Teaching and Learning in Nursing xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Teaching and Learning in Nursing

journal homepage: www.jtln.org

Correlation between critical thinking skills and National Council Licensure Examination for Registered Nurses success in accelerated bachelor nursing students [1]

Mahmoud A. Kaddoura, PhD, CAGS, APRN, NP-C, CNE [a,*], Olga Van Dyke, PhD(C), CAGS, MSN, RN [b], Qing Yang, PhD [a]

[a] Duke University School of Nursing, Durham, NC 27710, USA
[b] MCPHS University School of Nursing, Boston, MA 02115, USA

ARTICLE INFO

Available online xxxx
Keywords:
Critical thinking
NCLEX-RN pass rate
Exam outcomes

ABSTRACT

Critical thinking (CT) skills are expected of all nurses, yet a limited number of studies have explored the impact of CT on National Council Licensure Examination for Registered Nurses (NCLEX-RN) pass rates. We examined 110 students in a first-degree accelerated bachelor of science in nursing program to explore whether CT is a first-attempt predictor of NCLEX-RN success. We found that there was a statistically significant relationship between CT scores and passing the NCLEX-RN.

Introduction

Nurses need to utilize critical thinking (CT) skills to make appropriate clinical judgments, and nurse educators are responsible for producing graduates who are capable of making these important decisions. Because CT is an integral part of quality care within the nursing profession and the CT skills of all health professionals can directly affect patient safety, the National League for Nursing Commission for Nursing Education Accreditation (National League for Nursing Commission for Nursing Education Accreditation, 2016) expects nursing graduates to be able to demonstrate CT. The accreditation requirements of the American Association of Colleges of Nursing (2014) have mandated that nursing education includes content and activities specifically designed for the development and measurement of CT skills. CT continues to be an essential part of nursing and, therefore, must be a central factor of course content (American Association of Colleges of Nursing, 2014). CT skills are expected of all nurses for accurate interpretation of patient issues and appropriate management of their care. Patients' lives depend on nurses making quick decisions and taking appropriate actions (Shirrell, 2008).

There is currently no agreement on (or definition of) CT in nursing, and there is no appropriate theory to use as a CT framework in nursing education; however, many have attempted to describe what CT encompasses. For example, Brookfield and James (2014) described CT as developing an awareness of the assumption that an individual and others think and act. Despite there not being a coined definition of CT, most nurse educators recognize that CT is fundamental to achieving the primary goals of nursing education; this type of thinking is not a technique or method to be learned but rather a process or frame of mind that includes cognitive and affective domains of reasoning. CT is what students use to observe medical situations and the means by which they take care of problems to ensure that their patients are healthy (Brookfield & James, 2014).

The National Council Licensure Examination for Registered Nurses (NCLEX-RN) tests students' CT ability (Romeo, 2010). To establish and maintain credibility, accelerated nursing baccalaureate programs must, like all nursing programs, concern themselves with an accreditation process linked to graduates attaining high first-time pass rates in the benchmark NCLEX-RN. According to the National Council of State Boards of Nursing (NCSBN), the NCLEX-RN is designed to test knowledge, skills, and abilities essential to the safe practice of nursing at the entry level (NCSBN, 2016). In order to meet the increasing demand for entry-level RN competency, the NCLEX-RN is reviewed by the NCLEX Examination Committee every 3 years. The NCSBN has recently raised the minimum passing score on the NCLEX-RN. Nursing programs have been challenged by this change, so educators have focused on finding strong predictors of NCLEX-RN outcomes in order to

[1] Sources of funding: None.
* Corresponding author. Tel.: +1 617 771 2605.
E-mail address: kaddoura123@gmail.com (M.A. Kaddoura).

http://dx.doi.org/10.1016/j.teln.2016.08.004
1557-3087/

provide interventions to ensure that their students will pass the NCLEX-RN (Sifford & McDaniel, 2007).

A limited number of studies have explored the impact of CT on NCLEX-RN pass rates. The purpose of our study was to investigate whether CT is a first-attempt predictor of NCLEX-RN success. CT scores were measured by a standardized CT test developed by Health Education Systems, Inc. (HESI) and given to students at the start (entry CT) and end (exit CT) of their accelerated bachelor of science in nursing (BSN) program.

The NCLEX-RN is the final test a graduate nurse has to pass successfully before beginning a career. Graduate nurses are required to demonstrate CT skills and problem-solving skills by passing the standardized NCLEX-RN. Failing the NCLEX-RN has many negative ramifications, including personal and financial consequences, direct contribution to the already-critical nursing shortage, and the negative impact failure creates on a school's reputation (often with repercussions for admissions and faculty). As a result of this negative snowball effect, successfully passing the NCLEX-RN on the first go-around is a priority for nursing schools (McGahee, Gramling, & Reid, 2010). Looking at failure from an individual basis, graduates who fail the NCLEX-RN experience feelings of embarrassment, anxiety, loss of self-esteem, guilt, and social stigma; these feelings may negatively affect graduates' future attempts to pass the NCLEX-RN (Roa, Shipman, Hooten, & Carter, 2011). Accurately predicting NCLEX-RN success has a positive impact on all nursing education stakeholders (McCarthy, Harris, & Tracz, 2014).

Past research studies have explored many variables associated with NCLEX-RN success. For example, samples of BSN graduates (primarily from 4-year traditional entry-level programs) have been used to perform investigations into potential predictors of success using demographic characteristics like age, gender, and whether English is the student's primary language (Alameida et al., 2011; Giddens & Gloeckner, 2005; Lavandera et al., 2011; Lockie, Van Lanen, & McGannon, 2013). In addition to demographic characteristics, academic performance has also been explored as a potential predictor of examination success. Academic performance primarily includes cumulative grade point average (Landry et al., 2010; Lavandera et al., 2011; Reeve, 2014; Silvestri, Clark, & Moonie, 2013; Simon, McGinniss, & Krauss, 2013), the total number of grades of "C" or lower in nursing courses (Bentley, 2006; Lavandera et al., 2011), and standardized exams such as the HESI (E2) Exit Exam (Brodersen & Mills, 2014; Harding, 2010; Penprase, Harris, & Qu, 2013; Santo, Frander, & Hawkins, 2013). Nevertheless, only a few studies have studied CT as a predictor of NCLEX-RN success; consequently, our study is timely and significant.

Review of the Literature

Prior research has been conducted on factors that may help to predict students' success when taking the NCLEX-RN for the first time. Literature studies have found that academic, nonacademic, and demographic variables can predict NCLEX-RN outcomes (Billings & Halstead, 2012; DeLima, London, & Manieri, 2011). Using standard measures of CT and discriminant analysis, Giddens and Gloeckner (2005) were able to correctly classify 98% of students who passed NCLEX-RN but incorrectly identified approximately 79% of those who failed. Giddens and Gloeckner concluded that variables such as CT may be useful for predicting students who are likely to pass the examination but are unreliable predictors of those who are likely to fail.

Shirrell (2008) conducted a study to determine if CT is a predictor of NCLEX success and concluded that CT alone is not a good success predictor. Romeo (2010) also examined CT as a predictor of NCLEX-RN success via an integrative review process of analyzing quantitative research. Using the California Critical Thinking Skills Test and a sample of 163 nursing students, Facione and Facione (1997) reported a statistically significant difference in the mean total score of students who passed versus failed the NCLEX-RN, $t[162] = 3.27$, $p = .001$.

Hall (1996) also measured CT using the California Critical Thinking Skills Test and found that CT ability was significantly different between students who passed and failed the NCLEX-RN ($t = 3.36$, $p = .002$). Morris (1999) examined the relationship between several variables and NCLEX-RN performance and reported a statistically significant relationship between NCLEX-RN success and CT ($r = 0.22$, $p = .05$). After examining the studies mentioned above and performing an extensive literature review, we determined that more research is needed to better understand the relationship between CT and NCLEX-RN success.

Methodology

Study Design

Because our study involved analyzing existing data collected by one nursing program, we used a retrospective ex post facto, descriptive, correlational design to identify whether CT predicts first-time NCLEX-RN pass rates. Retrospective studies are nonexperimental, and there is no manipulation involved in relation to the subject (Creswell, 2013). All data were available from nursing school records. The CT scores were measured by a standardized CT test developed by HESI and given to students at the start (entry CT) and end (exit CT) of their nursing program. The dependent variable measured in this study was the NCLEX-RN first-time pass rates, and the independent variables included the entry and exit CT scores.

Sample and Settings

Our study took place at a nursing school that was at a private university in the Northeastern United States. The nursing school offers a 32-month year-round generic (first degree) accelerated BSN program. The students are eligible to take the NCLEX-RN once they have successfully completed the BSN program. The sample ($n = 110$) included students who graduated between the academic years 2007 and 2009, had completed entry and exit CT tests, and had record of NCLEX-RN results on file.

The generic accelerated nursing program is unique because it is the first and only program in the United States that offers students who just completed high school the opportunity to pursue a BSN in less than 3 years. Currently, all the other accelerated on-campus nursing programs are second-degree programs for students who already have a bachelor's degree in a different major. Furthermore, all of the traditional nursing programs in the United States are at least 4 years long.

Data Collection and Analysis

Once institutional review board approval was obtained from the university, we began collecting data from official college files and the database for baccalaureate graduates who completed the NCLEX-RN between 2007 and 2009. The demographic data collected included age upon graduation from the nursing program, gender, race, and whether English was the graduate's first language.

We used the HESI CT test to measure students' CT scores. HESI CT is used nationwide by nursing schools and is a valid, reliable, standardized, computerized examination developed to assess nursing students' CT skills. This multiple-choice test is composed of 30 questions in the form of health-oriented scenarios, with each question/scenario presenting four possible answers. The correct answer demonstrates the highest level of CT applied to the scenario, whereas the three incorrect answers reflect plausible (but nonoptimal)

Please cite this article as: Kaddoura, M.A., et al., Correlation between critical thinking skills and National Council Licensure Examination for Registered Nurses success in accelerated bachelor nu..., *Teaching and Learning in Nursing* (2016), http://dx.doi.org/10.1016/j.teln.2016.08.004