

Academic & Non-Academic Variables Impacting BSN Students Who are Unsuccessful on Initial NCLEX-RN

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Abstract- Nursing program quality is measured by first time National Council Licensure Examination-Registered Nurse (NCLEX-RN) pass rates. Therefore, many schools of nursing have implemented aggressive prediction and remediation measures to improve first time NCLEX-RN pass rate success. The purpose of this retrospective study was to determine predictors of success or failure on the NCLEX-RN for graduates of a Southeastern, Baccalaureate nursing program. Data was examined from academic records of students who completed Baccalaureate School of Nursing (BSN) program of study from Spring 2007 to Fall 2011. Results of the study reveal the importance of early identification of at risk students. Early identification allows for the implementation of strategies to aid in promoting student success on NCLEX-RN. These strategies include tutoring, state board review courses, study skills classes, time management classes and practice questions.

Index Terms— NCLEX-RN, Academic variables, Predictors, BSN, Nursing

I. INTRODUCTION

Nursing schools are required to maintain a minimum state board exam pass-rate in order to stay in operation with full approval of their governing board. Presently, each state has its own minimum standard. Minimum standards are placed on nursing schools in an effort to assure quality. The ability to identify students who will pass or who are at risk of failing the National Council Licensure Examination-Registered Nurse (NCLEX-RN) gives the nursing schools a measure of control over academic outcomes. The authors sought to identify academic and non-academic variables associated with BSN students who successfully passed the initial (NCLEX-RN) and the students who were unsuccessful on the initial NCLEX-RN. Faculty knowledge of measures which contribute to higher pass rates on the NCLEX-RN can assist in reducing

the nursing shortage by allowing more nurses to enter the workforce.

II. PURPOSE OF STUDY

The purpose of the study was to determine any differences in BSN students who successfully passed the initial NCLEX-RN and the students who were unsuccessful. Additionally, predictors of initial NCLEX-RN failure were identified.

III. LITERATURE REVIEW

Nursing programs are highly motivated to identify key factors associated with successful pass rates on the NCLEX-RN. A large body of published work on indicators of successful NCLEX-RN outcomes exists.^{6, 7, 10} This brief review identifies admission standards and retention as key factors of successful pass rates on the NCLEX-RN.

Preadmission Criteria

Crow et al identified grade point average (GPA) as the key indicator of NCLEX-RN success in earlier literature but is no longer the single associative factor.⁵ While GPA is an important indicator for success it does not provide educators with the complete picture and should not be used as the sole criteria for admission to nursing programs. Furthermore, students entering nursing programs have higher GPAs than many other academic majors because of students' expectation of nursing education rigor. The competition among applicants is intense and forces schools to examine not only GPA but additional criteria in hopes of attracting candidates with the best chance of success. Many nursing programs have found it necessary to utilize school specific entrance exams, ACT scores, pre-admission interviews and emphasis on grades in science courses in the admission selection process.²

In addition to GPA, current research has identified a striking connection between success in the NCLEX-RN and collective undergraduate nursing program GPA for prerequisite science and chemistry courses.² Students with a pattern of lower grades in prerequisite science courses struggled for successful completion of NCLEX-RN despite a having a high GPA (3.5-4.0).^{7,3} Pre-nursing predictors were identified as high school rank, sophomore GPA and pre-nursing science grades.¹² Also noted were low grades in science courses at the beginning of their senior year. These findings may be important markers in identifying at risk students.⁹ Biology, Chemistry and GPA are the primary pre-nursing course variables predictive of future program and licensure success.¹ In addition, BSN students who entered nursing programs with science degrees scored higher in nursing courses and exit exams as compared to students without a degree in this area.¹ Variables including mathematics, pathophysiology, pharmacology, and nutrition were not significant predictors overall in NCLEX-RN success.¹¹

Post Admission Criteria

In addition to broader admissions criteria, retention issues are key to NCLEX-RN success and experts suggest that the GPA of the introductory nursing courses be evaluated midway through the program. GPA in didactic nursing courses including Introductory Nursing and the Medical Surgical Nursing is predictive of performance in the NCLEX-RN.^{8,5} Krupa, Quick and Whitley concluded that grades from both courses were largely interconnected to NCLEX-RN success.⁸ In addition, junior and senior level students with high GPAs in theory courses also correlated strongly with NCLEX-RN performance.² Students with higher cumulative GPAs consistently demonstrated above average study skills, whereas students who lack those skills fare worse on the NCLEX-RN indicating a possible reason for unsuccessful first time completion.² Students struggling with borderline grades at program midpoints historically show a pattern of lower grades in prerequisite science courses.^{7,2} Consequently, performance in science courses prior to admission is a key consideration as previously stated in this article.

Nonacademic Variables

In order to accurately identify the at-risk student,

both academic and nonacademic variables require consideration. Significant nonacademic factors repeatedly identified include ethnicity, self-efficacy, test anxiety, self-esteem, and age.^{5,2} Job responsibilities, responsibilities at home and job responsibilities impact NCLEX-RN success. Test anxiety remains a primary concern for both students and educators. High levels of test anxiety are related to passing the NCLEX-RN.⁴ Research completed on Locus of Control and motivation strategies for learning in 2011 included consideration of test anxiety using the Motivated Strategies for Learning Questionnaire (MSLQ).⁴ Students with a test anxiety subscale of 2.9 (scale of 1-7) or lower were successful on the NCLEX-RN. Inversely, students scoring 5.0 or higher on the same scale were ten times as likely to fail their programs' exit exam and four times likely to fail the NCLEX-RN. A student's self-perception or self-efficacy also impacts ability to achieve success on the NCLEX-RN.⁴ High self-perception remains the best indicator of actual NCLEX-RN performance.⁴ Only GPA was found to be statistically significant in the non-academic variables examined when it came to successful completion of the NCLEX-RN. Self-esteem, test anxiety, age, and self-efficacy were found to contribute to the difference in NCLEX-RN scores.² These findings support the idea that understanding nursing curriculum and academic performance are only part of the equation when it comes to the achievement of success on the NCLEX-RN.

IV. METHODS

SAMPLE SIZE

A descriptive correctional study was performed to examine a four year college of nursing in rural Southeast United States to examine relationships between the identified variables. Student records for 267 BSN students from Spring 2007 to Fall 2011 were reviewed to identify academic and non-academic variables such as GPA score, final scores on core nursing courses, and number of attempts with percentages on Assessment Technologies Institute (ATI) Exit Exam, scores, on ATI tests during the program of study, number of times nursing classes were repeated, gender, and the time frame between graduation and initial NCLEX-RN attempt.

PROCEDURE

IRB approval was granted by the university. Data from ATI Comprehensive Predictor scores and individual ATI Exams for core nursing courses were gathered. The core nursing courses included Adult Health 1 and 2, Mental Health Nursing, Maternal-Infant Health Nursing, Pharmacology, Child Health Nursing, Complex Nursing, Public Health Nursing and Nursing Leadership/Management. Student names were replaced with numbers and all identifying information was removed. SPSS 16.1 was used to analyze the data. Pathophysiology grades were not included in the study because students may take the course prior to entrance into the nursing program.

V. RESULTS

Operational variables of the study sample are found in Table 1.

Demographic Variables	
Final course grades	Grades were identified as A=1, B=2, C=3
Drop Courses	Students who dropped classes before university assigned drop date
Withdrew from Courses	Students who withdrew from coursework after drop date and before end of semester
NCLEX-RN Attempts	Per board of nursing reports
ATI from pharmacology, Adult Health 1 & 2, Complex Care, Psych, Maternal Infant, Pediatrics, Leaderships, Pharmacology	*not considered high stakes exams Different weights assigned (per instructor discretion)
ATI Exit Exam Attempts	May take exit exam twice- Passing score is 97%
GPA	Final Grade Point Average (prior to acceptance in program)

There were 265 subjects in the sample. Of those, the majority were female (89.9%, n = 238). The mean GPA was 3.29 (SD = .29) with a range of 2.62 – 4.0. Out of the 248 students who graduated, 93.6% (n = 248) were successful on their first attempt at the NCLEX-RN while 6.4% (n = 17) were successful on their second attempt.

A chi-square test was conducted in order to examine differences in NCLEX-RN attempts by exit exam attempts. Overall, the students who were unsuccessful on first attempt on the exit exam were also unsuccessful on the first attempt at the NCLEX-RN. Results are found in Table 2.

Frequency and column percentages of NCLEX attempts and exit exam attempts (N = 265)

NCLEX attempts	Exit Exam Attempts							
	One		Two		Three+		Total	
	n	%	n	%	n	%	n	%
1 st attempt	169	73.8	36	15.7	14	6.1	219	95.6
2 nd + attempts	2	0.9	4	1.7	4	1.7	10	4.4
Total	171	74.7	40	17.5	18	7.8	229	100

$\chi^2_{(3)} = 36.305, p < .0001$

A Pearson correlation was conducted to examine the relationship between GPA and exit exam percentage. A direct relationship was found between the two variables ($r = .180, p < .01$) meaning that as GPA increased, exit exam percentage increased.

Independent samples t-tests were conducted in order to examine differences in GPA and exit exam percentage and success or failure on the first attempt at the NCLEX-RN. Both t-tests were significant.

Results are shown in Tables 3 and 4.

Table 3 |

Independent sample t test on GPA and success on NCLEX-RN (N = 265)

NCLEX-RN	M	SD
First attempt	3.29	.29
Second attempt	3.10	.24

$t_{(265)} = 2.509, p < .05, 95\% \text{ C.I.} = .04 - .33$

Table 4.

Independent sample t test on exit exam percent and success on NCLEX-RN (N = 265)

NCLEX-RN	M	SD
First attempt	88.19	27.16
Second attempt	52.47	46.03

$t_{(265)} = 3.162, p < .01, 95\% \text{ C.I.} = 11.86 - 59.58$

VI. CONCLUSIONS

The primary goal was to identify students at risk for unsuccessful completion of NCLEX-RN earlier in the BSN program to promote academic success. Findings of this study indicate that early identification of at risk students allows for the implementation of strategies to aid in promoting their success. These strategies include; tutoring, state board review courses, study skills classes, time management classes and practice questions.

VII. RECOMMENDATIONS

Remediation programs may be initiated earlier in nursing programs to increase the probability of success on the licensure examination. Based on trending identifiable variables from the research study, faculty gained insight to design and implement instructional plans to promote higher success rates on the initial NCLEX-RN. Measures which contribute to higher

pass rates on the NCLEX-RN can assist in reducing the nursing shortage by allowing more nurses to enter the workforce. Measures for future consideration by this University were increasing admission GPA for nursing program, mastery of ATI level 2 in core courses in progression of nursing courses, and exposure to ATI exams earlier in program.

Nursing programs with the potential to increase the overall pass rate on the initial NCLEX-RN examinations will assist in solidifying the reputation of the nursing program. Pre-nursing students would more likely attend a nursing program with a higher pass rate and a reputation of a caring nursing faculty.

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