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NCLEX-RN Success: Correlation Study of ATI Comprehensive Predictor in an Associate Degree Nursing Program

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NCLEX-RN Success: Correlation Study of ATI Comprehensive Predictor in an Associate
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by

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Abstract

The purpose of this quantitative study was to determine the relationship between the ATI

Comprehensive Predictor and NCLEX-RN success on first attempt for the ADN program

at a consortium of three community colleges in the foothills of North Carolina. The

population sample consisted of graduates from the associate degree consortium of three

community colleges in the foothills of North Carolina in 2014-2015 that have made one

attempt at NCLEX-RN. The total number of students included in the study was 111. The

results were collected and analyzed utilizing the SPSS version 23 statistical system and a

predictive spreadsheet to determine overall predictability. The data analysis

demonstrated an overall predictive reliability obtained by dividing the number of testers

predicted correctly by the number that actually passed or failed the NCLEX-RN on first

attempt or 97 divided by 111 = 0.873 or 87%. The NCLEX-RN passage rate for the

population that had a predictor of 95% or higher was 91%. The data analysis

demonstrated a better predictability of passage than failure in the study population.

Acknowledgments

The project was made possible by the expertise, support, and encouragement provided by the faculty of the study ADN program and MSN faculty of Gardner-Webb University. A special expression of gratitude to Dr. Cindy Miller thesis advisor for her relentless encouragement. This would not have been possible without the love and support of my husband, son, and close friends that have always supported and encouraged my dream.

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CHAPTER I

Introduction

Nursing programs have addressed the need to improve the passage rates of

graduates that are taking the NCLEX-RN since the inception of the exam in 1982. This

includes both the baccalaureate and associate degree programs. NCLEX-RN success

rates have been monitored by programs, institutions, and the appropriate nursing board as

an indicator of the educational quality presented in the program. Nursing faculty have

searched for instructional methods that demonstrate improvement in the NCLEX-RN

outcomes especially for first time attempts (Homard, 2013). The search has included the

utilization of assessment programs including standardized testing to demonstrate

improvement. The environment of health care has changed since 1982 and faculties are

challenged to adapt their method of instruction from a knowledge base format to a system

of preparing lifelong, critical thinkers. Many nursing programs have switched to a

concept-based instruction to engage the students in building increased critical thinking

skills throughout their programs. Nursing educators have remained accountable for the

curriculum to produce graduate nurses that are capable of thinking and functioning in a

diverse, changing health care environment to deliver quality patient-centered care

(Romeo, 2010).

Nursing programs have been dependent on NCLEX-RN passage rates to obtain

funding, attract applicants, and improve ratings. Passage rates are linked to licensure and

accreditation standards compliance as an outcome measure for the program. Failure to

pass NCLEX-RN has been linked to the nursing shortage that is prevalent in the nursing

profession now. These failures have led to the implementation of aggressive prediction

and remediation measures to facilitate the improvement of NCLEX-RN passage rates (Simon, McGinnis, & Krauss, 2013). Successful preparation of students to pass the NCLEX-RN has been and continues to be the goal of nursing faculty in all educational settings. Passage of the NCLEX-RN is a requirement to function as a licensed registered nurse in any health care setting.

Technological advances have allowed for distance education providing access to a more diverse student population in most programs. The advances have provided some difficulties for instructors that are not as technologically adept. Faculty loads have necessitated the usage of commercial programs to assist the instructors in engaging the student population. NCLEX-RN results have been determined to be an outcome measure for the instructors as much as the students.

The desire for improvement in the nursing programs has led to the usage of standardized testing to predict the success of students on the NCLEX-RN. The Associate Degree in Nursing (ADN) program, managed by a consortium of three community colleges in the foothills of North Carolina, recognized this need and instituted the usage of the Assessment Technologies Institute (ATI) platform in the nursing program 10 years ago. The standardized tests are utilized to enhance the student's learning and critical thinking in all subject matter presented during the nursing program. Testing packages are expensive and depend on student participation with a requirement of time by faculty members (Homard, 2013). Exit examinations have been noted to be a part of the standardized testing packages and these scores have been found to predict academic success of the student (Homard, 2013). These standardized packages are designed to assist the student in the testing process by learning how to read questions and

respond appropriately. The standardized testing program is dependent upon the student's participation and the requirements of the nursing program related to the completion of activities in the program.

In 2015, the consortium ADN program of the three community colleges had a NCLEX-RN passage rate of 86%, which is above the national average but remains below the goal of the program director and faculty. The community colleges' three year average NCLEX-RN pass rate for the years 2012-2014 was 90% but a drop had been noted in passage since 2013 (North Carolina Board of Nursing [NCBON], 2015). The cause of the decrease could be attributed to varying causes including the revision of the NCLEX-RN exam in 2013. The economic and unemployment status in the region increased the applicants' age for the program which led to the lack of computer experience as a barrier to successful utilization of the ATI program initially.

Students in the ADN program have dedicated two years of their life with passage of NCLEX-RN as the desired outcome. This dedication of time has not included the cost related to the nursing program. The ATI package has added a cost of approximately 600 dollars to each student, so it is recommended that all programs review results and conduct studies to validate the success of the standardized testing package. ATI has provided results to the program but an independent study has not been conducted for the above mentioned program.

Faculty members have reviewed results from previous years with some discussion related to students' participation and requirements of the program. There have been concerns voiced by the faculty related to the ATI Comprehensive Predictor and NCLEX-RN success. Studies have been conducted in literature related to standardized testing and

NCLEX-RN success with varying results based upon variables such as population, programs, and standardized testing packages. This study should meet the goal to assess the validity of the ATI package for the added cost and time commitment of the students and faculty.

The ATI Comprehensive Predictor has been a requirement of the capstone course of the ADN program. The predictor consists of 180 questions related to the material that has been presented throughout the nursing program. The predictor was designed to mirror the NCLEX-RN exam. The NCLEX-RN has intensified in difficulty every three years and is expected to intensify in 2016. The NCLEX-RN was designed to target a test taker's weakness and utilizes an alternate item format. NCLEX-RN questions were designed to reflect safe and effective nursing practice. The ATI Comprehensive Predictor provided the assessment of comprehension and mastery of basic principles of nursing practice (Assessment Technologies Institute [ATI], 2015). The students received the ability to identify areas of weakness that require more study before progressing to the NCLEX-RN.

The purpose of this quantitative study was to determine the relationship between the ATI Comprehensive Predictor and NCLEX-RN success on first attempt for the ADN program at a consortium of three community colleges in the foothills of North Carolina. The ADN program was based throughout three rural North Carolina counties with variable populations and resources. The research study was based upon the General Systems Theory. The theory has been utilized to assess systems in various fields including nursing. The theory has been defined as a general science of wholeness including elements mutually interacting (Sieloff & Frey, 2015). The General Systems

Theory guiding principles are based on system boundaries and the exchange of information and resources that allow the system to function (Dunn, 2012). The thesis study elements are identified as: NCLEX passage as the goal, standardized testing to assist the structure, and the ability of faculty to determine effectiveness of program in the decision-making, and information exchange process. The elements have interacted together to focus on knowledge development preparation so that nursing students can enter the healthcare system to practice as a novice nurse. Functions of the ATI program assisted the students in test-taking skills and increased understanding of subject matter presented in courses. The ATI program has offered the students and faculty resources to enhance the application of subject matter during the ADN program. These strategies are employed to improve the NCLEX-RN passage rate for the program. The current utilization of the ATI program required an independent study that could assess the correlation between ATI Comprehensive Predictor and NCLEX-RN success on first attempt to allow for an informed decision process by the faculty regarding the success or failure of the ATI Comprehensive Predictor. Systems as a whole are affected by a change in any part or variable. After completion of the study, results will have determined a positive or negative correlation between ATI Comprehensive Predictor and NCLEX-RN passage rates.

Students have demonstrated academic success when they graduate from a nursing program but that does not guarantee the passage of the NCLEX-RN. Faculty of the above mentioned ADN program have chosen to utilize ATI Comprehensive Predictor to assist the student in preparation for passage of the NCLEX-RN after graduation. An increase in NCLEX-RN passage rates would demonstrate that the decision was a success.

Students and faculty have need of successful passage rates to begin their nursing career and sustain the nursing program.

CHAPTER II

Review of Literature

The review of literature was conducted by the utilization of the following: nursing journals, Cumulative Index for Nursing and Allied Health Literature (CINAL), and ProQuest. The search was conducted using the following terms or combinations: NCLEX-RN predictability, ATI program, standardized testing, ADN, baccalaureate, and NCLEX-RN passage success. There have been a number of studies conducted related to NCLEX-RN success utilizing various programs to increase the success of the student population. A cross section of the studies are discussed in the following pages to define the research that has been completed and the areas that are lacking in research. The profession of nursing has been founded on research in the nursing practice which begins as a student.

Health Education Systems, Inc. (HESI)

A study conducted by Davis, Grinnell, and Niemer (2013) related the utilization of HESI standardized testing package to increase NCLEX-RN passage rates at a baccalaureate program level. The framework was quality improvement model with benchmarking as the process improvement technique. HESI results were instrumental in data collection as the nursing departments used the fundamentals, midcurricular, and exit exams to monitor progress through the nursing program. The researchers utilized three standard reports for documenting and trending performance measurements on standardized testing. The results demonstrated an improvement in all HESI scores after curriculum evaluation was implemented. One of the highlights stressed the importance of identification of students at risk so that remediation can occur to promote positive

academic performance. HESI summary compares national and school results for each test question allowing for areas of weakness in the curriculum to be identified so quality improvement planning could occur. The study was limited to the use of one standardized testing package and program. The success was the involvement of faculty and students in the quality improvement process of the program.

A literature review was conducted by Harding (2010) related to exit examinations and NCLEX-RN predictability. In the review, it was concluded that HESI exit examination was 96.4% to 98.3% accurate in predicting NCLEX-RN success. The review consisted of 16 studies with a discussion of the lack of an acceptable benchmark score related to passing. The studies reported correlational relationships with the test score and successful passage of NCLEX-RN. It was determined that the end of program computerized testing consistently predicts NCLEX-RN performance excluding failure (Harding, 2010). The challenge of predicting NCLEX-RN success has led to the recommendation not to depend on computerized examination scores as preparedness for graduation and NCLEX-RN readiness. The literature review demonstrated the interest and need for research related to predictors of NCLEX-RN success.

Higgins (2005) conducted a study that addressed the strategies for lowering attrition rates and raising NCLEX-RN pass rates. The study was conducted at a Texas community college that had seen rising attrition rates and decreased NCLEX-RN success over the past decade. The design of the study was mixed method with three phases. Phase I was data collection from the college of student files, class files, and student transcripts. Another data source was the HESI exit examination scores for the population of 213 students. The data was collected, refined, and coded for further statistical

analysis. Phase II was a qualitative study of ADN program directors related to processes in place to lower attrition rates and increase NCLEX-RN passage rates. Phase III included qualitative information from 10 nursing faculty at the researcher's institution by choosing faculty at random that were employed for more than three years full-time. The random selection was conducted by using the department telephone list. The information was gathered by conducting telephone interviews. The study was limited to students from three semesters and factors not included in the study could limit the results of the study. It was determined that biology grades and HESI exit examination scores were predictors of NCLEX-RN success for students. The study refuted earlier suggestions that demographic variables identify students at risk. Conclusion of the study demonstrated the opportunity for further research on predictors of NCLEX-RN success and the importance of viewing students as individuals unique and complex (Higgins, 2005). Other studies suggested by the author were:

- Examining the relationship between the number of times students completed pre-requisite courses , complete the nursing program, and pass NCLEX-RN

- Identification of the most effective strategies to lower attrition and increase NCLEX-RN pass rates

- Comparison of programs with high and low pass rates

- Conduction of a study by other nursing programs related to the significance of nursing skills course and NCLEX-RN passage (Higgins, 2005).

Homard (2013) conducted a study on the impact of standardized tests on exit exam scores and NCLEX-RN outcomes. The basic standardized test package includes an exit examination taken during the last semester to determine student readiness to take the

NCLEX-RN (Homard, 2013). Previous studies in the literature review demonstrated a

correlation with academic success including NCLEX-RN outcomes. Three cohorts of

students were included in the study: (a) students who did not participate in a standardized

test package; (b) students with two semesters of a standardized test package; and (c)

students with four semesters of a standardized test package. NCLEX-RN pass rates were

higher for cohort three (86%) compared with cohort one (73%) and cohort two (59%).

The study demonstrated higher exit examination scores and NCLEX-RN pass rates in the

students with more opportunities to practice their test-taking skills. Limitations to the

study included the location was a small, private baccalaureate program. Other factors

included changes in admission, increase in exit examination benchmark, and progression

of GPA. Homard stressed in the conclusion that faculty cannot be solely responsible for

the success of the student but they must create a successful learning environment.

Admission requirements to nursing programs have been strengthened in an effort

to meet the goal of preparing students to practice in the health care settings of today.

Lauer and Yoho (2013) looked at HESI exams with consequences and remediation. The

study included quantitative and qualitative data. Surveys were distributed to deans and

directors of nursing programs in reference to their testing and remediation processes. A

random sample of 154 nursing programs was selected from a population of more than

600 programs. There were 66 responses from the directors and deans of the 154 nursing

programs that included ADN, BSN, and diploma programs. The student sample was

3,758 students from all three program types. Data collection for the student population

was the E2 scores which have demonstrated success in predicting NCLEX-RN passage.

The E2 measures the student's preparedness for the NCLEX-RN and provides scores that

can guide remediation efforts. Most of the students were in ADN programs. Data

collection revealed that 43 schools required a benchmark for the E2 scores and 42

required retesting if the benchmark was not met. The study determined that if an exam

such as the HESI Admission Assessment is utilized as part of the admission criteria,

students are more likely to graduate from the program. The use of the HESI

examinations allow faculty to recognize students that are struggling at an earlier stage so

that remediation can occur. The study demonstrated the relevance of attaching

consequences to the testing for failure to achieve the set benchmark determined by the

faculty. The value of standardized testing must be identified so that the student is aware

of the importance of participation in the process. The finding of the study was E2 scores

increased for students when consequences were attached to the results and remediation

was required rather than suggested. The limitations of the study related to the lack of

responses from diploma programs as well as the need to recognize that no one test score

can determine a student's fate in the nursing program.

Spurlock and Hunt (2008) conducted a study to examine the usefulness of the

HESI exit examination in predicting NCLEX-RN failure. It was determined that many

programs utilize the HESI exit examination as a sole predictor of NCLEX-RN passage so

the study looked at how well the exam was able to predict NCLEX-RN pass rates.

Design of the study was retrospective, descriptive, and correlational with quantitative

data. Sample size was 184 graduates from a single institution in a time period of one and

a half years. Five cases had no data related to NCLEX-RN outcomes so they were

excluded leaving a final sample of 179. Achievement of a score of 850 on the exit

examination predicts to passing on NCLEX-RN. Some students took the exam five times

in order to achieve a score of 850 or better. Results of the study demonstrated that students' first scores on the initial HESI exit examination were statistically significant in relation to the NCLEX-RN outcomes. Allowing students to retake the test until higher scores are obtained can lead to a false sense of security related to NCLEX success for the student and the program. The scores were determined not to be sole predictors of NCLEX-RN failure. HESI recommends the cutoff score for predictability but the study attributed a lower cut off score of 650 would have yielded more accurate results. The use of single site and lack of demographic data were related as limitations of the study. The end result or focus determined the need for faculty to rely on more than one exit examination to predict a student's chance of success on the NCLEX-RN in order to alleviate increased stress on the student toward the end of program exam (Spurlock & Hunt, 2008).

Scholastic Predictors

Studies have been completed to determine the effectiveness of scholastic predictors in the NCLEX-RN successful pass rates. These predictors include but are not limited to: grade point average (GPA), Scholastic Aptitude Test (SAT), and American College Test (ACT) Assessment. These predictors can be used in conjunction with standardized testing packages to predict NCLEX-RN success.

McGahee, Gramling, and Reid (2010) conducted a study to examine student academic variables from a baccalaureate program in an attempt to determine factors that are predictive of NCLEX-RN success. The sample consisted of 153 graduates of a baccalaureate nursing school program between fall 2006 and spring 2009. Scores were collected on an excel spread sheet and the study used a retrospective correlational design.

NCLEX-RN success was the dependent variable and predictor variables were science GPA, RN Assessment Test score, and four indicator variables for passing the four first semester nursing courses. The results demonstrated that several variables did have significant effect on the NCLEX-RN success including RN Assessment Test scores and passing grades in Theoretical Foundations and Pathophysiology. The results were based upon a small sample size and a need for predictor of failures as well as successes are needed. Predictors of success assist faculty in curriculum development and remediation strategies for at risk students to promote a successful nursing program.

Romeo (2013) investigated the predictability of several variables in achieving first time success on the NCLEX-RN. The variables included nursing GPA, combined math and verbal SAT scores, and critical thinking on a standardized assessment exam. The design of the study was a quantitative, comparative, retrospective research model. The sample size had a range of 141-182 associate degree graduates based on the variable studied. The data was collected and student confidentiality was protected by not using names or personal identifiers. Limitations of the study included one program level, timing of assessment test, critical thinking composite score, and NCLEX-RN passing more stringent. The study determined that the nursing GPA was the strongest predictor of NCLEX-RN success. This would correlate that a student has participated in the learning process throughout the courses of study increasing their probability of NCLEX-RN success on first attempt. Critical thinking skills were also significant predictors of NCLEX-RN success, reinforcing the importance of critical thinking skills for nursing practice and licensure (Romeo, 2013).

Assessment Technologies Institute (ATI)

ATI offers a standardized testing package that includes the ATI RN Comprehensive Predictor to assist faculty reach the goal of NCLEX-RN passage for students. The ATI predictor assists programs to identify students that may need remediation or assistance before attempting the NCLEX-RN. Institutions are searching for strategies to increase their NCLEX-RN passage rates and provide the education that the student needs to perform competently.

A study by Alameida, Davis, and Renwanz-Boyle (2011) investigated the relationship between the ATI Comprehensive Predictor and first time passage on the NCLEX-RN. The sample consisted of 627 students with 589 meeting the inclusion criteria. The researcher used correlational matrices, two step cluster analysis, and logistic regression in the study. It was established that a significant relationship exists between the ATI predictor and first time pass success. The cluster analysis indicated three groups of students from the ATI RN Comprehensive Predictor. The groups are: (1) students whose score on the ATI predictor predicted first time pass success and passed the NCLEX-RN on first attempt, (2) students whose score on the ATI exam predicted first time failure but passed the NCLEX-RN on first attempt, and (3) students whose score on ATI exam predicted first time failure and failed the NCLEX-RN on first attempt (Alameida et al., 2011). The ability to identify students at risk of failure and in need of remediation was stressed as a positive outcome of the study. Limitations of the study included the utilization of three program types with varying admission criteria. There was lack of control in the prior educational preparation of students since masters,

baccalaureate, and associate degree students were included. There was a curricular

revision implemented during the study that may have affected the study.

The thesis study by Dunn (2012) investigated predicting NCLEX-RN success

utilizing standardized testing. The purpose of the study was to determine if a correlation

existed between the ATI Comprehensive Predictor and success on the NCLEX-RN. The

study sample consisted of graduates during the time period January 2007- December

2011 totaling 285. Student confidentiality was protected by replacing identifiers with

numeric identifiers. The study was conducted on associate degree graduates from a

community college. The study was quantitative data collection utilizing SPSS software

for statistics. Dunn demonstrated a reliability of 78% for the population predicted

correctly which was lower than ATI's reported reliability of 87.5%. The study reinforced

the importance of institutions conducting an independent study of correlation and

reliability related to the ATI Comprehensive Predictor and NCLEX-RN success.

Sims (2012) conducted a study to investigate the curriculum design effect and

ATI RN Comprehensive Predictor ability to predict success on the NCLEX-RN. The

sample size was 83 students from two nursing programs. The data was collected in the

quantitative study protecting student confidentiality. The data was evaluated utilizing a t-

test and chi-square analysis. The study demonstrated that the scores on ATI

Comprehensive Predictor are predictive of NCLEX-RN success and curriculum design

was not identified as a significant factor (Sims, 2012). Limitation of the study would

include the small sample population.

The last study addressed was a study that looked at the North Carolina Central

University's Nursing program related to predictors of successful educational outcomes

(Ukpabi, 2008). The reason for the study was described as a decline in passage rate of NCLEX-RN to 65% in 2001. The study was a quantitative design without any demographic or personal data collected. It was determined by the data that the scores on the ATI standardized testing can be utilized to advise students and develop academic services to assist students in successful passage of NCLEX-RN (Ukpabi, 2008).

The review demonstrated the limited amount of research specific to the use of ATI in a rural community college ADN program. Research has provided opportunity to assess what is currently taking place in a program relevant to outcomes. Although the current passage rate of NCLEX-RN is above the national standard, it is not at the level desired by the current nursing faculty.

These studies indicated the importance of NCLEX-RN success for the student and program. Nursing education success has been determined to require commitment of time, finances, and energy for faculty and students. Improvement in the rate of NCLEX-RN success rate continues to be a goal in nursing programs today.

CHAPTER III

Methodology

The purpose of this study was to determine the relationship between the ATI

Comprehensive Predictor score and NCLEX-RN success on first attempt. The population

sample consisted of graduates from the associate degree consortium of three community

colleges in the foothills of North Carolina in 2014-2015 that have made one attempt at

NCLEX-RN. The total number of students included in the study was 111. Student

confidentiality was protected since no demographic information was included. Prior to

data collection, the purpose of the study, risks, and benefits were shared with the Dean of

School of Nursing and Director in order to obtain approval for data sharing. Notification

of ability to withdraw permission at any time was communicated to named authorities.

The researcher obtained permission from the University's Institutional Review Board

(IRB) before beginning the data collection.

The study to determine the relationship between the ATI Comprehensive

Predictor score and NCLEX-RN success on first attempt was based upon the General

Systems Theory as the framework. The data utilized by this study for the graduates of

2014-2015 is maintained by the college and ATI testing. Individual student results

(N=111) of the ATI Comprehensive Predictor and NCLEX-RN first time results for the

2014-2015 graduates were obtained and arranged on a spreadsheet. The quantitative

study consisted of ATI Comprehensive Predictor and NCLEX-RN pass/fail on first

attempt results collected and analyzed utilizing the SPSS version 23 statistical system.

The ADN program had utilized a predictor of 95% as a desired indicator of NCLEX-RN

passage on first attempt. ATI has utilized the following parameters as score predictions

for institutions:

- Individual predictor score of 80-100% results in 99% chance of passing NCLEX

  RN first attempt

- Individual predictor score of 77.3- 79.3% results in 98% chance of passing

  NCLEX RN first attempt

- Individual predictor score of 74-76.7% results in 96-97% chance of passing

  NCLEX RN first attempt

- Individual predictor score of 72-73.3% results in 94-95% chance of passing

  NCLEX RN first attempt

- Individual predictor score of 70-71.3 results in 91-93% chance of passing

  NCLEX-RN first attempt

- Individual predictor score of 68.7-69.3% results in 89-90% chance of passing

  NCLEX RN first attempt

- Individual predictor score of 66.7-68% results in 84-87% chance of passing

  NCLEX-RN first attempt

- Individual predictor score of 65.3-66% results in 80-82% chance of passing

  NCLEX-RN first attempt

- Individual predictor score of 63.3-64.7% results in 73-78% chance of passing

  NCLEX-RN first attempt

- Individual predictor score of 60-62.7% results in 59-71% chance of passing

  NCLEX-RN first attempt

- Individual predictor score of 54-59.3% results in 31-56% chance of passing

  NCLEX-RN first attempt (ATI, 2015).

The comparison of student scores on the ATI Comprehensive Predictor to NCLEX-RN first time pass/fail rates allowed the researcher to determine the relationship between the variables. The results of the study can be utilized by the ADN faculty to support the need for incentivizing the utilization of the ATI modules as preparation for NCLEX-RN success allowing for early recognition of students requiring remediation.

CHAPTER IV

Results

The sample for this study included graduates of an ADN program (N=111) from a consortium of three community colleges in the foothills of North Carolina. The 2014-2015 graduates had attempted NCLEX-RN and had taken the ATI Comprehensive Predictor during the last semester of the program. The ATI Comprehensive Predictor and NCLEX-RN results were obtained on a data spreadsheet. The faculty has utilized the 95th percentile as a predictor of success on the NCLEX-RN. Using that approach, the researcher noted that 68% of the population had a predictor of 95% or above with the NCLEX-RN passage rate of 91% for the subset. The NCLEX-RN passage rate was 86% for the entire population. This would suggest the faculty should evaluate the development of incentives to reach the goal of 95% or higher on the predictor.

The researcher utilized SPSS version 23 statistical software descriptive statistics to determine the overall distribution of individual results on histograms (Figure 1). The histogram for those receiving passing scores on NCLEX-RN displayed a normal distribution curve with outliers noted. The histogram for those receiving failing scores displayed a wider bell curve and demonstrated a wider distribution of results with outliers noted.
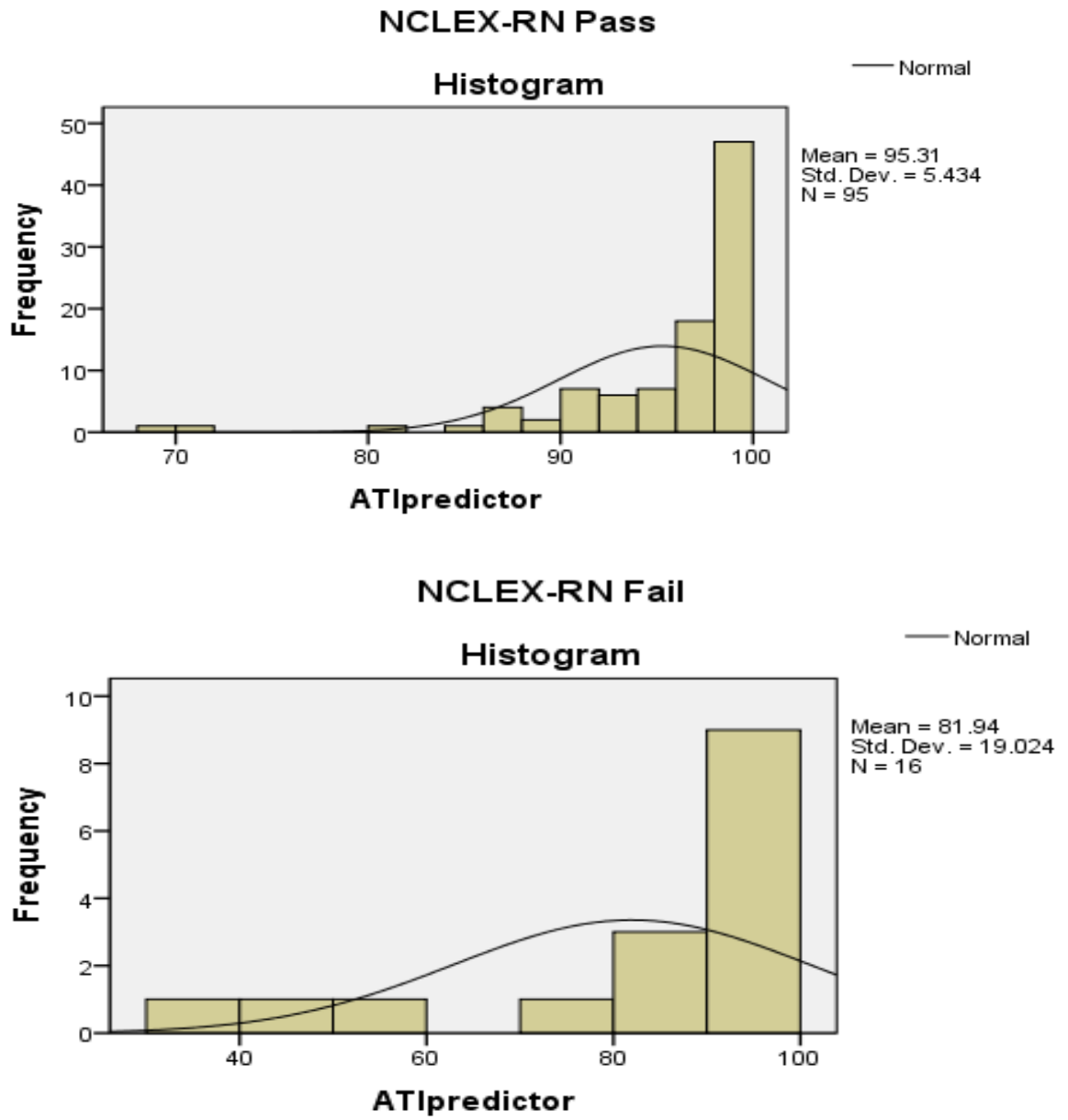
Figure 1: Distribution of Pass/Fail Results on NCLEX-RN

A t-test for Equality of Means was performed for the two groups. The test showed statistical significance, indicating the variances in the groups are significantly different. (Table 1)

Table 1

Independent Samples Test

	Group Statistics				
	NCLEX RN results	N	Mean	Std. Deviation	Std. Error Mean
ATI predictor	Pass	95	95.31	5.434	.558
	Fail	16	81.94	19.024	4.756

		Levene's Test for Equality of Variances		t-test for Equality of Means						
								Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference		Lower	Upper
ATI predictor	Equal variances assumed	50.431	.000	5.702	109	.000	13.368	2.345	8.721	18.015
	Equal variances not assumed			2.792	15.415	.013	13.368	4.789	3.185	23.551

The researcher was unable to obtain the formula used by ATI due to proprietary reasons. The percentages displayed in Table 2 demonstrate an overall predictive reliability obtained by dividing the number of testers predicted correctly utilizing a pass probability of 80% or higher by the ATI Comprehensive Predictor. This predictor corresponded to individual scores of 65 or greater on the exam. Overall predictability

was estimated for the above population by the number that actually passed or failed the

NCLEX-RN on first attempt or 97 divided by 111 = 0.873 or 87%.

Table 2

Probability of Passing NCLEX-RN with ATI Predictability

Predicted and Actual NCLEX-RN Pass/Fail Outcomes				
	Predicted Fail	Predicted Pass	N	Predicted (%)
Actual Fail	4	12	16	25%
Actual Pass	2	93	95	97%
N	6	105	111	
Correct Prediction (%)	67%	89%		Overall Predictability (%) 87%

   Table 3 represented the actual ATI Comprehensive Predictor and the passage rate

for each probability category related to the population of graduates. The visual display

allowed the researcher an opportunity to see the wide variance between predictor and

NCLEX-RN results. Graduates from 2014 had NCLEX-RN passage rate of 85% and

2015 passage rate was 86% which is comparable to the predicted percentages in Table 2

based on predictor score of 80% and higher.   The researcher noted that 42% of the

population scored 98% or above on the ATI Comprehensive Predictor with 100% passage

of NCLEX-RN. The next level of ATI Comprehensive Predictor was 96-97% and this

demonstrated a passage rate of 78% which represented a decrease of 22%.

Table 3

ATI Probability of passing with actual passing NCLEX-RN percentages for 2014-2015
Graduates of ADN Program

ATI Predictor of Passing NCLEX-RN	Individual score range	N	Percentage Pass
99%	80-100%	26	100%
98%	77.3-79.3%	21	100%
96-97%	74-76.7%	23	78%
94-95%	72-73.3%	9	78%
91-93%	70-71.3%	11	91%
89-90%	68.7-69.3%	6	83%
84-87%	66.7-68%	5	100%
80-82%	65.3-66%	4	25%
73-78%	63.3-64.7%	1	0%
59-71%	60.0-62.7%	2	100%
31-56%	54-59.3%	3	0%

CHAPTER V

Discussion

The overall data analysis would suggest that the ATI Comprehensive Predictor provided a reliable assessment for the population. Overall, the prediction for passage was better than the prediction of failures as 44% of the failures had a predictor of 95% or higher. The results demonstrated that the ATI Comprehensive Predictor would be a suitable tool to assess for NCLEX-RN readiness and success. The School of Nursing would be encouraged to perform more studies related to the results on a yearly basis looking for drops in reliability. The graph (Figure 2) below outlines the difference in actual and predicted NCLEX-RN results in a visual layout. The school could use the information gathered by the research as a foundational platform development of an incentive program for the upcoming student populations.
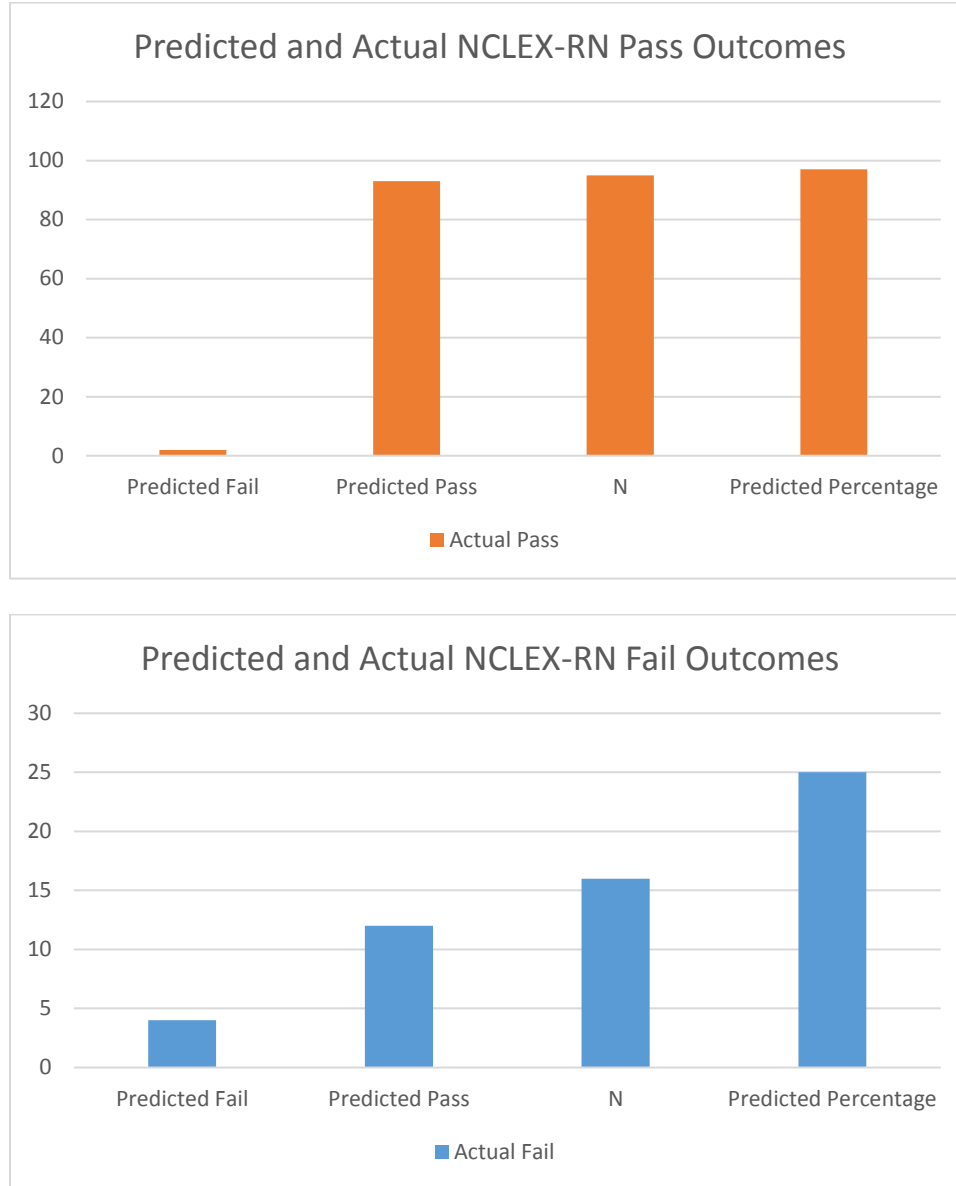
Figure 2: Predicted and Actual NCLEX-RN Pass/Fail Outcomes

Future research related to the ATI program would allow the faculty opportunity for assessment of module scoring throughout the program related to NCLEX-RN predictability. Technical literacy is a concern with a larger portion of older adults returning to school. This may inhibit their performance in the ATI program so future research would address this issue. The assessment of performance in each school of the consortium would enable identification of areas related to students or faculty for improvement planning. The completed research demonstrated that the ATI Comprehensive Predictor was a better predictor of passage than failure for the study population.

Conclusion

The researcher planned to determine the relationship between the ATI Comprehensive Predictor and NCLEX-RN success on the first attempt. There are human factors noted that could affect both variables such as test anxiety, computer experience, and lack of participation in the ATI learning modules. The ATI program has been used as an aid in the learning process supplemented by the actual classroom and clinical experiences of the program. It can be said that standardized testing has been shown to prepare students for the NCLEX-RN but there are no guarantees of a student's success or failure. The preparation has been enhanced by the ATI Comprehensive Predictor utilizing the same type of questions, format, and timing as the NCLEX-RN. It would be recommended that the School of Nursing utilizing the ATI Comprehensive Predictor perform annual assessments of the NCLEX-RN results related to the predictors. This practice would allow faculty the ability to perform a data review to determine outcomes for quality improvement. The outcomes could support the need to change or continue

with the current ATI program while examining the cost and time required by the students. The research has demonstrated that the ATI Comprehensive Predictor was more efficient in predicting success than failure. The need for further research related to population participation in the ATI modules throughout the program would be advisable as this could assist faculty members in reaching students sooner for remediation.

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