Standardized Exam Scores as a Predictor for NCELX-RN® Pass Rates in a Second-degree Accelerated BSN Program

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Introduction

Background/Significance

• One measure of a nursing program effectiveness used by State Boards of Nursing and national accrediting bodies is its graduates' first-time pass rate on the National Council Licensure Examination, Registered Nurse® (NCLEX-RN).1,2 The impact of NCLEX-RN exam failure on individual graduates “precipitates feelings of loss and perceptions of social stigma, factors which may interfere with further attempts at success.”3

• Nursing programs implement standardized testing requirements as one method to assist in maintaining high NCLEX-RN first-time pass rates. High stakes testing policies for standardized exams often require students to meet exam cut scores to either continue in the program or to graduate.4,5

• Standardized exam publishers create score recommendations to predict NCLEX-RN success based on nationwide data. However, these studies do not differentiate among the types of nursing programs.

• Students in accelerated, second-degree BSN (ABSN) programs are taught the nursing curriculum in 12 to 18 months of full-time study. Given the shorter timeframe and the impact of high stakes testing, it is important to determine appropriate standardized exam cut scores to assure program completion and NCLEX-RN success.

Purpose

• The purpose of this retrospective study is to determine what cut score on standardized exams offered within an ABSN program are the best predictors first-time NCLEX-RN pass rates.

Methodology

Design

• This retrospective study used a convenience sample of ABSN graduates from a private health sciences university in northern California. The sample included all program graduates from 2014-2017 who took all seven offered standardized exams and NCLEX-RN licensure exam.

Data Collection

• The data were obtained from the testing agency records and merged with NCBSN data, demographic and other key variables from the university’s testing agencies. The data were obtained from the testing agency records and merged with NCBSN data, demographic and other key variables from the university’s testing agencies.

Data Analysis

• All standardized exam scores were analyzed using binary logistic regression using the enter method & exploratory data analysis.

• All content specific exams used in the ABSN program (Critical Care, Fundamentals, Maternity, Medical-Surgical, Pediatrics and Psychology) were analyzed using a binary forward logistic regression & exploratory data analysis.

• An ROC curve analysis was conducted to determine the optimal cut score of the predictor variable for all exams and specifically for the content exams. Both sensitivity and specificity were analyzed at each cut-off point in the ROC coordinates.

Results

All Standardized Exams N = 353

Regression analysis indicated the RN Exit V-1 exam score was statistically reliable in predicting NCELX-RN results. The RN Exit V-1 exam score was positively associated with passing the NCLEX-RN on the first attempt. As the RN Exit V-1 exam score increased, the students were more likely to pass on the first attempt of the NCLEX-RN. Other HESI content exams were not significant predictors of NCELX-RN results in the model using all exam scores. The overall model correctly classified 96% of the cases in the sample.

The ROC curve analysis determined a cut off score of 867 on the RN Exit V-1 exam as the threshold to pass NCLEX-RN on the first attempt. The AUC was .733, p = .003, CI [.585, .880], indicating that RN Exit V-1 score was fairly accurate in determining the optimal cut off score to pass the NCLEX exam in the first attempt.

All Content Specific Exams N = 353

Regression analysis indicated that of the content specific exams offered in the program, only the Critical Care and Fundamentals exam scores when considered together were statistically reliable in predicting NCLEX-RN first-time pass results. When considered individually, the Critical Care and Fundamentals exam scores did not contribute to significantly to predicting NCLEX-RN first-time success. The overall model correctly classified 96% of the cases in the sample.

Conclusions

• The RN Exit V-1 exam was a strong predictor of NCLEX success among all standardized exams. As the RN Exit V-1 exam score increased, the students were more likely to pass on the first attempt (p<0.05). The ROC curve analysis suggested a fairly accurate determination of the cut score. Students who score 867 or greater on the RN Exit V-1 exam were more likely to pass the NCLEX-RN on the first attempt.

• The standardized exam publisher recommend a test cut score of 950 and above as the best predictive of passing the NCLEX-RN on the first attempt.

• The model for content specific exam types with the ABSN program revealed that only scores on the Fundamentals and Critical care exams were predictive of NCLEX-RN success. No content exams independently predicted NCLEX-RN success. A score of 875 on the Fundamentals exam and 837 on the Critical Care exam were suggested cut off scores from the ROC curve analysis, although the AUC values indicated that these two exams were not very accurate determinants of NCLEX-RN success.

• Finding from this study differs from a report of national data obtained from all program types that Medical Surgical, Pediatrics and Critical Care were exams that predicted NCLEX-RN success.6 One single institution study noted the best NCLEX-RN success predictive content exams were adult medical-surgical, pharmacology, and community health.7

Recommendations

• Identification of standardized exam cut scores are important in predicting success on the NCLEX-RN licensure exam. Using exam cut scores provides students and faculty a method of monitoring student progress throughout a nursing program and can be used to develop individualized remediation plans for students to enhance program and NCLEX-RN success.

• Standardized content exit exams may be used as part of a comprehensive evaluation of a program curriculum, providing an external method of evaluating student learning.

• Publishers of standardized exams recommend cut scores based on national data. As many schools use standardized exam cut scores with high stakes consequences for students, the cut scores should be individualized to the specific institution program.

• Additional research using both cognitive and non-cognitive variables to identify at risk students early in nursing programs is warranted.

References


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