5-2012

Standardized Critical Thinking Assessments and NCLEX-RN® Success

Angela Mountain

Standardized Critical Thinking Assessments and NCLEX-RN® Success

Angela Mountain

Bachelor of Science in Nursing, University of Wyoming, 2003

An Independent Study

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science

Grand Forks, North Dakota

Spring

2012

PERMISSION

Title Standardized Critical Thinking Assessments and NCLEX-RN® Success

Department Nursing

Degree Master of Science

In presenting this independent study in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the College of Nursing of this University shall make it freely available for inspection. I further agree that permission for extensive copying or electronic access for scholarly purposes may be granted by the professor who supervised my independent study work or, in her absence, by the chairperson of the department or the dean of the Graduate School. It is understood that any copying or publication or other use of this independent study or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my independent study.

Signature 

Date April 23, 2012

This manuscript has been prepared for submission and potential publication to the journal *Nurse Educator*.

Standardized Critical Thinking Assessments and NCLEX-RN® Success

Angela Mountain BSN, RN, CMSRN and Jody Ralph PhD, RN

Author Affiliations: Master's of Science Student (Ms. Mountain), Assistant Professor (Dr. Ralph), College of Nursing, University of North Dakota, Grand Forks, North Dakota

Corresponding Author:

Jody L. Ralph, PhD, RN
430 Oxford St. Stop 9025
Grand Forks, North Dakota, 58201
T: (701) 777-5784
F: (701) 777-4096
jody.ralph@und.edu

Abstract

Assessing students' ability to think critically before beginning a nursing program and again at the completion of the program helps to determine to what degree students' critical thinking skills are developed throughout the whole of the nursing curricula. This study evaluated the statistically significant improvement in critical thinking scores of nursing students from entry to program completion. The relationship of critical thinking exam scores and NCLEX-RN® success was also evaluated but it was found that the scores and the change in scores did not predict NCLEX-RN® success.

Standardized Critical Thinking Assessments and NCLEX Success

Achieving professional nursing practice and passing the NCLEX-RN® licensure exam are key outcomes of nursing graduates (Daley, Kirkpatrick, Frazier, Chung, & Moser, 2003). However, success on the licensure exam is not only the culmination of the nursing program curricula but also the student's preparation for taking the exam as well as elements critical to nursing practice; some such elements as problem solving and critical thinking. As nursing has become a much broader and more complex profession, there is a wealth of information needed to gain a foundation in nursing practice. Students also need to possess the vital skill of thinking critically about their patients. With patient acuity rising, nurses are being called to care for patients with many different clinical manifestations (Cise, Wilson, & Thie, 2004). As stated by Ryan and Tatum (2012), "critical thinking is a significant vehicle supporting empowerment among nurses" (p. 89). It is critical thinking that enables the nurse to make decisions regarding the care of patients.

NCLEX-RN® success carries an impact on new nurses and potential employers but also on the schools of nursing from which they graduate. Successfully completing the nursing licensure exam is the culmination of the program for nursing students and is an indicator of the program's effectiveness (Daley et al., 2003). Employers are not eager to employ a nurse prior to successful completion of the NCLEX-RN® exam due to costs associated with orienting a staff member that may not be successful at passing the exam and require additional time to retest. Moreover, professional licensure exam failure may not be favorably viewed by potential employers and may be viewed as a concern about the level of nursing care (Daley et al., 2003).

Nursing graduates who are unsuccessful at passing the NCLEX-RN® exam are affected by their failure also by potential loss of wages, emotional distress, and the financial

consequences that may occur as a result of licensure failure (Nibert & Young, 2001). Vance and Davidhizar reported that unsuccessful candidates can also experience feelings of grief or inadequacy as a result of the testing failure (as cited in Nibert & Young, 2001). Many of these new graduates will attempt the licensure exam for a second time but some will not continue to pursue licensure potentially contributing to the overall nursing shortage. As professional licensure is required to work as a nurse, these graduates may find themselves at the completion of a degree program but unable to work in their studied field.

Critical Thinking in a Nursing Program

As success on the NCLEX-RN® licensure exam is the culmination of years of schooling and preparation, ensuring that nursing students have all the necessary preparation to be successful not only on the examination but in their profession as nurses is the ultimate goal of education. Many pre-assessment tests have been created to help nursing students identify weak areas of knowledge as well as preparing these same students for the examination itself. These tests can also help nursing programs to identify changes that may need to be made in curricula in order to improve their students' success.

There are many different types of pre assessment tests available for use with nursing students. The California Critical Thinking Skills Test, California Critical Thinking Disposition Inventory, and Watson-Glaser Critical Thinking Appraisal Tool are a few tools that have been used to measure critical thinking ability but are not specifically designed to be used with nursing students (Romeo, 2010). "The most commonly used standardized, norm referenced testing programs integrated into nursing curricula today include the Education Resources, Inc. (ERI), Health Education Systems, Inc. (HESI), and Assessment Technologies Institute (ATI)"

(Holstein, Zangrilli, & Taboas, 2006, p.301). All of these standardized assessments contain a critical thinking exam.

The ATI Critical Thinking Entrance/Exit Exams assess the student's ability to use the critical thinking process and were designed as a non-nursing exam to be administered at the beginning and the completion of the program (Assessment Institute Technologies, LLC, 2012). Assessment Technologies Institute, LLC (2012) "believe that nursing students must develop the skills necessary to thinking critically because the ultimate outcome is safe, efficient, and effective nursing care" (Assessment Technologies Institute, 2012).

Critical thinking as defined by the American Philosophical Association Delphi Report "as a purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (Facione, 1990, p. 2). Critical thinking is a major component in nursing practice. A nurse's ability to make decisions based on patients and their care is paramount to safe and effective nursing practice. As stated by Riddell (2007), "it would be a reasonable assumption that teaching critical thinking will improve clinical performance" (p. 125).

Critical thinking is also a skill that is recognized by accrediting bodies such as the National League for Nursing (NLN) and the Commission on Collegiate Nursing Education (CCNE). The Commission on Collegiate Nursing Education addresses critical thinking in its Essentials of Baccalaureate Education for Professional Nursing Practice. Critical thinking is a skill that is required of nursing practice and that "underlies independent and interdependent decision making" (American Association of Colleges of Nursing, 2008, p. 3). It is also a component of the detailed test plan for the NCLEX-RN® exam. Per the 20120 NCLEX-RN®

Detailed Test Plan, "all task statements require the nurse to apply the fundamental principles of clinical decision making and critical thinking to nursing practice" (National Council Of State Boards Of Nursing, 2010, p. 9)

During the 2005-2006 academic year, the College of Nursing at a midwestern university implemented a multifaceted student assessment program developed by Assessment Technology Institute (ATI). This assessment program includes testing students' critical thinking ability as they enter and exit from the nursing curriculum and also assessing their knowledge in six content areas while enrolled in the courses where that content is taught. The purpose of this study was to investigate: how students' ATI critical thinking scores change from admission to completion of the program and the relationship between students' scores on the Critical Thinking exams and the licensing exam (NCLEX-RN®).

Subjects

The following data was collected on 242 undergraduate BSN nursing students from a midwestern university who graduated between May 2009 and May 2011: ATI Critical Thinking Entrance/Exit exam scores and NCLEX-RN® first-time pass/fail. This study was approved by the university's institutional review board.

Methods

All student ATI assessment scores are available to nursing faculty through the ATI web site www.atitesting.com. Entrance and Exit ATI Critical Thinking exam scores were analyzed by a paired t-test.

Student results on the NCLEX-RN® are forwarded to the faculty by the Board of Nursing of that state. Logistic regression was used to determine if the Entrance score, Exit score, or change in scores could be used to predict first-time NCLEX-RN® pass/fail.

Results

Data analysis revealed that there is a statistically significant difference between entry critical thinking and exit critical thinking exam scores (See Table 1). However, with simple logistic regressions predicting NCLEX pass versus fail, but none of the variables (entrance score, exit score, change) were statistically significant (all $p > 0.10$). One reason for this could be the smaller sample size that was analyzed.

Discussion

In this study, critical thinking scores of baccalaureate nursing students were examined as they progressed through the curricula. While there was an increase in overall critical thinking scores of students at the completion of the program, there was no direct correlation between improved critical thinking scores and NCLEX-RN® success. Thompson and Rebeschi (1999) did not find a correlation between critical thinking and aspects of their nursing curricula. Similarly, in the study conducted by Stewart and Dempsey (2005), no direct correlation between NCLEX-RN® and critical thinking was found. "There seemed to be no relationship between critical thinking disposition and the ability to pass the NCLEX-RN®" (p. 84). However, Giddens and Gloeckner (2005) results supported a correlation between critical thinking and NCLEX-RN® performance.

While our study did not find a significant correlation between improved critical thinking scores and NCLEX-RN® success, there is a link between critical thinking and clinical competence. Chang, Chang, Kuo, Yang, and Chou (2011) studied this link. They found that critical thinking ability was associated with clinical competence (Chang et al., 2011). In addition, years of clinical practice also had an effect indicating that years of practice could

enhance critical thinking ability (Chang et al., 2011). This link could indicate that critical thinking in professional practice is itself a clinical competency.

Critical thinking is a broad concept with many different aspects when applied to nursing practice. It is a difficult concept to assess and teach. Students may possess critical thinking skills but when faced with a stressful standardized assessment such as the NCLEX-RN® licensure exam, fail to apply the skill correctly or over think the questions thereby performing poorly. Another variable to address is the time the assessments are administered in relation to the nursing program as well as student disposition at each. Nursing students just beginning a nursing program likely are motivated and eager to give their best efforts beginning the program, whereas, students at the completion of their program are looking beyond to graduation, employment, and NCLEX-RN® preparation (Thompson & Rebeschi, 1999).

As stated by Giddens and Gloeckner (2005), "there is a need for continued research to further understand the relationship between critical thinking and NCLEX-RN® performance" (p. 88). Nursing programs are committed to providing critical thinking elements into the nursing curricula to meet the standards set by accrediting bodies but also to provide nursing students with the skills and tools that they need for a future of providing care to patients.

Recommendations for Practice

With the validity of pre assessment testing established in predicting NCLEX-RN® success in multiple previously conducted studies, the continued use and widespread use of such testing should be encouraged (Lauchner, Newman, & Britt, 1999; Reiter, Young, & Adamson, 2007). Creating a testing environment similar to that of the NCLEX-RN® licensure exam is also beneficial to students. One study has shown that "monitoring was not a significant factor in predictive accuracy" (Nibert & Young, 2001, p. 21S). However, having a proctored exam more

similar in nature to that of the standardized and proctored NCLEX-RN® exam will help students to better prepare for the testing experience as well as the stressors that are accompanied by taking such a test.

These recommendations carry a few implications for practice. The biggest being the cost of the standardizing testing as well as staff to carry out the proctored exams. However, with the proven validity of the tests in predicting NCLEX-RN® success as well as serving as an assessment tool of nursing school curricula, the cost becomes a justified one (Lauchner et al., 1999; Reiter et al., 2007). Many schools are currently using these exams and they have become fairly common place for students to assess their knowledge at different stages of their nursing program. These tests are also being looked at as an indication of entry-level competencies for hiring graduate nurses (Reiter et al., 2007).

With the cost of orienting new graduate nurses and the potential for turnover in the first year, these tests can serve as an indication of not only NCLEX-RN® success but a baseline of competency thereby decreasing the overall cost of orienting staff and decreasing turnover (Reiter et al., 2007). As stated by Ryan and Tatum (2012), "determining the strengths and weaknesses in nursing knowledge and the subsequent ability to think critically in the clinical setting offers leaders an opportunity to customize orientation to meet the needs of RN's and preserve resources" (p. 93).

Beercroft, Kunzman, and Krozek (2001) "reported that the cost of replacing an RN is between 75% and 125% of the RN's annual salary because of costs related to recruitment, overtime compensation to ensure coverage, orientation of replacement employees, lost productivity and customer satisfaction" (as cited by Reiter et al., 2007, p. 103S). Messmer,

Allbelleira, and Erb estimated the cost of orienting a new nurse to be between $20,000 and $50,000 per person (as cited by Nibert & Young, 2001).

Improved clinical thinking abilities not only improve the quality of care, they improve the competence of clinical nurses (Chang et al., 2011). As previously discussed, health care is changing and patient situations are becoming more and more complex. Nurses need to continually maintain competencies such as critical thinking and learning advanced skills (Chang et al., 2011).

The use of these tests can help to ensure that new graduate nurses have received the education that will help them to succeed on not only their licensure exam but also in the nursing field. They can help students to prepare for these exams by serving as a "mock" licensure exam using the same type of testing and the same testing environment as the NCLEX-RN®. The results of these exams can help schools or nursing to better evaluate their teaching outcomes by seeing how their students perform year after year. Lastly, these tests can help new graduate nurses feel more confident in their test taking abilities and knowledge base increasing their likelihood of success as well as improve clinical competence when working in professional practice.

Conclusion

With the small pool of nurses graduating from nursing programs each year, setting new nurses up for success on the licensure exam and professional practice is imperative. While the statistical analysis did reveal a direct correlation between the increases in critical thinking ability among students at the completion of the nursing program, there was no statistically significant correlation between critical thinking scores increase and NCLEX-RN® pass rates. Regardless of the results related to NCLEX-RN® pass rates, nursing students were able to gain critical

thinking ability vital to nursing practice throughout the course of the program, in addition to having the opportunity to gain practice taking computer based standardized tests similar to the NCLEX-RN® licensure exam.

References

American Association of Colleges of Nursing (2008). *The essentials of baccalaureate education for professional nursing practice.*

Assessment Technologies Institute, LLC (2012). www.ati-international.com. Retrieved March 3, 2012, from http://www.atitesting.com

Beercroft, P., Kunzman, L., & Krozek, C. (2001). RN internships: Outcomes of a one-year pilot program. *Journal of Nursing Administration, 31*(12), 575-582.

Chang, M. J., Chang, Y., Kuo, S., Yang, Y., & Chou, F. (2011). Relationships between critical thinking ability and nursing competence in clinical nurses. *Journal of Clinical Nursing, 20*, 3224-3232. doi:10.1111/j.1365-2702.2010.03593.x

Cise, J. S., Wilson, C. S., & Thie, M. J. (2004). A qualitative tool for critical thinking skill development. *Nurse Educator, 29*(4), 147-151.

Daley, L. K., Kirkpatrick, B. L., Frazier, S. K., Chung, M. L., & Moser, D. K. (2003). Predictors of NCLEX-RN success in a baccalaureate nursing program as a foundation for remediation. *Journal of Nursing Education, 42*(9), 390-398.

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction.* Millbrae, CA: The California Academic Press.

Giddens, J., & Gloeckner, G. W. (2005). The relationship of critical thinking to performance on the NCLEX-RN®. *Journal of Nursing Education, 44*(2), 85-89.

Holstein, B. L., Zangrilli, B. F., & Taboas, P. (2006). Standardized testing tools to support quality educational outcomes. *Q Manage Health Care, 15*(4), 300-308.

Lauchner, K. A., Newman, M., & Britt, R. B. (1999). Predicting licensure success with a computerized comprehensive nursing exam. *Computers in Nursing, 17*(3), 120-125.

Messmer, P., Abelleira, A., & Erb, P. (1995). Code 50: An orientation matrix to track orientation cost. *Journal of Nursing Staff Development, 11*, 261-264.

National Council of State Boards Of Nursing (2010). *2010 NCLEX-RN® detailed test plan.* Retrieved 2/27/2012, from http://www.ncsbn.org

Nibert, A. T., & Young, A. (2001). A third study on predicting NCLEX success with the HESI Exit Exam. *Computers In Nursing, 19*(4), 172-178.

Reiter, M. A., Young, A., & Adamson, C. (2007). Decrease new graduate nurse orientation costs by using HESI Exit Exam scores. *The Journal of Nursing Administration, 37*(10), 459-463.

Riddell, T. (2007). Critical assumptions: Thinking critically about critical thinking. *Journal of Nursing Education, 46*(3), 121-126.

Romeo, E. M. (2010). Quantitative research on critical thinking and predicting nursing students' NCLEX-RN® performance. *Journal of Nursing Education, 49*(7), 378-386. doi:10.3928/01484834-2010033105

Ryan, C., & Tatum, K. (2012). Objective measurement of critical-thinking ability in registered nurse applicants. *The Journal of Nursing Administration, 42*(2), 89-94.

Stewart, S., & Dempsey, L. F. (2005). A longitudinal study of baccalaureate nursing students' critical thinking dispositions. *Journal of Nursing Education, 44*(2), 81-84.

Thompson, C., & Rebeschi, L. M. (1999). Critical thinking skills of baccalaureate nursing students at program entry and exit. *Nursing and Health Care Perspectives, 20*(5), 248-252.

Vance, A., & Davidhizar, R. (1997). Strategies to assist students to be successful the next time around on the NCLEX-RN. *Journal of Nursing Education,* (36), 190-192.

Table 1. ATI Standardized Assessment Critical Thinking Exam versus NCLEX-RN First-Time Pass

Graduation Date	All	May-09	Dec-09	May-10	Dec-10	May-11
Entrance Score for Critical Thinking Exam	74.6	74	74.5	76.4	72.6	75.4
Exit Score for Critical Thinking Exam	77.0*	77.3*	78*	77.4	76.1*	76.0
NCLEX First-Time Pass	88.8	90	84.4	88.7	89.4	91.5
Number of Students (that had complete data)	242	50	45	53	47	47

*Statistically significant difference in entrance and exit scores $p<0.01$ using a paired t-test.