mainly on Alabama's inability to provide enough RNs. This research highlights the issue of poverty in the state of Alabama and its correlation to the low number of nursing students attaining their RN degrees. Successful completion of this degree is essential both for nursing institutes and students alike. There are several variables correlated with the success of students including IQ, first semester, various demographics factors, subscores of admission tests, and level of interest in the nursing field. However, in this research, the most relevant predicting variables were selected based on previous literature and research done on the matter. The predicting variables chosen for this study were student preadmission college GPA and ACT scores. I only took into account the students from 2-year ADN programs within the Alabama Community College System.

Limitations

I used preexisting, secondary data that was quantitative. I did not have any direct contact with the subjects. Therefore, the nature of this study limited the researcher's ability to obtain any opinion directly from the participating nursing students. Doing so may have shed light on a myriad of other possible obstacles currently facing nursing students. Also, limited available resources did not allow this study to be conducted countrywide and so was limited to the state of Alabama.

Summary

Associate Degree Nursing (ADN) programs utilize TEAS, ACT, and preadmission college GPA scores to admit students into the program; however, the extent to which these indicators predict student success once admitted into the nursing program is unknown. My goal in this study was to analyze the relationships of ACT and preadmission college GPA with student success in an ADN program and how these education metrics affect the success of a student in the NCLEX-RN. A quantitative, correlational research design was used to achieve the purpose of the study and to address the guiding research questions. I utilized secondary data collected from 2-year ADN students in Alabama. Chapter 2 will include a discussion of the literature relating to the study topic.

Chapter 2: Literature Review

By 2028, the BLS (2019) reports that 11% more licensed practical nurses will be needed to provide care because of an aging population. According to Seago et al. (2006), various players and facets of nursing have to become proactive in finding strategies to ensure that an adequate nursing workforce is capable of meeting the health care needs of society. Furthermore, recent reports project the nursing shortage to continue with the U.S. health care setting having a deficit of a million nurses by 2020 (Swinney & Dobal, 2008). This issue is vital to address given that as the population ages, there is a need to produce more nurses to meet the demand, both current and projected, in the nursing profession (Grace, 2017; Keenan & Kennedy, 2003). In light of this widespread issue, several researchers have noted that nurse educators are the prime members of the profession to begin addressing the problem (Grace, 2017).

Various factors contribute to the successful completion of an ADN program and passage of the NCLEX-RN exam in the first attempt. Researchers have stated that GPAs required for admission are crucial indicators for student success in an ADN program (Flint et al., 2016; Mahmoud et al., 2016; Manieri et al., 2016). Other researchers have reported that factors such as faculty support, demographic factors, general self-efficacy, affective commitment, and math self-concept play critical roles in academic success along with prenursing GPA (Manieri et al., 2016; Raman, 2013). However, there is still a lack of studies that determine admission criteria that ensures student success for nursing students, including the predictive factors that correlate with the success rate of nurses in their school programs. That is, most of the existing research studies have either adopted a too narrow or too specific approach in selecting the predicting variables (Diaz et al., 2012; Mahmoud et al., 2016). In point of fact, the problem of the lack of skilled, licensed RNs has become a significant concern in the U.S., the nursing community specifically

in the southern states of the U.S. such that the state of Alabama takes a near-bottom ranking of 48th best state to work in as a nurse in the U.S., according to a WalletHub study (2018). Furthermore, it is estimated that the demand for skilled, licensed RNs will increase a full 15% more than other occupations (rn.org, 2019). This increase in demand indicates that nursing schools and educational institutions have critical responsibilities in ensuring academic success for nursing students as well as passing the NCLEX-RN exam on their first attempt (Dunham & Alameida, 2017).

The gap between the demand and the supply of licensed nurses is becoming more and more widened. To understand nursing program graduation rates, Kiernan (2015) stated that the demand for RNs in Alabama is projected to increase significantly from 2016 to 2026, wherein the demand will increase a full 15% more than the other occupations (rn.org, 2019). With these statistics, however, it has also been found that the state of Alabama cannot provide enough RNs, which results in a shortage of RNs (Kiernan, 2015). Specifically, there is a significant lack of trained, licensed RNs in the state, taking a near-bottom ranking of 48th best state to work in as a nurse in the U.S., according to a WalletHub study. Turner (2018) confirms that the nursing field has experienced increased demand for RN's as well as several internal and external factors that have exacerbated this problem. Allegedly, the most common reason for this fact is the high attrition rate in an ADN program, ranging from 25% to 50% (Turner, 2018). As a result, nursing schools in all Southern states are struggling to graduate enough nurses, wherein 16% of the total candidates who are potential nurses do not pass the exam (Brown, 2015; Trofino, 2013). Thus, Alabama and other Southern states are not able to meet the demand of producing successful RNs, thereby negatively impacting the nursing industry (van Hofwegen et al., 2018).

The problem that this study will address is the lack of resources and materials on the factors contributing to the shortage of RNs, focusing on the NCLEX-RN exam as a factor affecting the shortage of RNs (NCSBN Fact Sheet, 2010; Trofino, 2013). Specifically, more research is needed to identify the factors to consider in ensuring and predicting student success in an ADN program by analyzing the predictive validity of TEAS, ACT, and GPA scores of nursing students (Brown, 2015; Grossbach & Kuncel, 2011; Manieri et al., 2016). Also, research has been called for in having a set of preadmission examinations that would best predict success in an ADN program (Manieri et al., 2016). Having this precise set of preadmission examinations that effectively links to academic success is essential because, at present, recognizing gaps in nursing staffing and producing a sufficient number of nursing students who pass the NCLEX-RN exam continues to be lacking in the health industry (Trofino, 2013). Having a clear understanding of the link of TEAS, ACT, and GPA for student success in an ADN program and understanding the prerequisites of retaining students in the nursing program and passing the NCLEX-RN exam on the first attempt may adequately equip and enable educational institutions in ensuring a higher passing rate for nursing students who take the NCLEX-RN (Kiernan, 2015).

The purpose of this quantitative research study was to provide a set of preadmission examinations such as ACT, and GPA that effectively linked to academic success and educational institutions and nursing organizations could use to help nursing students in obtaining their licenses as RNs. This will consequently be used as a training and educational guide for nursing practitioners and educational institutions in identifying students that are more likely to achieve academic success in nursing as well as students who need help when it comes to passing the NCLEX-RN exam (Kiernan, 2015).

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I aimed to contribute to the nursing field by examining the significant factors and skills needed to assess and develop skillful nursing professionals that pass the NCLEX-RN exam and obtain their licenses (Flint et al., 2016; van Hofwegen et al., 2018). This includes identifying the range of relevant factors that influence the passing rates of nursing students in TEAS, ACT, and GPA and its link to NCLEX-RN exam pass rates (Flint et al., 2016). This could bridge the gap between the demand and supply of RNs (rn.org, 2019). This is to ensure that the increasing demand of trained, licensed RNs in the state of Alabama is thoroughly considered and cogitated through adequate nursing preadmission examinations, identification of academic scores that may be linked to academic success such as TEAS, ACT, and GPA, and effective educational methods for nursing students.

The majority of the literature included was published between 2015 and 2018 (a total of 65 out of 75 sources, 86.7%), specifically in terms of nursing industry-specific to nursing students, the existing examination methods and academic scores currently adopted for educating nursing students and the link amongst academic scores such as TEAS, ACT, and GPA and academic success of nursing students. Recent findings were crucial to keeping the study as updated as possible; however, it is worth noting that studies on the nursing industry and nursing students relating to academic indicators that are specific to the passing of NCLEX-RN exam and the effects due to its dearth are limited. Therefore, in the course of this study, earlier studies were included as part of the references, such as the framework that is Bloom's theory of school learning framework (Bloom, 1976) (a total of 10 out of 75 sources, 13.3%). The research articles that were chosen for inclusion in the study addressed topics of NCLEX-RN exam, nursing workforce, training and education of nursing professionals, specific skills needed by nursing

students to become licensed RNs, and how nursing students can be trained and equipped to obtain their licenses as RNs duly.

To address the research problem and questions presented in the previous chapter, the researcher expanded on the background presented by starting with the outlining of the problem and purpose of the study. This explained what the literature review was generally focused on. In the second section, the research will focus on the theoretical framework of the study. The third section discusses the details of the framework used, which is centered on the nursing industry, and studies with discussions centered on defining NCLEX-RN exams as the final milestone for nursing students and currently available indicators for student success in an ADN program will follow. A subsection on each of the following as indicators for student nursing success will follow: TEAS, GPA, and other factors to consider as student success indicators/predictors. The fourth section discusses the synthesis of findings, presenting the conclusion of the literature review section and the key points to consider for this study. The summary of the literature review highlights the predictive validity of ACT, TEAS and GPA, as well as other factors to consider for student success in an ADN program.

Theoretical Framework

Bloom's (1976) theory of school learning framework was used as a theoretical foundation for the study in identifying the predictive validity of TEAS and GPA and other relevant variables as predictors of success for student success in an ADN program. As such, Bloom's (1976) theory of the school learning framework provided specific variables that are important to the performance of individual learners or single instructional tasks (Haertel et al., 1983). In Bloom's (1976) theory of school learning, "variations in learning and the level of learning of students are determined by the students' learning history and the quality of instruction they receive" (p. 16).

Those engaged in the field of educational research have utilized Bloom's (1976) theory of school learning framework as an empirical support to analyze the impact of students' affective state on student success in classes as well as to promote networks and an ecosystem of education, learning abilities and development, which can be used to address nursing students' needs in increasing their chances in passing their NCLEX-RN exam and obtaining their licenses (Ross et al. (2018).

Bloom's (1976) theory of school learning framework has also been used in presenting holistic conceptions of student learning in classroom settings (Bennett, 1978; Bloom, 1976; Bruner, 1966; Carroll, 1963; Cooley & Leinhardt, 1975; Gagné, 1974; Glaser, 1976; Harnischfeger & Wiley, 1976). Researchers were concerned with the increasingly complex task to increase educational productivity (Walberg, 1980) and, consequently, the demands of a skilled nursing workforce (Turner, 2018). However, initial studies about the nursing workforce and the identification of predictive variables and academic requirements for passing an ADN programs were not yet formalized into a comprehensive theory. Despite the lack of formalization, initial studies did set the foundation for future research (Turner, 2018).

As such, more examination of the challenges of ensuring higher academic success for nursing students and filling the demand for nursing positions within nursing workforce studies is needed, particularly in the ways of educating and training nursing students to pass the NCLEX-RN exam on the first attempt. Another vital issue for study quality that has been identified in past years is the identification of needed nursing programs to keep up with the immense market demands for skilled nursing professionals (Gale et al., 2016; Jeffrey et al., 2019). Given that the demand for RNs in Alabama is projected to increase significantly from 2016 to 2026 (Kiernan, 2015), programs for educating nursing students aimed towards equipping them in passing their

NCLEX-RN exam in the midst of increasing nursing landscape has been found to be lacking in research and implementation (Turner, 2018). This lack of ineffective nursing training and programs may result in nursing students unable to pass their NCLEX-RN exam and not being able to meet the academic standards indicated through their academic scores such as TEAS, ACT, and GPA (Diaz et al., 2012).

This original body of research evolved in 2006 by Marjoribanks, who provided an update to Bloom's (1976) theory of school learning framework to allow for a more enhanced understanding of relations between an individual's characteristics and their academic-related outcomes; according to the author, this is achievable if measures of the individual's learning environments are taken into account in analyzing their academic outcomes (Marjoribanks, 2006). Furthermore, the updated theory of the school learning framework was created to promote a better understanding of the competencies and skillsets that were essential to educate skillfully trained and cognitively capable students (Marjoribanks, 2006). The resulting model incorporated both environmental and individual variables in the analysis of an individual's academic outcomes, including cognitive or intellectual ability and personality (Marjoribanks, 2006; Ross et al., 2018).

With these additional factors to consider for the extensive cognitive demands of nursing students' passing their NCLEX-RN exams, Bloom's (1976) theory of school learning framework will act as a basis point for this study as a normative theory and/or guide to explain the factors relevant to training and educating skillful nursing students. Academic grades and/or indicators such as TEAS, ACT, and GPA were used in order to provide a set of predictive factors that could ensure a higher rate of student success amongst nursing students in Alabama (Turner, 2018). A vast majority of past studies cover the nursing workforce and its emphasis on improving nursing

programs for increasing passing rates of NCLEX-RN exams in educational institutions; however, little to none put a direct weight on the specific and pertinent cognitive and functional requirements needed in order to effectively increase chances of passing NCLEX-RN exams and ensuring student success amongst potential nursing candidates (Kiernan, 2015; van Hofwegen et al., 2018).

Therefore, in reference to Bloom's (1976) theory of school learning framework in determining and analyzing the predictive validity of ACT, TEAS, and GPA for the success of students in nursing programs, as a point of reference, Alabama and other states can use the results obtained through this study to focus on implementing policies that will produce quality RNs. This includes recognizing gaps in educational programs for nursing students and producing an ample number of licensed RNs in Southern states (such as Alabama), that are consistent with national frameworks, together with the body of literature available. I also applied Bloom's (1976) theory of school learning framework in the analysis and understanding of responsible factors contributing to the failing or passing of the NCLEX-RN exam.

This proved as guidance in the creation of reliable and effective nursing programs for nursing education and training. This also enabled the identification of the range of relevant factors that influence the development and training of nursing students, the role that different stakeholders play to ensure nursing students have the necessary skills that they should have to pass the NCLEX-RN exam (van Hofwegen et al., 2018). This is important because of the high shortage of nurses and the economic hardship it brings to nursing students when faced with paying back student loans (Trofino, 2013; Turner, 2018). This framework acted as a backbone to the literature in implementing policies that will produce quality RNs, as well as defined and provided guidance on different aspects of nursing education development and training. This is

vital in the objective of organizations to bridge the gap between the demand and supply of trained, licensed RNs in Southern states such as Alabama (Kiernan, 2015).

Through the various pool of literature that will be discussed in the succeeding pages, this study resulted in an extension of scientific knowledge relative to that of passing and retaining nursing students, building a capable and robust nursing workforce, determining the significant factors related to the success of nursing students, and its respective correlation to academic indicators such as TEAS, ACT, and GPA (Brown, 2015; Kiernan, 2015).

Nursing School Standards

According to several authors, state boards of nursing have varied requirements for nursing graduates to enter practice (Lamm & McDaniel, 2000; Smith, 2010). Despite those differences, there is one common requirement throughout the United States and it is that graduates are required to take a licensure examination. With the vital importance of a healthy and capable workforce, nursing school standards are set with the aim to ensure credible and skillful nursing students. The National Council of State Boards of Nursing (NCSBN) offers the NCLEX for RN and PN graduates (Smith, 2010). In line with this objective, the NCSBN (2013) created NCLEX-RN examinations to provide a method of ensuring that new nurses in all programs possess fundamental knowledge and skills necessary to provide safe care.

In addition to this, state boards of nursing require graduates to take the State Board Test Pool Examination before the NCLEX-RN examination (Lamm & McDaniel, 2000). Furthermore, according to NCSBM (2013) and Lavin and Rosario-Sim (2013), NCSBN conducts routine studies wherein the actions and required skills of entry-level nurses are evaluated; this evaluation is of the utmost necessity because it provides the NCSBN with a method of identifying the minimum competency level and safe practice standards that new graduates must

possess. This body of literature could provide ample context to the current study in understanding the nature of NCLEX-RN exams and why this is vital to underscore in ensuring a high rate of student success.

Attrition in Nursing Schools

According to the Foundational Research of Nursing Student Attrition (n.d.), attrition is reported to the State Board of Nursing and is identified as the number of students who did not complete the program within 150% of the time of the stated program length. Nursing schools historically have high attrition rates and are continuously trying to identify interventions to decrease those rates. The issue of high attrition rates in nursing is vital to address given that it has continued to exceed the national attrition rates in other areas of study and is a genuine concern in the healthcare field (Jinks et al., 2014; Snyder, 2018; Turner, 2018). Jinks et al. (2014) further indicated that the recruitment and retention issues faced today in nursing education are the same issues nursing programs have faced since the 1950s and 1960s. More specifically, with an estimated attrition rate of 25-50%, Turner (2018) underscored the need to determine which preadmission variables are most likely to indicate programmatic success, of which includes identifying cognitive and noncognitive predictors of student success in an ADN program.

The author argued that this is also due to the increased demand for RNs in the nursing field (Turner, 2018), coupled with several internal and external factors that have worsened this problem. According to Oslen (2017), the high attrition rate in ADN programs contributes to the nursing shortage and causes hardship for students, families, faculty, colleges, and taxpayers. Oslen (2017) delved further into this phenomenon and aimed to identify admission criteria related to ADN program success to inform evidence-based admission policies and reduce

attrition. Through the analysis of 26 documents, the results of the study showed that there are five categories of admission criteria and factors related to success in ADN programs: academic aptitude, demographic factors, psychological hardiness, specialty skills and experience, and socioeconomic support (Oslen, 2017).

This means that ADN programs seeking to decrease attrition should consider implementing admission selection guidelines that consider applicant criteria and attributes across all five dimensions: academic aptitude, demographic factors, psychological hardiness, specialty skills and experience, and socioeconomic support (Oslen, 2017). This body of knowledge could provide empirical evidence towards the use of mission criteria and factors that are found to be related to success in ADN programs. This could, therefore, be utilized by educational institutions in increasing chances of student success as well as decrease attrition in nursing degree programs. Additionally, this body of literature could provide empirical statistics regarding the problem of attrition rates in the nursing field, which could highlight my focus on understanding the predictive factors associated with student success for nurses to reduce attrition rates.

There are considerable impacts brought about by high attrition rates faced by the nursing industry. One of the ways this negatively impacts society is how the students cope after the failure of their programs and or NCLEX-RN exams. According to Newton and Moore (2009), students who minimally meet the admission criteria often have difficulty after beginning the program and are identified by the literature as the ones most likely to initially fail the NCLEX-RN if they complete the program. Aside from having a significant negative impact on the student, high attrition rates in nursing education programs also result in negative consequences for the nursing school the student attends (Newton et al., 2007). According to Snyder (2018), nursing schools have the accountability and responsibility to admit, teach, and graduate a

successful nursing student that can pass the NCLEX-RN. As such, nursing schools are highly

regulated and retain their accreditation based on their graduating students' ability to pass the

NCLEX-RN on their first attempt successfully. Furthermore, with the recent reports of public

inquiries into failure to care, universities are under pressure to ensure that candidates selected for

undergraduate nursing programs demonstrate academic potential, which is ultimately translated

into passing rates in licensure exams for RNs (Gale et al., 2017). Jeffrey et al. (2019) added to

this, stating that, due to the increasing gap of nurse practitioners in the U.S., academic

institutions are under pressure to maintain a nearly flawless retention rate, including successfully

graduating students.

Furthermore, if nursing programs are consistently unable to graduate successful nursing

students and meet the established highly regulated requirements of their accrediting bodies,

ultimately, the program is at risk for closure (Roa et al., 2011). Therefore, with these negative

consequences in mind, there is a needed continued focus on strategies to help retain students in

nursing programs (Hadenfeldt, 2012; Jeffrey et al., 2019; Stickney, 2008). This body of findings

could provide empirical evidence regarding the impact of high attrition rates in the nursing

industry, including the negative impact that failure of nursing programs and NCLEX-RN exams

has on both nursing students and nursing schools (Jeffrey et al., 2019).

Retention in Nursing Schools

The issue of retaining students in nursing education is not new to the field of nursing.

According to Allen (2008) and Williams (2016), retention of nursing students is one contributing

factor to the nursing shortage that the American health care system is facing. This is vital to

address given that the demand for practical nurses will be 22% more than average by 2020 (BLS,

2013). Furthermore, this lack of retention in nursing schools is a prevalent problem as the

attrition rates continue to rise; therefore, there is a need to identify at-risk students and provide remediation to those students on time (Snyder, 2018; Williams, 2016). As such, without addressing the issue of retention in nursing programs, a likely shortage of nurses will ensue.

Fontaine (2014) delved further into this phenomenon and conducted a quantitative study that focused on student retention rates in an associate degree programs. In this study, the faculty and staff in the nursing program acquired a grant to implement a multifaceted retention program, which included academic learning plans, peer tutoring, mentoring from nursing professionals, a structured learning community, and academic and personal counseling (Fontaine, 2014). With the use of Jeffreys NURS model as a guide to the retention program in the study, each of the participants enrolled in the program from fall 2008 until spring 2010 (N=218) was tasked to rate each service from 4 (very satisfied) to 1 (very dissatisfied) (Fontaine, 2014). The results of the study indicated that students valued peer tutoring more than any of the other services offered. Correctly, peer tutoring received a 3.29 satisfaction rating compared with the lowest rating of 2.59 for mentoring (Fontaine, 2014). This was found to be significant in that upon conclusion of the grant-funded program, program retention improved ten points—that is, from 61% to 71%. Polvado (2012) arrived at a similar conclusion regarding ways in which to decrease retention rates in nursing.

The author delved into this study given the rise of the nursing shortages as well as the number of non-traditional students entering nursing programs (Polvado, 2012). The author reported that in 2010, Midwestern State University Wilson School of Nursing implemented a support program to help increase student retention (Polvado, 2012). Unlike other retention programs that have been used in the nursing field, Polvado (2012) indicated that the program implemented had a part-time retention specialist with whom students were able to voluntarily

meet after being introduced to the specialist during orientation to the program. The findings of the study showed that with the retention specialist focusing on three areas with the students (financial, personal, and academic), retention increased from 42% to 72% (Palvado, 2012).

Additionally, according to Palvado (2012), when the use of the retention specialist combined with other strategies such as implementing remediation and early identification strategies to support at-risk students, the retention rate further increased throughout the program (Palvado, 2012). This body of findings could provide empirical knowledge that implementing strategies upon admission that are focused on retention is best to improve nursing student retention (Fontaine, 2014). Also, this body of knowledge could provide justification that retention programs do indicate improvement and could, therefore, provide a callout for more research needed to identify specific strategies given that could be utilized by educational institutions to yield the most significant benefit in helping increase retention (Fontaine, 2014; Palvado, 2012).

Addressing attrition is a critical issue due to the negative implications for students, nursing programs, and the nursing workforce. One of the reasons for the dire attrition rate is due to academic failure and insufficient cognitive aptitude. Thus, cognitive aptitude should be included in admission criteria, as a predictor of academic success and a strategy to minimize attrition (Jeffreys, 2006; Twidwell et al., 2018). However, the problem at present is that admissions practices are often incomplete and lack standardization for measuring cognitive aptitude. Therefore, Twidwell et al. (2018) aimed to address this issue by presenting a conceptual model for predicting academic success in prelicensure nursing programs through expanded cognitive aptitude assessment; that is the Nursing Cognitive Aptitude Model (NCAM), which is an innovative conceptual model to guide educators in expanding current admissions processes.

Twidwell et al. (2018) stated that the NCAM model portrays the cognitive domains involved in student academic success, including current scholastic knowledge, previous academic performance, and critical-thinking ability. Together, these three domains prove to be indicators of student academic success and are a useful reference for the admissions process to address attrition amongst nursing students (Twidwell et al., 2018). Fettig and Friesen (2014) arrived at a similar conclusion and added that aside from cognitive skills, other skills and abilities should be taken into account during the preadmission phase of nursing students. Through a descriptive study using semi-structured interviews with 10 nontraditional students enrolled in a Licensed Practical Nurse-to-associate degree mobility program, the authors of the study focused on the factors of socialization in nursing student retention (Fettig & Friesen, 2014).

The authors aimed to provide a thorough subjective perspective of what nontraditional students believed contributed to them completing the program, wherein findings of the study showed that the majority of the students stated that interactions with colleagues, friends, counselors, and faculty helped in student retention (Fettig & Friesen, 2014). This body of findings could provide empirical evidence that interactions, especially from nursing faculty, are significant factors to student retention; these factors also included socialization and other factors such as reading pace, language barriers, and academic factors (Fettig & Friesen, 2014). Therefore, this body of literature could reveal and underline the need for educational institutions to not only focus on academic factors but also by focusing on the role of socialization in nursing student retention (Fettig & Friesen, 2014; Twidwell et al., 2018).

Predictors of Student Success

As the need for more skilled health care in-home and long-term care settings continues to grow, it is increasingly vital for nurse educators to identify strategies to combat attrition and

increase student retention. Typically, based on the history of nursing education, the admissions criteria used in nursing schools are previous academic achievement, with an emphasis on GPA and a standardized nursing entrance exam (Timer & Clauson, 2011; Ukapi, 2008; Yates & Sandiford, 2013). Other researchers have stated the need for alterations to be made in the recruitment and student selection process for nursing programs (McNelis et al., 2010; Mooring, 2016; Raines & Taglaireni, 2009; Yates & Sandiford, 2013) in order to further strengthen the quality of students in nursing programs and to aid in increasing graduation rates in nursing schools as well as passing the licensure exams.

As such, having admissions criteria that has a more comprehensive approach could substantially help in identifying individuals that meet the criteria needed to be successful in their nursing school coursework and have the ability to pass the NCLEX-RN. In light of this, many nursing schools have used standardized tests as part of the selection criteria when determining which students to accept for admission (Fina et al., 2018; Wolkowitz & Kelly, 2010). This is done to provide data-driven decisions regarding applicant selection in nursing programs (Jeffrey et al., 2019). At present, the use of standardized admission tests is rampant, wherein college admissions teams typically require students to present their high school GPA (HSGPA) and a standardized score, such as the ACT or SAT (Ralston et al., 2017). Specifically, HSGPA is usually attributed to students' cumulative effort during their high school career and is often used as a measure of resilience while the ACT score allows students' aptitude to be assessed.

Standardized Test Scores and Grade Point Average (GPA)

Standardized tests, along with academic scores, have been used as well as a basis to assess student's likelihood to succeed and finish the RN program on-time. One of the indicators, standardized examinations, that has been marketed as a predictor of first-level student success is

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the TEAS V (ATI, 2010; Grace, 2017; Wolkowitz & Kelly, 2010). However, it should be noted that while the TEAS V is marketed as a predictor of first-semester nursing success, there is limited research that exists addressing and assessing how well the examination predicts success with completing a nursing program (Wolkowitz & Kelly, 2010). Grace (2017) also added to this and stated that there is little if any research on the ability of the test to predict completion of nursing programs exists.

Thus, Grace (2017) delved deeper into this topic and aimed to identify the relationship between TEAS V and success in licensed practical nursing students. This is vital to address given that there is a shortage of nurses in the health care field. As such, the author conducted a study on a community college system in the southeastern area of the United States using the TEAS V as part of admissions criteria for nursing programs (Grace, 2017). Grace (2017) noted that although Assessment Technologies Institute (ATI) promoted the (TEAS) V as being predictive of first-semester success, little if any research on the ability of the test to predict completion of nursing programs exists (Grace, 2017). Therefore, the author aimed to determine whether or not the TEAS examination effectively identified potential nursing students capable of completing nursing programs (Grace, 2017). This study was conducted based on correlational analysis that established the relationship between the predictor variables, TEAS V score and criterion variables, student completion of a practical nursing program, and passing the NCLEX-PN (Grace, 2017). The results of the analysis indicated that a relationship does exist between TEAS V scores $\chi 2$ (2, N = 258) = 9.129, p = 0.010, ethnicity $\chi 2$ (3, N = 258) = 19.435, p = 0.000, and success with program completion and NCLEX-PN success (Grace, 2017). Bremner et al. (2014) concluded similarly to Grace's (2017) findings and added that having a benchmark on TEAS scores would help the school of nursing to identify students who were more likely to be

successful during the first semester of their nursing studies. This means that TEAS is an effective indicator of nursing success, such that it can predict the completion of nursing programs. Practical nurse educators could use this body of knowledge to identify students who would be more likely to complete the program, thereby producing more nurses to help fill the nursing shortage—which is predicted to continue into 2020 (Bremner et al., 2014; Grace, 2017).

One traditional academic indicator for student success in past literature is the GPA of the student. Traditionally, schools of nursing utilize GPA and standardized testing as the criteria in determining admission, which is believed to offer an objective, efficient, timely, and methodical approach for admission decisions (Bennett et al., 2016; McNelis et al., 2010; Mould & DeLoach, 2017). As such, Bennett et al. (2016) delved further into this topic and aimed to evaluate preadmission predictors of student success in a Baccalaureate of Science in Nursing (BSN) program (Bennett et al., 2016). To examine the best use of admission data to differentiate between successful and unsuccessful students in a nursing program, the authors of the study used data from 341 students admitted over three years (Bennett et al., 2016). Bennett et al. (2016) defined student success as passing all nursing courses on the first attempt with a grade of C or above, completing the program on time, and passing the NCLEX-RN on the first attempt. Using logistic regression for prediction of the probability of success, the findings indicated that the following three variables were significant in predicting student success in the nursing program: preprogram GPA, science GPA, and scores on the HESI Admission Assessment anatomy and physiology subscale (Bennett et al., 2016). Tucker and McKnight (2017) also stated similarly in this conclusion relating to GPA as a predictive factor to student success.

In their study, Tucker and McKnight (2017) aimed to evaluate the feasibility of using precollege success indicators to identify at-risk students at a large 4-year public research

university in the Midwest. The authors of the study aimed to develop as well as the best-practice model to predict student success through the examination of retention of students who participated in an established student success program (Tucker & McKnight, 2017). The findings of the study indicated that the initial admissions assessment identifying at-risk students was a feasible predictor of academic success, including high school (HS) GPA (Tucker & McKnight, 2017). The findings also revealed that these academic indicators, such as the ACT alone, could predict student success (Tucker & McKnight, 2017).

Additionally, the findings of the study further showed that the semester in which students are admitted is a predictor of success, as well as the first-semester college GPA (Tucker & McKnight, 2017). Overall, the findings indicated that there was a significant positive relationship between cognitive ability (i.e., ACT × HSGPA) and student success wherein HSGPA could be used as the single best predictor of student success (Tucker & McKnight, 2017). Furthermore, this body of findings could prove that using all three variables to identify and predict student success appears warranted. It should be noted, however, that the study by Tucker and McKnight (2017) does not focus on nursing programs and focuses more on the general student population, regardless of the course taken. Therefore, future research should delve more into this topic by focusing on nursing programs and the predictive correlation of such academic factors to NCLEX-RN passing rates (Bennett et al., 2016; Tucker & McKnight, 2017). It should also be noted that the pool of findings derived from this study could be used to select and train students for the BSN program. That is, this pool of knowledge could provide empirical information and guidance regarding an effective model to select students for admission to nursing programs, which are indicators of student success academically in the field of nursing (Bennett et al., 2016). Further, this body of knowledge could be used by future researchers in delving more into the

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phenomenon of graduation rates in the field of nursing by using this formula and comparing those rates with the prior rational admissions process (Bennett et al., 2016; Tucker & McKnight, 2017). This could ensure not only a higher rate of retention of nursing students but also decrease attrition and improve overall nursing graduates who pass the licensure exam.

Precautions should be taken, however, using GPA scores as the sole predictor for student success in nursing programs. Several researchers have argued that GPA scores are not enough to predict the rate of students graduating on-time or their chances of passing the NCLEX-RN exam. Mould and DeLoach (2017) noted this in their study, stating the majority of existing studies measure success either by collegiate GPAs or retention rates in honors, which are often contingent on collegiate GPA. This is because GPAs and retention rates are easy to access and quantify, thus drawing more attention from educational institutions in their admissions process and student success rates. It has been further noted that tracking and quantifying other successes are more difficult; however, other successes and quantifiable factors are potentially invaluable in helping to match students and programs better; as such, Mould and DeLoach (2017) aimed to test the factor of GPA scores in evaluating its predictive validity to student success.

The authors delved into the study of alternative measures of success and predictive factors in honors programs as the authors considered success according to a range of factors: national, local, and campus-wide academic awards; membership in honor societies; presentations at regional, national, or international academic conferences; peer-reviewed academic publications; graduate school attendance; job placements at the time of graduation; leadership roles in extracurricular activities; and faculty mentor assessment (Mould & DeLoach, 2017). The authors of the study suggested that, while standardized tests such as GPA testing may be marginally useful for making initial invitations to honors programs, HSGPA is more useful for

distinguishing success among high-achieving students (Mould & DeLoach, 2017); that is, HSGPA is predictive of collegiate GPA, of program retention, success in the significant, high-quality research, positive mentor evaluation, likelihood of invitation and admittance to national honors societies, and receiving awards (Mould & DeLoach, 2017).

Other types of predictor variables should be considered in assessing and distinguishing student success among students who are not necessarily high-achieving. Another study by Bond (2016) reiterated this statement and indicated that none of the three-GPAs (alone) required for admission (Prerequisite GPA, Institutional GPA, and Cumulative GPA) entered the binary logistic model as a predictor of success. That is, the author of the study aimed to determine the influence of selected demographic and academic characteristics on success in nursing education among first-year baccalaureate nursing students enrolled in a private college in the Southern region of the United States (Bond, 2016). Employing a total of 102 nursing students as participants, the author of the study defined student success as a grade of C or higher in two clinical nursing courses in the first year of the nursing program (Bond, 2016). Bond (2016) utilized independent *t* tests and binary logistic regression analysis to determine the criteria that predicted success in the first-year clinical nursing courses. Expressly, the results indicated that only 67% of the admitted students completed the first year of clinical nursing courses (Bond, 2016).

Moreover, Bond (2016) also found that grades in nonclinical nursing courses of Nursing Pharmacology, Nursing Assessment, and Nursing Pathophysiology were all related to the student's success; however, only the Nursing Pharmacology course was found to predict student success significantly (Bond, 2016). More specifically, the nature of the relationship found was such that students who had completed the Pharmacology course with higher grades were more

likely to be successful in the first two clinical nursing courses (Bond, 2016). This body of findings could provide initial justification that GPA grades alone are not enough to predict student success in nursing. This could also provide empirical knowledge to the fact that certain nursing courses could prove to be indicators of student success, such as Nursing Pharmacology (Bond, 2016). Therefore, this body of knowledge could prove that grades in the course of Nursing Pharmacology could significantly increase the ability of educational institutions and programs to correctly classify nursing students on their ability to complete the first-year clinical nursing courses (Bond, 2016; Mould & DeLoach, 2017) in assessing student success as well as predicting it.

Furthermore, this body of knowledge could provide empirical information that using alternative measures of success and predictive factors to student success is possible; however, there should be continuous exploration regarding alternative measures to predict student success aside from GPA (Bond, 2016; Mould & DeLoach, 2017). However, this body of knowledge could also provide a callout to educational institutions in taking caution in using HSGPA to predict success in honors programs. That is, future researchers should delve further into the determinants of collegiate success and honors programs (Mould & DeLoach, 2017).

Using GPA score as the sole indicator for student success or NCLEX-RN pass rates is found to be not sufficient, according to various researchers in the field (Sadler, 2003; Snyder, 2018; Van Hofwegen et al., 2018). Doing so could lead to admitting a lesser number of students who may be qualified for the nursing program and finishing the course on-time. This was underscored by Jones-Schenk and Harper (2014), who stated GPA itself as a predictive factor to student success could likely screen out individuals who possess social intelligence attributes that are essential for success in nursing practice. Van Hofwegen et al. (2018) aimed to gain a deeper

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understanding regarding this topic and aimed to predict nursing program success for veterans through the examination of academic scores such as TEAS and preadmit science GPA. Success of university BSN nursing programs was examined, as measured by three outcomes: Nursing program graduation GPA, graduation rate, and NCLEX-RN pass rate as predicted by GPA and TEAS. The results of the study indicated that preadmit science GPAs at or above the median score (3.41) predicted higher nursing program graduation GPA but did not predict graduation rates or NCLEX-RN pass rates (Van Hofwegen et al., 2018). Additionally, the findings of the study revealed that TEAS scores were not predictive of nursing program graduation GPA, graduation rates, or NCLEX-RN pass rates (Van Hofwegen et al., 2018).

In comparison, nursing students' graduation rates and NCLEX-RN pass rates were similar (Van Hofwegen et al., 2018). Interestingly, the findings further indicated that when NCLEX-RN exam retakes were included, 100% of all student participants were successful—which indicated a possible predictive variable of resilience and work ethic (Jones-Schenk & Harper, 2014; Van Hofwegen et al., 2018). This body of findings could contribute to the existing knowledge regarding nursing program admission criteria and factors for success in nursing programs. That is, this could underscore the fact that higher preadmit science GPA can predict higher nursing graduation GPA, but does not necessarily predict graduation or NCLEX passing (Snyder, 2018; Van Hofwegen et al., 2018).

The use of GPA scores as predictors of student success and in passing the NCLEX-RN examination should be coupled with other indicators. Doing so allows for a more holistic approach in selecting nursing students for admission in the nursing program as well as increases the rate of student success. According to Snyder (2018), nontraditional admissions criteria in combination with commonly used traditional criteria such as GPA, entrance exams, and science

course grades are useful in creating a sound approach to selecting the most qualified nursing school applicant. Evidence suggests that a combination of admission criteria variables is more effective than any single variable (Sadler, 2003). Crouch (2015) noted a similar finding stating that student access can be predicted among nursing students through the use of multiple predictors or indicator variables, especially with the identification and validation of applicant selection criteria. Intending to predict success in nursing programs, Crouch (2015) aimed to assess the merit of the Watson-Glaser Critical Thinking Appraisal, which is a preadmission criterion in conjunction with the frequently utilized admission criteria of the college prerequisite GPA and the National League of Nursing preadmission test. With data derived from 192 first-year nursing students, the author of the study found in his analysis of findings that the predictor variables of prerequisite GPA, the National League for Nursing preadmission test score, and the Watson-Glaser Critical Thinking Appraisal score were all significant in predicting success in a nursing program (Crouch, 2015). As such, this pool of knowledge could be of significance in predicting nursing students' academic success because of the emphasis on the importance of fostering critical thinking in nursing education through the use of this study's prediction model (NLNAC, Inc., 2012). This body of knowledge could also underscore the need to use other variables along with GPA scores in assessing credible and skillful students that could be more likely to achieve student success in nursing programs (Crouch, 2015; Snyder, 2018).

Summary

Nursing schools historically have high attrition rates that have continued to exceed the national attrition rates in other areas of study. This has become a genuine concern in the healthcare field given the recruitment and retention issues at present in the nursing field of education are the similar issues nursing programs have faced since the 1950s and 1960s (Jinks et

al., 2014). Oslen (2017) and Turner (2018) underscored the need to determine which preadmission variables were most likely to predict student success, including identifying cognitive and noncognitive indicators of student success in a nursing program. However, college admissions officers have struggled to identify those students who are most likely to persist in an ADN program, which is reflected in an estimated attrition rate of 25-50% (Talmam et al., 2018; Turner, 2018).

The typical historical admissions criteria used in nursing schools were previous academic achievement, with an emphasis on GPA and a standardized nursing entrance exam (Timer & Clauson, 2011; Ukapi, 2008; Yates & Sandiford, 2013). However, several researchers have underlined the need to extend beyond the traditional GPA and standardized testing (Grace, 2017; McNelis et al., 2010; Snyder, 2018) to identify factors that relate to student success in nursing school to improve the admissions process and retention efforts (Snyder, 2018). Not doing so could likely screen out potential individuals who possess social intelligence and other attributes that are essential for success in nursing practice (Jones-Schenk & Harper, 2014). This was why researching predictive validity of factors such as GPA and TEAS to student success in the nursing field is necessary, as well as determining the relevant factors to consider when assessing and predicting student success.

Bloom's (1976) theory of school learning framework offers a way to define, understand, and study learning abilities and development as well as the impact of students' affective state on student success in classes. In this study, school learning theory offered a new way of thinking about variations in learning and the level of learning of nursing students, as it is the learning history and the quality of instruction they receive from their instructors. Bloom's (1976) theory of school learning also offered a perspective that acknowledged the importance of context and

specific variables that were important to the performance of individual learners or single instructional tasks (Haertel et al., 1983). Without considering context and other specific variables relevant to learners, it is impossible to fully grasp one's understanding (Ross et al., 2018). This is why examining predictive variables concerning student success through this lens is appropriate because there are contextual factors involved in these cases. Therefore, this study, which focused on predictive factors that link nursing students' increase in chances in passing their NCLEX-RN exam and obtaining their licenses, included RNs using Bloom's (1976) theory of school learning as its framework (Ross et al. (2018).

Chapter 3: Methodology

Introduction

The purpose of this study was to analyze the relationship between the TEAS, ACT, and preadmission GPA with student success in Alabama ADN programs and how these education metrics affect the success of students on the NCLEX-RN nursing exam. It is essential to recognize the factors that contribute to producing successful RNs, to help Alabama and other Southern states to get funding and contribute to fulfilling the shortage of incoming nurses (Cheshire, Strickland, & Ewell, 2019). Bloom's (1976) theory of school learning framework was used as a theoretical foundation for the study in identifying the predictive validity of ACT, TEAS, and preadmission college GPA as predictors of student success in an ADN program. Bloom (1976) posits that the variations in the level of learning that students experience are determined by the students' learning history. Consequently, the current study could provide support for the application of this theory in demonstrating that a student's history of learning, as indicated by TEAS scores, ACT scores, and preadmission college GPA, is reflective of performance on nursing exams.

Research Questions and Hypotheses

The following research questions were formulated as the basis for this quantitative, correlational research design in alignment with Bloom's (1976) theory of school learning, which posits that their learning history can explain a student's learning. These research questions were used to determine the relationships between a student's preadmission GPA and ACT scores and student success.

RQ1: How are Alabama ADN preadmission college GPA and standardized test scores related to degree completion?

H_01: There is no relationship between Alabama ADN preadmission college GPA and standardized test scores and degree completion.

H_a1: There is a relationship between Alabama ADN preadmission college GPA and standardized test scores and degree completion.

RQ2: How are Alabama ADN preadmission college GPA and standardized test scores related to ADN student first-time pass success on the NCLEX-RN?

H_02: There is no relationship between Alabama ADN preadmission college GPA and standardized test scores, and ADN student first-time pass success on the NCLEX-RN.

H_a2: There is a relationship between Alabama ADN preadmission college GPA and standardized test scores, and ADN student first-time pass success on the NCLEX-RN.

These hypotheses were based on assumptions for community college students and standardized tests. Furthermore, community college students have been classified as an at-risk group facing additional and varied challenges than their university counterparts (Mertes & Jankoviak, 2016). Community college students have been nontraditional, first-generation students, have low incomes, and are academically underprepared for college (Harris, 2018; Tovar, 2015). Beginning in the 2018-2019 academic year, the Alabama Community College System moved to a much more aggressive performance-based funding methodology as well as a streamlined approach to ADN program curriculum design across institutions. My goal in this study is to assist in determining factors that best predict ADN student success.

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Research Methods and Design

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The study was quantitative and correlational. Quantitative research tests theories that explain or answer research questions (Creswell, 2014; Rahi, 2017). I focused on the relationships between ACT and cumulative pre-admission GPA used in admissions applications for ADN

programs in the Alabama Community College System. Specifically, I aimed to assess the relationships of these academic factors with student success. Student success was defined as a student's ability to complete the ADN program and successfully pass the NCLEX-RN on the first attempt.

Participants

The population for this study consisted of ADN students who successfully enrolled in ADN programs at community colleges within the Alabama Community College System. Twenty-four institutions in the Alabama Community College System offer ADN programs and each institution has a competitive admissions process for acceptance into their program's cohort. The number of graduates for each institution depends on an institution's ability to retain students through the program's entire length. Graduates are then required to successfully pass the NCLEX-RN to become a licensed RN in the state of Alabama.

Alabama Community College System students were purposely selected for this study, making selection nonprobable in nature; nonprobability sampling provides the researcher with the ability to decide whether all members of a population will be represented in the study's sampling (Creswell, 2014). Also referred to as purposeful sampling, nonprobability sampling is defined as participants being selected based on their availability (Creswell, 2014). Nonprobability sampling was also used to exclude variables that could have influenced the results of the study. For example, only students who did not progress through an ADN program for academic reasons were selected in order to determine the correlation between academic indicators and student success. Nonprobability sampling (Creswell, 2014) also allowed the researcher to obtain data for institutions across geographic regions within the Alabama Community College System as well as data for the study's independent variables (ACT and

GPA) since no two institutions used the same program admissions criteria. The study's participants were students who applied, were accepted, and attended an ADN program at an Alabama Community College System institution. Respective intuition's program directors provided the data for graduates from prior-year cohort records.

Procedure

The study's independent variables consisted of academic factors within ADN program admissions criteria (TEAS, ACT, and GPA). The TEAS is a standardized test used by many health science programs to evaluate potential students during the application process. The TEAS test was developed by the ATI and was intended to be a predictor of a student's success in nursing school. The TEAS test measures essential basic skills in the academic content areas of reading, mathematics, science, and English and language usage. The TEAS test is a multiple-choice exam consisting of four sections with defined time limits:

- The reading section has 53 questions with a time limit of 64 min.

- The mathematics section has 36 questions with a time limit of 54 min.

- The science section has 53 questions with a time limit of 63 min.

- The English/language section has 28 questions with a time limit of 28 min.

An overall score of 58.7% is considered as proficient on the TEAS test and generally indicates a reasonable level of overall academic preparation necessary to support learning in health science academic programs. An overall TEAS test score of $\geq 58.7\%$ was the hypothesized value used in determining the predictive validity of the TEAS test (ATI, 2018).

The ACT is a standardized test consisting of four multiple-choice subtests in English, mathematics, reading, and science:

- The English section has 75 questions, measures standard written English, and has a 45-min. time limit;

- the mathematics section has 60 questions, measures mathematical skills, and is 60 min. in length;

- the Reading section has 40 questions, measures reading comprehension, and has a 35 min. time limit; and

- the science section has 40 questions, measures various skill sets in the natural sciences, and has a 35 min. time limit (ACT, 2018).

The minimum ACT score for an Alabama community college student that does not require remediation in Math, English, or Reading is a score of ≥ 18 and was used as the hypothesized value in determining the predictive validity of the ACT.

The cumulative GPA is defined as the combined GPA of all of the college-level coursework that a student has completed at the point of making an application to an ADN program. This value was calculated by the institution's registrar, documented on a student's academic transcript, and illustrated on a 0.0-4.0 scale. The higher the student's GPA on the ADN admissions packet, the more points they earn on the admission's grading process. Therefore, the maximum value used for this study was a cumulative GPA of 4.0. The dependent variable for the study was dichotomous: did the students matriculate through the program, and, if so, did the students pass the NCLEX-RN on the first attempt?

Data Collection

Institutional Review Board approval was granted to conduct this study. The researcher obtained secondary data from participating institution's ADN program directors. An up-to-date roster of directors was obtained from the Alabama Community College System Office and an e-

mail request for their participation in this study was sent to the directors. Program directors

provided available data for both student retention and degree completion information queried

through either the Alliant or Banner database systems. These database systems are repositories

for student data throughout Alabama's Community College system. The program director

obtained NXLEX-RN first-time pass rate information from their respective NXLEX-RN data

banks. The researcher obtained the study's data from ADN program directors. The data was

entered it into a Microsoft Excel spreadsheet containing preadmission college Cumulative GPA

(nearest tenth), ACT score upon application, whether the student was retained, and if the

student successfully passed the NCLEX-RN first attempt. Of the four institutions that provided

data for the study, only those using ACT scores participated and there was, therefore, no

analysis of TEAS scores. Student identification was protected, according to the Family

Educational Rights and Privacy Act, by assigning a randomly generated numerical identifier

that was unique to each student. The University of Memphis Institutional Review Board

Administrator provided the researcher an exempt approval.

Data Analysis

I utilized a correlational design due to the need to compare the relationship between two

or more variables (ACT score and cumulative GPAs) against an outcome (retention and first-

time pass success on the NCLEX-RN) (Creswell, 2014; Hinkle, Wierma, & Jurs, 2003). To

answer the research questions posed in this study, the positivist theory served as a foundation.

Interferential statistics were utilized with a correlational design, using data obtained from both a

nominal and a ratio scale. To determine the correlation between the cumulative preadmission

GPA and the ACT, used in Associate of Applied Science Nursing programs in Alabama, the

researcher used the correlation coefficient resulting from the point-biserial correlation analysis.

This statistical analysis was selected because the data analyzed included both continuous and dichotomous variables (Perinetti, 2019). By determining the *r* coefficient for each independent variable, the researcher determined which variable had the strongest correlation with the two dependent variables. Additionally, independent samples *t* tests were run to compare the means for each predictor variable (preadmission GPA and ACT) for the two groups (degree completers vs. noncompleters, those who pass on the first attempt and those who do not). Statistical Package for the Social Science version 25 (SPSS 25) was used for both analyses.

Assumptions, Limitations, and Delimitations

The assumptions, limitations, and delimitations of this study must be addressed. I utilized secondary data; therefore, it was assumed that the researchers who collected the data did so reliably and ethically. Additionally, it was assumed that the sample represented in the secondary data was an appropriate representation of the study's population. This study was limited in its use of secondary data as no other variable relating to the research topic could be included for the present analysis. This study was delimited to community college students in the state of Alabama. This delimitation was made because the secondary data was obtained from a 2-year ADN program and because Alabama faces a shortage of RNs.

Summary

The purpose of this study was to analyze the relationship between the ACT and GPA with student success in an ADN program and how these education metrics affect the success of a student in the NCLEX-RN nursing exam. This correlational study was used to determine the relationship between the academic factors (ACT and GPA) and factors for student success (program completion and first-time pass success on the NCLEX-RN licensure exam) for students enrolled in ADN programs in the Alabama Community College System. This study was

conducted using Bloom's (1976) theory of school learning as a framework for understanding

how and why nursing students' prior performance may be associated with future performance.

With an increased emphasis on performance-based funding and a looming shortfall of registered

nursing nationwide, program directors must examine their criteria for acceptance into these

competitive entry programs. Next, Chapter 4 includes an illustration of the study's findings,

followed by Chapter 5, which will have a summary and discussion of the findings.

Chapter 4: Results

Introduction

The purpose of this quantitative correlational study was to analyze the relationship between GPA and ACT with student success in an ADN program and how these education metrics affect the success of a student in the NCLEX-RN nursing exam. The outcome variable for this study is the successful completion of the nursing program and passing the NCLEX-RN exam on the first attempt. The predictor variables are preadmission college GPA and the ACT cumulative scores. Descriptive statistics analysis, independent sample t test, and point-biserial correlation analysis were conducted to address the objectives of this current study. The following research questions and hypotheses guided this study:

RQ1: How are Alabama ADN preadmission college GPA and standardized test scores related to degree completion?

H_01: There is no relationship between Alabama ADN preadmission college GPA and standardized test scores and degree completion.

H_a1: There is a relationship between Alabama ADN preadmission college GPA and standardized test scores and degree completion.

RQ2: How are Alabama ADN preadmission college GPA and standardized test scores related to ADN student first-time pass success on the NCLEX-RN?

H_02: There is no relationship between preadmission college GPA and standardized test scores, and ADN student first-time pass success on the NCLEX-RN.

H_a2: There is a relationship between preadmission college GPA and standardized test, and ADN student first-time pass success on the NCLEX-RN.

Chapter 4 is organized by a discussion of the data collection results. Then the discussion of the results of the hypothesis testing, including descriptive statistics, independent sample *t* test, and point-biserial correlation analysis, was presented. The chapter ended with a summary. Data were analyzed with SPSS 23.

Data Collection

The final sample for this study consisted of 502 ADN students who successfully enrolled in ADN programs. Four ADN programs participated in the study, with all four programs using ACT scores as a part of their admissions criteria. Therefore, there is no analysis of TEAS scores. Looking at Table 1, more than half (283; 56.4%) of the 502 ADN students completed the nursing program. Also, almost half (247; 49.2%) of the 502 ADN students passed the NCLEX-RN exam on their first attempt.

Table 1

Frequency and Percentage Summaries of Successful Completion of the Nursing Program and Passing the National Council Licensure Examination-Registered Nurse (NCLEX-RN) Exam on the First Attempt

	Frequency	Percent (%)
Degree completion		
Pass	283	56.4
Fail	219	43.6
First Time pass rate on the NCLEX-RN		
Pass	247	49.2
Fail	26	5.2
Missing	229	45.6

Results of Independent Sample *t* Test for Research Question One

Independent sample *t* test was conducted to determine whether there are significant differences in the cumulative preadmission GPA and ACT cumulative scores between the two groups of successful completion of the nursing program (degree completers vs. noncompleters). This analysis determined whether the means of the cumulative preadmission GPA and ACT cumulative scores significantly differed by the two groupings of successful completion of the nursing program. A level of significance of 0.05 was used in the independent sample *t* test. The results of the independent sample *t* test for research question one are presented in Table 3.

Results of the independent sample *t* test showed that there was only a significant difference in the cumulative preadmission GPA by successful completion of the nursing program ($t(484) = -2.72$, $p = 0.01$). This was the only significant difference since the *p*-value was less than the level of significant value. Mean comparison showed that ADN students that successfully passed or completed the nursing program ($M = 3.35$, $SD = 0.44$) had a significantly higher cumulative preadmission GPA than ADN students that did not complete the nursing program ($M = 3.24$, $SD = 0.43$) by a mean difference of 0.11. On the other hand, the results of the independent sample *t* test showed that there was no significant difference in the ACT composite scores by successful completion of the nursing program ($t(493) = -0.48$, $p = 0.64$).

Cohen's *d* was calculated using the *t* test value and the degrees of freedom for preadmissions GPA and successful completion of the ADN program. A Cohen's *d* score of 0.25 indicated a small effect size (*t* value $= -2.72$, $df = 484$).

Table 2

Descriptive Statistics Summaries of Preadmission Grade Point Average (GPA) and American College Test (ACT) Cumulative Scores by Successful Completion of the Nursing Program

Outcome Variable	Degree Completion	N	Mean	Std. Deviation	Std. Error Mean
GPA on admission	Fail	212	3.24	0.43	0.03
	Pass	274	3.35	0.44	0.03
ACT composite score	Fail	217	32.12	20.18	1.37
	Pass	278	32.99	20.39	1.22

Table 3

Results of Independent Sample t Test of Difference of Preadmission Grade Point Average (GPA) and American College Test (ACT) Cumulative Scores by Successful Completion of the Nursing Program

Outcome Variable	Remarks	Levene's Test for Equality of Variances		t Test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
GPA on admission	Equal variances assumed	0.31	0.58	-2.72	484	0.01*	-0.11	0.04		-0.19	-0.03
ACT composite score	Equal variances assumed	0.01	0.93	-0.48	493	0.64	-0.87	1.84		-4.49	2.74

*Significant difference at the level of significance of 0.05.

Results of Point-Biserial Correlation Analysis for Research Question One

A point-biserial correlation analysis was conducted to determine whether there are significant correlations between the cumulative preadmission GPA and ACT composite scores with degree completion or successful completion of the nursing program. The results of the point-biserial correlation analysis for research question one are shown in Table 4. A level of significance of 0.05 was used in the point-biserial correlation analysis.

Results of the point-biserial correlation analysis showed that only the cumulative preadmission GPA was significantly negatively correlated with degree completion ($r(484) = -0.12$, $p = 0.01$). Given that passing was coded as 0 and failing was coded as 1, the significant negative correlation means that the higher the cumulative preadmission GPA of nursing students, the higher will be their chance of successful completion of the nursing program. The results of the point-biserial correlation analysis showed that preadmission ACT composite scores were not significantly correlated with degree completion $(r(484) = -0.02, p = 0.64)$.

Table 4

Results of Point-Biserial Correlation Analysis of Correlation Between Preadmission Grade Point Average (GPA) and American College Test (ACT) Cumulative Scores with Successful Completion of the Nursing Program

		ACT Composite Score	Degree Completion
GPA on admission	Pearson Correlation	0.22[*]	-0.12[*]
	Sig. (2-tailed)	0.00	0.01
	N	481	486
ACT composite score	Pearson Correlation		-0.02
	Sig. (2-tailed)		0.64
	N		495

*. Correlation is significant at the 0.05 level (2-tailed).

Summary of Results of Hypothesis Testing for Research Question One

Findings of the independent sample *t* test and point-biserial correlation analysis resulted in the rejection of the null hypothesis for research question one which states that there is no relationship between preadmission college GPA and ACT scores and degree completion. The results of both analyses supported the alternative hypothesis, which states that there is a relationship between preadmission college GPA and ACT scores and degree completion. Specifically, the results only showed that there was only a significant negative relationship between preadmission college GPA and degree completion.

Results of Independent Sample *t* Test for Research Question Two

Independent sample *t* test was conducted to determine whether there are significant differences in the cumulative preadmission GPA and ACT cumulative scores between the two groups of passing the NCLEX-RN exam on the first attempt (those who pass on the first attempt versus those who did not pass on the first attempt). This analysis determined whether the means of the cumulative preadmission GPA and ACT cumulative scores significantly differed by the two groupings of passing the NCLEX-RN exam on the first attempt. A level of significance of 0.05 was used in the independent sample *t* test. The results of the independent sample *t* test for research question two are presented in Table 6.

Results of the independent sample *t* test showed that there was only a significant difference in the cumulative preadmission GPA by passing the NCLEX-RN exam on the first attempt $(t(262) = -2.36, p = 0.02)$. This was the only significant difference since the *p*-value was less than the level of significant value. Mean comparison showed that those who passed the NCLEX-RN exam on their first attempt $(M = 3.37, SD = 0.43)$ had significantly higher cumulative preadmission GPA than ADN students that did not pass the NCLEX-RN exam on their first

attempt ($M = 3.14$, $SD = 0.48$) by a mean difference of 0.23. On the other hand, the results of the independent sample t test showed that there was no significant difference in the ACT composite scores by passing the NCLEX-RN exam on the first attempt ($t(267) = -1.38$, $p = 0.17$).

Cohen's d was calculated using the t test value and the degrees of freedom for preadmissions GPA and successful pass of NCLEX-RN. A Cohen's d score of 0.29 indicated a small effect size (t value $= -2.36$, $df = 262$.)

Table 5

Descriptive Statistics Summaries of Preadmission Grade Point Average (GPA) and American College Test (ACT) Cumulative Scores by Passing the National Council Licensure Examination-Registered Nurse (NCLEX-RN) Exam on the First Attempt

Outcome Variable	First-Time Pass Rate on the NCLEX-RN	N	Mean	Std. Deviation	Std. Error Mean
GPA on admission	Fail	22	3.14	0.48	0.10
	Pass	242	3.37	0.43	0.03
ACT composite score	Fail	25	38.63	19.45	3.89
	Pass	244	32.70	20.65	1.32

Table 6

Results of Independent Sample t Test of Difference of Preadmission Grade Point Average (GPA) and American College Test (ACT) Cumulative Scores by Passing the National Council Licensure Examination-Registered Nurse (NCLEX-RN) Exam on the First Attempt

| Outcome Variable | Remarks | Levene's Test for Equality of Variances | | t Test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
GPA on admission	Equal variances assumed	0.55	0.46	-2.36	262	0.02*	-0.23	0.10	-0.42	-0.04
ACT composite score	Equal variances assumed	0.06	0.81	1.38	267	0.17	5.93	4.31	-2.56	14.43

*. Significant difference at the level of significance of 0.05.

Results of Point-Biserial Correlation Analysis for Research Question Two

Then, a point-biserial correlation analysis was conducted to determine whether there were significant correlations between the cumulative preadmission GPA and ACT composite scores with passing the NCLEX-RN exam on the first attempt. The results of the point-biserial correlation analysis for research question two are shown in Table 7. A level of significance of 0.05 was used in the point-biserial correlation analysis.

Results of the point-biserial correlation analysis showed that only the cumulative preadmission GPA was significantly negatively correlated with passing the NCLEX-RN exam on the first attempt ($r(262) = -0.14$, $p = 0.02$). Given that passing on the first time was coded as 0 and failing was coded as 1, the significant negative correlation means that the higher the cumulative preadmission GPA of nursing students, the higher will be their chance of passing the NCLEX-RN exam on the first attempt. On the other hand, results of the point-biserial correlation analysis showed that preadmission ACT composite scores were not significantly correlated with passing the NCLEX-RN exam on the first attempt ($r(267) = 0.08$, $p = 0.17$).

Table 7

Results of Point-Biserial Correlation Analysis of Correlation Between Preadmission Grade Point Average (GPA) and American College Test (ACT) Cumulative Scores with Passing the National Council Licensure Examination-Registered Nurse (NCLEX-RN) Exam on the First Attempt

		ACT Composite Score	First-Time Pass Rate on the NCLEX-RN
GPA on admission	Pearson Correlation	0.22[*]	-0.14[*]
	Sig. (2-tailed)	0.00	0.02
	N	481	264
ACT composite score	Pearson Correlation		0.08
	Sig. (2-tailed)		0.17
	N		269

*. Correlation is significant at the 0.05 level (2-tailed).

Summary of Results of Hypothesis Testing for Research Question Two

Findings of the independent sample *t* test and point-biserial correlation analysis resulted in the rejection of the null hypothesis two, which stated that there is no relationship between preadmission college GPA and ACT scores and ADN student first-time pass success on the NCLEX-RN. The results of both analyses supported the alternative hypothesis two, which stated that there was a relationship between preadmission college GPA and ACT scores and ADN student first-time pass success on the NCLEX-RN. Specifically, the results only showed that there was a significant negative relationship between preadmission college GPA and ADN student first-time pass success on the NCLEX-RN.

Summary

The purpose of this quantitative, correlational study was to analyze the relationship between GPA and ACT with student success in an ADN program and how these education metrics affect the success of a student in the NCLEX-RN nursing exam. As stated, descriptive statistics analysis, independent sample *t* test, and point-biserial correlation analysis were conducted to address the research questions of this study. For research question one, the results of the independent sample *t* test showed that there was a significant difference in the cumulative preadmission GPA by successful completion of the nursing program. Specifically, ADN students that successfully passed or completed the nursing program had a significantly higher cumulative preadmission GPA than ADN students who did not complete the nursing program. Also, the results of the point-biserial correlation analysis showed that cumulative preadmission GPA was significantly negatively correlated with degree completion. This means that the higher the cumulative preadmission GPA of nursing students, the higher their chance of successful completion of the nursing program. For research question two, the results of the independent

sample *t* test showed that there was a significant difference in the cumulative preadmission GPA

by passing the NCLEX-RN exam on the first attempt. Specifically, ADN students that passed the

NCLEX-RN exam on their first attempt had a significantly higher cumulative preadmission GPA

than ADN students who did not pass the NCLEX-RN exam on their first attempt. Also, the

results of the point-biserial correlation analysis showed that cumulative preadmission GPA was

significantly negatively correlated with passing the NCLEX-RN exam on the first attempt. This

means that the higher the cumulative preadmission GPA of nursing students, the higher their

chance of passing the NCLEX-RN exam on the first attempt. Implications of the results of the

data analysis will be discussed in detail in Chapter 5. Suggestions on how the findings may be

applied in an organizational setting and a summary of recommendations for future research are

also discussed in Chapter 5.

Chapter 5: Discussion

Academic tests are used to measure student achievement both before and upon completion of a higher education program. Associate Degree in Nursing (ADN) programs rely upon multiple tests such as TEAS, ACT, and GPA scores for admission; however, these tests might slow the ability to fill the demand for RNs (Auerbach & Staiger, 2017). Ultimately, these tests are meant to provide a benchmark for student achievement to ensure that they can pass the MCLEX-RN examination necessary to be a nurse, which has a failure rate of 16%. Previous scholars have asserted that these tests have a relationship with the final nursing exam, as they can reduce failure (Grace, 2017). The demand for nurses is not uniform, as states like Georgia, South Carolina, and Alabama are all facing a shortage of RNs that has increased over time (Auerbach & Staiger, 2017; Frith, 2019). These states are struggling with having students pass the NCLEX-RN and enter the workforce (Brackney et al., 2017; Rode & Brown, 2019). The general problem that was studied was the lack of resources and materials on the factors contributing to the shortage of RNs, with an explicit focus on the NCLEX-RN exam (NCSB Fact Sheet, 2010; Tofino, 2013). The specific problem was that more research was required to identify the factors to consider in ensuring and predicting student success in an associate nursing program by analyzing the predictive validity of TEAS, ACT, and GPA scores of nursing students (Brown, 2015; Grossbach & Kuncel, 2011; Manieri et al., 2016).

To address this problem, the purpose of this quantitative research study was to provide a set of preadmission examinations and how they are linked to academic success, which educational nursing organizations could use for aiding nursing students in obtaining their licenses within the state of Alabama. This investigation utilized a quantitative, correlational research design that attempted to find the correlation between academic input variables and the

outcome variable. The study used the magnitude of the correlation between input and output variables, defined the correlation coefficient, and used point-biserial correlation analysis of any relationships that existed between these variables.

Two research questions were proposed for the study:

1. How are Alabama ADN preadmission college GPA and standardized test scores related to degree completion?

2. How are Alabama ADN preadmission college GPA and standardized test scores related to ADN student first-time pass success of the NCLEX-RN?

Upon statistical analysis, the results of the independent sample *t* test for research question one indicated that there was a significant difference in the cumulative preadmission GPA by successful completion of the nursing program. Associate Degree of Nursing (ADN) students that passed the nursing program had a significantly higher cumulative preadmission GPA than students who did not pass a program. The point-biserial correlation analysis indicated that the cumulative preadmission GPA was significantly negatively correlated with degree completion— meaning that the higher cumulative preadmission GPA of a nursing student, the more likely they would be to complete the nursing program. The results of the independent sample *t* test of the second research question found a significant difference in the cumulative preadmission GPA and passing the final exam on the first attempt. The point-biserial correlation analysis of the second question indicated that the cumulative preadmission GPA was significantly negatively correlated with passing the NCLEX-RN exam on the first attempt—indicating that the higher preadmission GPA, the greater the likelihood of passing the final exam on the first attempt. In this chapter, the researcher used these findings to discuss the research questions concerning the literature, implications, and areas of future research.

Research Questions

This investigation proposed two research questions, both of which were found to be significant. This portion of the dissertation focuses on how the variables and theoretical framework mentioned in Chapter 2 relate to the results of this project. As the dependent variables are the same between both research questions, this section will first examine those variables then offer further insight into the different independent variables.

The first dependent variable was the preadmission GPA. Fetting and Friesen (2014) found that preadmission was not just dependent upon GPA, but included other attributes such as cognitive skills and abilities. The authors also found that student success was dependent upon socialization, reading ability, language barriers, and other academic elements (Fetting & Friesen, 2014). Fetting and Friesen's (2014) assertion that multiple elements could influence GPA invites further research. Therefore, GPA should not be examined in a vacuum but should be broken down to identify a student's strengths and weaknesses. Yet Bond (2016) found that GPA was not a factor of student success; this goes against previous research as well as the results of both of the research questions presented in the current study. Additionally, Sadler (2003), Snyder (2018), and Van Hofwegen et al. (2018) noted that using GPA scores as an indicator of success is detrimental as it could disqualify potential students who may have other attributes to succeed within a nursing program. Jones-Schenk and Harper (2014) noted that only looking at GPA could ignore social intelligence attributes that are vital for nursing.

This is not to say that GPA should be discounted completely, as Bennett et al. (2016) found that GPA relates to passing the licensing examination on the first attempt. Van Hofwegen et al. (2018) also supported the importance of preadmissions GPA along with TEAS by finding that GPA's with a median score of 3.41 had a higher program graduation GPA but were unable

to predict the NCLEX-RN success rate. Jones-Schenk and Harper (2014) agreed with Fetting and Friesen (2014), and those other variables, such as resilience and work ethic, maybe important alternative factors. Crouch (2015) supported the notion that GPA and preadmission test scores were significant in predicting success in a nursing program. The success directly correlates with the results of the first research question.

TEAS scores were another variable within the study. ATI (2010), Grace (2017), and Wolkowitz and Kelly (2010) all asserted that this standardized examination was a predictor of success within nursing schools; however, there has been a deficiency of studies on whether TEAS were an adequate predictor of completion of nursing programs themselves. Grace (2017) sought to fill this gap and found that TEAS scores did have a significant relationship with graduation rates and NCLEX-PN. However, the author added ethnicity as another variable; therefore, Grace's (2017) research has left open the notion that other variables may directly contribute to both passing the final exam in graduation. Even with this stipulation, the results of this study aligned with previous research

Program acceptance tests such as the ACT and SAT were also variables within this research project. Tucker and McKnight (2017) found that ACT scores alone could predict student success. However, the authors did not examine whether or not test scores had a direct correlation between NCLEX-PN in graduation rates; the authors once again found other attributes, such as cognitive ability, were better predictors of success (Tucker & McKnight, 2017). Despite these differences, the ACT was shown to be a determining factor in success just like in this investigation.

How Are Alabama Associate Degree Nursing (ADN) Preadmission College Grade Point Average (GPA) and Standardized Test Scores Related to Degree Completion?

The results of the independent sample *t* test showed that there was only a significant difference in the cumulative preadmission GPA by successful completion of the nursing program. The results of the point-biserial correlation analysis showed that only the cumulative preadmission GPA was significantly negatively correlated with degree completion, leading to the rejection of the null hypothesis. Seemingly, these results mainly align with the previously discussed research. However, many authors stated that degree completion may not be truly dependent upon the selected variables; other hard and soft skills may factor into whether a student successfully earns a degree.

It is these soft skills in other variables that may have had the biggest discrepancies between this study's findings and previous research, creating questions regarding transferability, reliability, and validity of the relationship between the dependent variables and degree completion. One element that was not incorporated into this study was student retention (Allen, 2008; Williams, 2016). Student retention programs could greatly influence whether a student successfully graduated from the program. Fontaine (2014) found that student retention programs that offer academic learning plans, peer tutoring, mentoring, a structured learning community, and academic and personal counseling influence student retention. These elements go beyond GPA and test scores. A student may have high or low test scores in GPA, but having a proper support system can mitigate these factors and improve graduation rates.

Palvado (2012) expanded upon these results and found that targeting at-risk students and providing them with student retention programs improves academic success. Jeffreys (2006) attributes student attrition not just with academic failure but also with poor cognitive aptitude.

Preexisting GPA admission test scores often fail to address cognitive aptitude, thereby creating questions of how well these variables can be used as predictors. To rectify this finding, Twidwell et al. (2018) stated that the NCAM is a better predictor of graduation rates within nursing schools than other prerequisite tests. Fettig and Friesen (2014) focused on social interactions and support along with reading pace and language barriers as important variables in graduation success. None of those variables were included in the current study, offering an opportunity for future research.

Other authors pointed out that using GPA as a measure fails to capture all of the benefits and soft skills that a student may have. Mould and Deloach (2017) mentioned that national, local, and campus-wide academic awards, membership in honor societies, presentations at academic conferences, school attendance, job placement, leadership roles, extracurricular activities, and faculty member mentor assessment offered better insight into what a student's ability actually is rather than just their GPA. Therefore, HSGPA should be used as a way to measure high-achieving students while not discounting all other students who may have soft skills that could also make them a successful nurse. Ralston et al. (2017) mentioned that graduation rates could be influenced by rectifying poor study habits, such as those who lack time-management skills. Elchert et al. (2017) supported this notion and stated that behavioral skills such as dependability, cooperation, interests, and goals should all be factored in for nursing school admission to improve student success.

A more holistic approach to admission, as well as student support, could aid in graduation rates. Beauvaisa et al. (2014) investigated significant factors related to academic success among nursing students and found that overall spiritual well-being, empowerment, and resilience were all important factors in academic success. Additionally, an important attribute of nursing, emotional intelligence, was not represented in student performance (Beauvaisa et al., 2014).

Previous research did not refute this study's findings. However, they also offered additional variables that may further explain the phenomenon.

These results align with Bloom's (1976) theory of school learning. While the theory (Bloom, 1976) focused on formative testing as predictors of successful education, the model also incorporated reading comprehension and verbal intelligence as well as attitudes towards the subject matter in school learning as important variables (Haertel et al., 1983). Other factors could be the quality of instruction with the utilization of cues and adequate feedback. These variables were not factored into the predictors of academic success and graduation within the study. Although Evans (2017) used this theory and examined ACT scores and preexisting GPA as predictors and found them valid, other potential variables were not included—leading to questions that might aid in academic success.

How Are Alabama Associate Degree Nursing (ADN) Preadmission College Grade Point Average (GPA) and Standardized Test Scores Related to ADN Student First-Time Pass Success on the National Council Licensure Examination-Registered Nurses (NCLEX-RN)?

The results of the independent sample *t* test showed that there was only a significant difference in the cumulative preadmission GPA by passing the NCLEX-RN exam on the first attempt. The results of the point-biserial correlation analysis showed that only the cumulative preadmission GPA was significantly negatively correlated with passing the NCLEX-RN exam on the first attempt. The results of both analyses supported the alternative hypothesis for research question two, which states that there is a relationship between preadmission college GPA, ACT scores, and TEAS scores and ADN student first-time pass success on the NCLEX-RN. Specifically, the results showed that there was only a significant negative relationship between preadmission college GPA and ADN student first-time pass success on the NCLEX-RN.

While the dependent variables remain the same for the second research question, other studies have focused extensively on the independent variable of NCLEX-RN. Twidwell and Records (2017) agreed with the results of this study and found that admitting the strongest candidates as found through testing and GPA helps reduced nurse attrition rates and increases NCLEX-RN pass rates to help reduce the shortage of nurses. Standardized tests are the most effective predictor for success when first attempting the NCLEX-RN. Yet, Van Hofwegen et al. (2018) countered this assertion and noticed that when students retake the NCLEX-RN, resilience and work ethic along with psychological empowerment and spiritual well-being all aided in taking the NCLEX-RN. The authors found that a GPA of 3.41 did not predict NCLEX-RN pass rates, nor were TEAS scores a significant variable either. This runs contrary to the findings of this study. However, it should be remembered that these variables were only identified in the second attempt at the NCLEX-RN.

Attrition is another variable that can negatively influence student success on the NCLEX-RN exams. Poor attrition of passing the NCLEX-RN can influence a school's accreditation (Snyder, 2018). Snyder (2018) focused on nursing GPAs and HESI standardize examination scores and found that they directly related to lower attrition and successful pass rates on the NCLEX-RN exam. Langford and Young (2013) supported the effectiveness of HESI as a predictor in passing NCLEX-RN. Therefore, HESI may be a more valuable tool to predict attrition than TEAS or ACT scores. Newton and Moore (2009) noted that the preexisting tests taken along with GPA have a direct effect on the student's NCLEX-RN exams. The authors found that those who barely met the admissions criteria often initially failed the NCLEX-RN even if they graduated from the program (Newton & Moore, 2009).

A large focus on the previous literature was not just for first-time takers, but also those who retook the test as previously mentioned within the works of Van Hofwegen et al. (2018). Providing avenues for students to retake the test could help reduce nurse shortage. Sears et al. (2015) found that variables such as critical thinking were strong factors in passing the NCLEX-RN, while stress and negative emotions were detrimental; also, English and language skills along with age, gender, and ethnicity all influenced whether a student was successful. These variables could also relate to whether the student has the wherewithal to retake the test or not. Future research could repeat this study, but on second or third attempts of the test to further understand the importance of these variables.

Bloom's (1976) theory of school learning framework greatly relates to the success or failure in passing the NCLEX-RN. There has been a lack of research regarding the connection between NCLEX-RN and Bloom's theory (Turner, 2018). However, recent models of Bloom's theory, as proposed by Marjoribanks (2006), have insisted that environmental and individual variables such as cognitive ability and demographics should be factored into the theory. These variables are not included in this study, thereby potentially limiting the applicability of Bloom's (1976) learning theory. However, the lack of these variables has also created new opportunities to identify gaps within the education process to help students pass the NCLEX-RN. By using Bloom's (1976) theory of learning, I was able to understand the role that the criteria for admission play in passing the NCLEX-RN. Previous testing and academic achievement did correlate with success or failure when taking the NCLEX-RN. However, it is the updated version of Bloom's theory that can provide avenues for further research. As more and more variables can determine the success or failure test-taking, it is important to identify those who have the greatest

influence. This study reinforced that previous test-taking and GPA do influence test grades; however, there may be other forces at work.

What do the Findings Mean?

The results of this research offer plenty of opportunities to address the problem. However, these findings have reduced transferability due to the limitations and assumptions previously discussed. These findings will be discussed as they pertain to those at the individual, family, organizational, societal, and policy levels. At the individual level, there was a direct correlation between GPA, test scores, and graduation and final exams. Students would be aware now that their ability to take a test will have a direct influence on whether they graduate and become a nurse. Students are now armed with the knowledge that not only should they study the content of the nursing program, that they should also be proficient in standardized testing. Students who may not test well may be up against an extended challenge versus those who do. The students can then make decisions as to whether nursing is the right path for them, thereby saving money and time. However, this study should not completely deter potential nursing students but rather offer them guidelines into making a decision that is right for them. Implications at the family level go along with those of the individual level. Nursing school can be expensive both in time and money. Individuals thinking about using a nursing program to better their families do so with a risk. This study provides information to students who may be better served by saving their time and money for another program, thereby helping their families.

Institutions would also do well to heed this study. Accreditation is based upon graduation, and student attrition can reflect negatively on the school. Therefore, organizations should place an extended emphasis on previous tests. While other studies have shown that variables such as emotional intelligence, cognitive aptitude, and student support systems may

mitigate low test scores, community colleges should still factor in tests and GPA when trying to maintain their accreditation. At the very least, organizations can now see how important the ability to take standardized testing is. Organizations can now invest not just in the subject matter but also in teaching how to handle such extensive tests. By focusing on test-taking as well as the subject matter, students will be better prepared, attrition rates should lower, and colleges would be safer in keeping their accreditation. Lastly, this study has societal and policy-level implications. There is a shortage of nurses in Alabama and other states. To rectify this discrepancy, a policy should be created to foster nursing education programs. Rather than deter students who are discouraged by the process, a policy can be created to reinforce test-taking skills. An increased number of nurses can help local populations with health concerns and increase the quality of life for the local community.

This paper had numerous assumptions, delimitations, and limitations, which could have affected the generalizability, trustworthiness, validity, reliability, and transferability of the findings. It was assumed that the students' pass or fail results were entirely dependent on that person's preadmission college GPA, ACT, and TEAS scores. It is in this assumption that there was a discrepancy with the literature in Chapter 2. Many authors noted that variables such as cognitive skills and emotional intelligence could influence the nursing student success rate. Additionally, the research did not account for student dropout or failure to attempt the exam due to health concerns or other personal situations. This assumption also could have influenced the results, as student attrition for any number of reasons was shown to be an important variable. These attributes were not covered within this study, thereby influencing the generalizability and validity of the results.

This study also had delimitations. The first delimitation was a student's geographic location. While the research highlighted the issue of poverty in the state of Alabama and the low number of nursing students, this study may not be transferable to other states where demographics and socioeconomic concerns might not be as prevalent. This study was also delimited to GPA and ACT scores as predictors. However, this delimitation removed variables such as IQ, demographic factors, subscores, level of interest, and other variables found noted in Chapter 2. Much like the assumptions previously mentioned, the lack of focus on all of these variables creates questions of reliability—as any one of these variables may have a stronger influence than those that were selected. This study was also delimited to 2-year associate programs within the Alabama Community College System o. The study did not include private or technical trade schools. These schools may differ, as they may provide increased student support systems. The literature in Chapter 2 mentioned that student support systems could be a great way to mitigate student attrition and increase test scores. It is unknown whether this study's results can be transferred to such private institutions. Including private schools could help rectify the generalizability of these findings.

Lastly, this study had multiple limitations. The first was that it was quantitative and used preexisting secondary data, so the researcher did not have direct contact with the subjects. Therefore, this research was lacking a focus on other obstacles nursing students may face. This study was greatly influenced by relying upon secondary data. The secondary data prevented the researcher from inquiring about any other variables that may have been pertinent to this study. Relying solely upon GPA and test scores, the researcher was unable to take a completely holistic approach to any other elements that may have affected the results. This is not to say that the findings of the study were not valid. Instead, they are limited to specific parameters and were

seemingly unable to capture a student's full plight on where or why they are failing to graduate and pass the exiting tests. Its resources also limited the study. While it was previously mentioned that other southern states also face a crisis of nursing students, this study was unable to compare and contrast the phenomenon with neighboring states. Therefore, the transferability and other situational variables can only be applied to those found in Alabama. Future research may wish to rectify this.

Implications

This study had numerous implications. Many states have a shortage of qualified RNs due to nearly 16% failing their exit exams. This exit exam often determines whether the nurse gets to enter the workforce or not. Student attrition attributed to the NCLEX-RN creates a shortage of nurses, especially in states where they cannot afford it. In this study, I attempted to investigate significant variables that may be related to the passing or failing of the NCLEX-RN exam. By isolating each variable in determining the degree of significance between them, the researcher hoped that Alabama and other states suffering from nursing shortages could increase nurse graduation through the findings. These results could help the state of Alabama, the U.S. government, community colleges, program directors, instructors, and students who are all involved with the nursing program by determining that ACT and GPA are all related to graduation and the passing of the final exam. Nursing programs can then be better suited to help students with standardized testing.

Standardized testing was a strong indicator of the success of graduation and pass rate of final exams, meaning that teachers should focus not just on the content but on how students take the test. Utilizing preadmission variables, nursing programs in the state of Alabama can better forecast the number of RNs, thereby creating programs to help rectify the deficiency in advance.

This study had implications for the nursing students as they may be more aware of the importance of their test-taking skills. There are also implications for community colleges, as they are now better suited to identify, select, and admit students who are more likely to pass the NCLEX-RN on their first attempt. By doing so, nursing programs will be able to keep their accreditation—thereby allowing more nurses to graduate.

The licensing board can positively use this data. The licensing board should first consider ACT scores when issuing accreditation. Schools may be admitting students who may need extra time or who may not just be good at test-taking. By focusing on this factor, they may be less likely to revoke an accreditation as those schools are providing a service to students who need more attention. The study also had implications for nursing students. By promoting the results of this study, nursing students may be able to save time and money if they feel they are not great at passing standardized tests. This could diminish the need for student loans and place students on a path more viable for their skills. It could also improve their mental well-being by reducing stress, frustration, and financial concerns.

Directions for Future Research

This investigation offered numerous avenues for extended research. New research could grow from changes in methodology, research design, and differing variables. Perhaps the most extensive and needed research is the addition of other variables. The literature mentioned that soft skills, such as cognitive ability or emotional intelligence, might be factors in graduation and nursing success. The study did not include variables outside of test scores and GPA. Therefore, other variables should be identified and included to determine the strength that tests and grades might have with passing the final exam. Another variable that should be considered is whether the program has a student support system. Student support systems can include peer-to-peer

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counseling, access to their professors and academic advisors, study groups, and even counseling. All of these elements could have a great influence on whether students have increased test-taking skills and higher graduation rates.

The last change in variables should focus on demographics and socioeconomic concerns. This study was centrally located in Alabama due to its nurse shortage. Other southern states also have nursing graduation issues. However, it is unclear whether they are affected by the same causes. Additionally, it is unknown whether geographic location along with socioeconomic conditions actually influences test grades, GPA, final exam scores, and graduation. Should these variables occur at the national level, the federal government may be able to offer some degree of recourse; however, if they are local, then states should do their best to try to mitigate the negative results. As language was cited in the literature as a potential barrier, demographic concerns should also be examined.

One avenue for obtaining more variables would be to perform a qualitative research study in which students are asked where they feel they are weak, along with any obstacles that might be preventing them from academic achievement. These variables may not have been mentioned in the literature, creating an avenue for expanded knowledge. These variables can then be placed in mixed-method research alongside test scores and GPA to determine the significance of each variable. This study provided a basis that tests and GPAs scores do influence graduation and exam-taking, yet it remains unknown to what degree other variables may play a role in graduation and exam-taking. Therefore, researchers should use this project as a base to build upon future studies.

Summary

To make this investigation's results easily consumable to policymakers, the researcher has created a list of the lessons learned from the study:

1. There is a shortage of nurses in southern states due to a lack of students being able to graduate and pass the final exam. Low passage rates go beyond the shortage of nurses and can affect the individual with student loan payments and reduced institutional accreditation.

2. Tests such as ACT and the preexisting GPA demonstrate a student's prior academic success; however, it was unknown the direct correlation between these variables, graduation, and passing the final exam. This study found positive, significant relationships between the variables—indicating that students with high marks are more likely to find a career in nursing.

3. The literature pointed to a variety of other variables that may also mitigate student attrition, such as student support groups, emotional intelligence, and cognitive behavior. However, this study only focused on academic record—thereby limiting its transferability and generalization.

4. Policymakers at community colleges should focus on previous test scores and grades if they want to see an improvement in graduation rates and maintain their accreditation. Students, in turn, should be made aware that their previous test scores may be an indicator of their academic success to measure whether nursing school and its associated student debt are right for them. Lastly, students and school administrators should emphasize test-taking skills as well as the academic content to help mitigate the problem.

Conclusion

Associate Degree in Nursing (ADN) programs utilize ACT scores and preadmission college GPA scores to admit students into the program; however, it was unknown the extent to which these indicators predicted student success once admitted into the nursing program. Therefore, the purpose of the study was to understand the relationships of ACT, and pre-admission college GPA with student success in an ADN program and how these education metrics affect the success of a student in the NCLEX-RN nursing exam. To achieve the study's purpose and address the guiding research questions, a quantitative, correlational research design was used. The literature review of the study largely confirmed the results; however, upon comparison, other variables were uncovered that provide the opportunity for future research. The results of the study found a significant relationship between preexisting GPA, test scores, course completion, and the final exam. The results indicated that schools should put a focus on preexisting test scores if they want to lower student attrition and ensure their accreditation. Students would also be well-informed to improve their test-taking skills for the final exam. This study provided a basis for future research, which could employ other variables such as student support systems and emotional intelligence into how they factor into student success.

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Major *(e.g., Health & Sport Science)*: Higher and Adult Education

Thesis/Dissertation Title: An Examination of the Relationship Between Associate Degree Program Pre-Admission GPA, ACT, and TEAS Scores and Degree Completion and Success on the NCLEX-RN

We, hereby, certify that this document has been reviewed for form and content; and therefore, recommend that it be accepted for degree conferral.

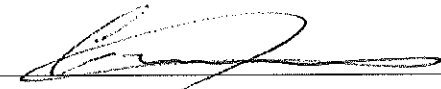**Thesis or Dissertation Committee Names:**
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