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Original Article

Relationship of academic courses and clinical internships to performance on the National Qualified Examination for Registered Professional Nurses (NQEX-RPN)



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ABSTRACT

Background: Success in the National Qualified Examination for Registered Professional Nurses (NQEX-RPN) is a critical issue for each nursing student and every nursing school. However, to date, little research has been conducted regarding the degree of risk for licensure failure associated with specific academic courses and clinical internships in Mainland China.

Objective: This study aimed to explore the relationship of academic courses and clinical internships to performance on the NQEX-RPN in Mainland China.

Methods: This was a retrospective descriptive study. Two hundred twenty-eight new graduates were recruited from a four-year baccalaureate nursing program in Mainland China. The scores of academic courses and clinical internships were recorded from the Teaching and Learning administration of the university. The NQEX-RPN performance data was collected from the Provincial Health Department. Personal information was collected from the participants. Multiple stepwise regression was used to identify predictors of the NQEX-RPN.

Results: Twenty-three courses and four clinical internships were positively associated with NQEX-RPN performance. Surgical nursing, Medical nursing, Computer basics and Community health care explained the 36.2% of the total variance of Theoretical Knowledge ($F = 31.313, p = 0.000$); clinical internships of obstetrics and gynecology nursing, pediatrics and surgical nursing explained the 28.1% of the total variance of Application Skills ($F = 28.852, p = 0.000$).

Conclusion: Surgical-medicine nursing, Community health care, Computer basics and clinical internships are beneficial in assisting students and educators to identify the risk of students' performance in the NQEX-RPN.

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1. Introduction

A recognized qualification is required before nurses can be registered and practice legally. The NQEX-RPN performance is an admission criterion in most countries. Success in the NQEX-RPN is therefore an initial goal of graduation among nursing students. The NQEX-RPN is also regarded as an indicator of the quality of nursing education programs. High pass rates on the examination promote nursing schools' reputation, maintain accreditation, attract new students, and provide safe care for the public [1]. Passing the NQEX-RPN is now becoming a critical issue for each nursing student and every nursing school.

Numerous studies overseas have been conducted to identify nursing students who are at risk for the National Council Licensure Examination-Registered Nurses (NCLEX-RN) failure as early as possible so that remediation can be promptly initiated. These studies have found academic predictors including in high school rank, Scholastic Aptitude Test (SAT) scores, American College Test (ACT) scores, entering grade point average (GPA), freshman and pre-nursing GPA, nursing GPA, GPA upon graduation, achievement in specific nursing courses, science course grades, Mosby Assess Test (MAT) scores, National League for Nursing Achievement Test (NLNA) scores, and Watson–Glaser Critical Thinking Appraisal (WGCTA) scores [2–4]. Among these influential factors, academic courses are one of the most significant study focuses. Different courses have been found to be related to the licensure exams due to curriculum differences among countries or areas. Lin et al. (2003) have reported that the scores of nine courses were weakly associated with the NQEX-RPN in a two-year associate nursing program in Taiwan, including Nursing II, Physiology Laboratory, Physiology, Pediatric Nursing, Physical Assessment, Public Health Nursing, Pathology, Physical Assessment Laboratory, Obstetric Nursing, Chemistry I, Official Document Writing in Chinese and Chemistry II [5]. Emory (2013) has indicated that the pharmacology assessment score was predictive with 73.7% accuracy of the NCLEX-RN performance in a baccalaureate nursing program in Fayetteville [6]. These studies imply that some specific courses can assist in early identification of at-risk students of the licensure failure. However, to date, no research has been conducted regarding the degree of risk for licensure failure associated with specific courses and clinical intern practices in mainland China.

In mainland China, the NQEX-RPN has been the only official licensure exam since the 1990s. Applicants since 2009 for the NQEX-RPN should meet the following requirements: formal nursing education from Secondary Technical Nursing Schools or higher nursing colleges accepted by the Ministry of Education; and at least eight months of clinical internships in teaching or general hospitals. The NQEX-RPN consists of two parts, Theoretical Knowledge and Application Skills. Each part ranges from 120 to 160 questions with one point for each question. It heavily relies on single choice questions including type A₁, A₂, A₃ and A₄. The questions are designed to assess examinees' abilities to understand, analyze, evaluate and apply nursing knowledge and skills. The minimum pass mark is determined on the basis of the number of examinees and

exam results each year. Very few local studies have sought to explore predictors of the NQEX-RPN performance in specific programs. A retrospective study by Su and Hu (2001) has showed that nurses' NQEX-RPN performance is significantly related to independent learning programs, admission scores of English and biology, and academic scores of English and fundamental nursing [7]. The cross-sectional survey from Su et al. (2010) has found that education background, grades of practicing hospitals, and efforts made to review for the exam are significantly correlated with the NQEX-RPN performance [8]. These previous studies are limited to nursing students or nurses among secondary technical nursing programs and associated-degree nursing programs, while predictors of baccalaureate nursing graduates' NQEX-RPN performance are not clear. In addition, the studies have not included for all specific academic courses and clinical internships as factors to predict NQEX-RPN performance.

1.1. Purpose

The purpose of this study was to explore the relationship of academic courses and clinical internships to the NQEX-RPN performance in a Chinese four-year baccalaureate nursing program.

2. Methods

2.1. Design

This was a retrospective descriptive study.

2.2. Sample

Two hundred twenty-eight new graduates were recruited for this study from a provincial, public four-year baccalaureate nursing program in the southeast of China. Inclusive criteria for the participants were: (a) completion of the baccalaureate nursing program and (b) the first attempt of the NQEX-RPN in 2012. The exclusive criterion was failure to advance to the next grade as planned during the program.

2.3. Data collection

Ethical approval was obtained from the university's research ethics committee. The purpose of the study, the participants' right to withdraw from the study, and their right to maintain privacy and confidentiality were fully disclosed. When their informed consent was obtained verbally, a questionnaire with personal information, academic scores, and NQEX-RPN performance was employed to collect data. Personal information was collected from the participants by the second author. The academic scores of all courses and clinical internships were recorded from the Teaching and Learning Administration of the university by the third author. The NQEX-RPN performance was copied from Fujian Provincial Health Department by the third author.

The data were analyzed with the Statistical Package for the Social Sciences version 15.0. Multiple stepwise regression was used to explore the predictors of the NQEX-RPN. The

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