Review Article:

Nursing Students' Academic Performance and Success in Nursing Licensure Examination: A Narrative Literature Review

Joseph U. Almazan[1]

[1]Assistant Professor, Department of Nursing,

College of Applied Medical Sciences, Majmaah University.

Received on:08-10- 2018; Accepted on: 19-03-2019

Corresponding Author:

Joseph U. Almazan,[1] Assistant Professor,

Department of Nursing, College of Applied Medical Sciences, Majmaah University,

Majmaah,11952,Saudi Arabia,

joalmazan030@gmail.com /j.almazan@mu.edu.sa

Abstract

Background: Nursing licensure examination is considered a gold standard is fast becoming a minimum standard in clinical practice in the nursing profession. A comprehensive literature review facilitates the aggregation of diverse literature from a variety of contexts pertaining to nursing students' academic performance and its relation to success in nursing licensure examination.

Objectives: This review investigates nursing students' academic performance and its relation to success in nursing licensure examination.

Methods: CINAHL, Medline, Web of Science, ProQuest—Nursing and Allied Health Database, PubMed, and Science Direct Taylor & Francis databases were searched.

Results: All studies (n=15) were conducted in the United States. Two major themes were derived from the synthesis of the findings: (i) Nursing academic courses and their grades, (ii) Different types of test-taking assessment skills strategies. Conclusion: Nursing academic courses and their grades and different types of test-taking assessment skills strategies are significantly associated with the success of the nursing licensure examination. More research could deliver further suggestion for nursing programs to develop actions regarding different types of test-taking assessment skills strategies and academic progression policies. This could encourage graduates to pass the nursing licensure examination and improved safe quality nursing care. This review highlights the student's factors in success for NLE and increasing current effective actions for enhancing NLE readiness.

Key Words: academic performance; core graduation; exit examination; nursing licensure examination, nursing students

الملخص

خلفية: يعتبر فحص ترخيص التمريض معيارًا ذهبيًا يتحول بسرعة إلى الحد الأدنى من المعايير في الممارسة السريرية في مهنة التمريض. تسهل مراجعة الأدبيات الشاملة تجميع الأدب المتنوع من مجموعة متنوعة من السياقات المتعلقة بالأداء الأكاديمي لطلاب التمريض وعلاقته بالنجاح في امتحان ترخيص التمريض.

الأهداف: تبحث هذه المراجعة في الأداء الأكاديمي لطلاب التمريض وعلاقته بالنجاح في امتحان ترخيص التمريض.

الطريقة: تم البحث في قواعد بيانات CINAHL و Medline و Web of Science و ProQuest - قاعدة بيانات التمريض والصحة الحليفة و PubMed و Science Direct Taylor & Francis.

النتائج: أجريت جميع الدراسات (ن = ١٥) في الولايات المتحدة. تم استخلاص موضوعين رئيسيين من توليفة النتائج: (١) الدورات الأكاديمية للتمريض ودرجاتهم ، (٢) أنواع مختلفة من استراتيجيات مهارات التقييم في الاختبار.

الخلاصة: ترتبط الدورات الأكاديمية للتمريض ودرجاتها وأنواع مختلفة من استراتيجيات مهارات تقييم الاختبارات بشكل كبير بنجاح اختبار ترخيص التمريض. يمكن إجراء المزيد من البحوث تقديم اقتراح آخر لبرامج التمريض لتطوير الإجراءات المتعلقة بأنواع مختلفة من استراتيجيات مهارات التقييم أخذ الاختبار وسياسات التقدم الأكاديمي. هذا يمكن أن يشجع الخريجين على اجتياز امتحان ترخيص التمريض وتحسين جودة الرعاية التمريضية. هذا الاستعراض يسلط الضوء على عوامل الطالب في نجاح NLE وزيادة الإجراءات الفعالة الحالية لتعزيز استعداد NLE.

الكلمات الأساسية: الأداء الأكاديمي. التخرج الأساسية. امتحان الخروج امتحان ترخيص التمريض ، طلاب التمريض

Introduction

In recent years, there has been an increasing interest in student success in the nursing profession. This is critical for nursing schools in preparation for students for the nursing licensure examination (NLE). NLE is the final step prior to become an independently qualified nurse practitioner. 1 NLE preparation varies from country to country among nursing programs. This is vital in order to ensure that nursing students are well prepared for rendering patient quality care. 2 Several universities have taken a policy action for the standardized examinations to foresee NLE success. 3 In spite of utilizing the standard examination preparation, still several graduate nurses failed to pass the NLE on their first attempt. The reason for this is lack of preparation, lack of test-taking strategies, and poor study habits. students recognized that test-taking anxiety prevents them in passing the NLE. 4 In the same study mentioned failure in NLE affects test takers' confidence and hope of becoming a registered nurse (RN). Failure can lead to feelings of embarrassment, anxiousness and guilt realizing income at the level of an RN. Subsequently, the need to recognize the best predictors of successful student results and the educational policy strategies are crucial for nursing programs. Numerous studies have attempted to explain the reason why students failed in NLE. 5,6,7 For example, anxiety, student confidence level, Health Education Systems, Inc. (HESI) examination, affects their performance in NLE.6,7Given these factors, several preparation strategies are needed to facilitate NLE success. Although a number of studies have explored predictors in passing NLE, limited works demonstrated consistent over time.8,9,10 In addition, with the various variables and wide-ranging diversity of findings, it is challenging to conclude which predictors are greatest. Some studies have investigated the variances between students who passed the NLE for the first time and those who unsuccessful 4,11,12 but they were eventually unable to answer. Therefore, this study addressed this gap pertaining to factors that affect NLE performance among nursing students.

A comprehensive literature review facilitates the aggregation of diverse literature from a variety of contexts pertaining to Nursing students' academic performance and its relation to success in nursing licensure examination. As a result, this rising need to consider relevant research could provide nursing competency-evidence-based sound judgment in the development of strategies when nurses work in the clinical practice setting.

Methods

This narrative review provides a rigorous understanding of the Nursing students' academic performance and its relation to success in nursing licensure examination.

Search strategy

The literature search strategies using electronic databases were implemented to search for relevant literature on PA. 12 Six electronic databases were utilized, namely: CINAHL, Medline, Web of Science, ProQuest—Nursing and Allied Health Database,

PubMed, and Science Direct Taylor & Francis databases. Keywords were identified using a thesaurus of the searched databases and mesh terms. Keywords with truncation and Boolean logic used in all databases were as follows: 'Nursing students' or 'future nurses' AND 'academic performance' or 'academic success' or AND 'nursing licensure examination' or 'nursing board examination'. Inclusion criteria include (a) 2000-2017-year restriction (with such criteria, this review attempts to cover the contemporary perspective of nursing licensure performance during the past decade), (b) English language, and (c) peer-reviewed journal articles.

Search outcomes

A comprehensive search review nursing students' academic performance and its relation to success in nursing licensure examination based on the inclusion and exclusion criteria was conducted. A total of 179 articles from the title were identified as relevant. After reading the abstract, 83 were included from the study. Then, after reading the complete text article versions, a total of 23 articles were judged to meet the criteria. Finally, a total of 15 articles for the final inclusion of articles. The flow diagram illustrating the search process of the identified relevant articles is presented in Figure 1.

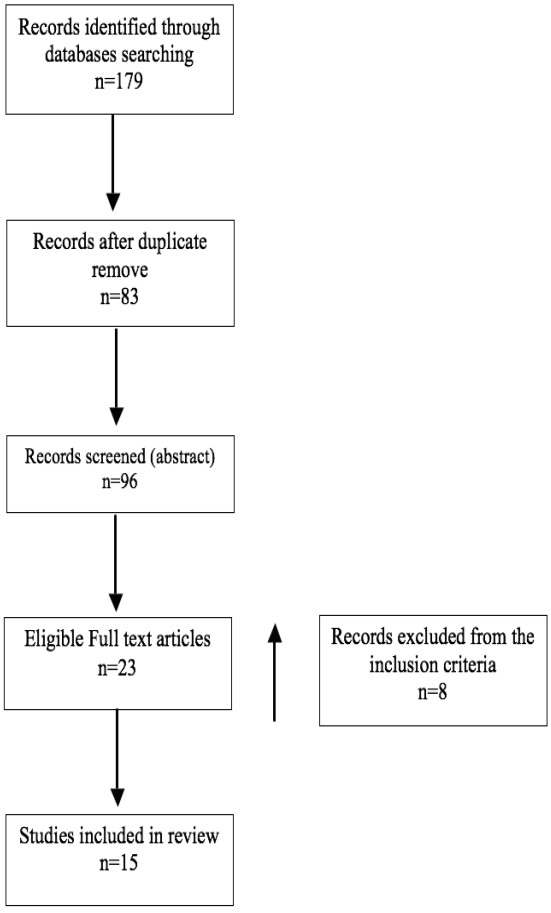


Figure 1: Flow diagram illustrating the selection of studies to explore the Nursing students' academic performance and success in nursing licensure examination.

Quality appraisal and data synthesis

Each article was appraised for methodological validity review using a critical appraisal checklist.13, 14 Further, the author performed data extraction and data analysis. However, due to the nature of research objectives, diverse sample, data collection method, results were not synthesized statistically. As an alternative, the results were organized in a tabular manner that demonstrated the features of the studies (author/year/country, design, study aim, sample population, data collection and analysis, and key findings), so that it will make sense of the reviewed evidence, (see Table 1). After which, literature analysis

was guided using a thematic approach.15This approach analyzed the patterns and consistencies of substantive themes generated. two major themes were derived from the synthesis of the findings: (i) Nursing academic courses and their grades, (ii) Different types of test-taking assessment skills strategies.

Table 1: Summary of selected studies

Author/year/ country	Design	Aim of the study	Sample population	Data collection and analysis	Key findings
Bosch et al. [8]	Quantitative	To examine the association between five different features of freshmen students and their later success in NCLEX-RN exams.	Purposive sampling (Group 1 n=27; Group 2 n=23; Group 3 n=21 students).	Institutional data (January 2003-December 2007) Logistic regression	The higher the student's GPA score, the higher chance to pass the Nursing licensure examination
Crow et al.[9]	Quantitative, Cross sectional	To identify specific requirements and educational intervention that might impact NCLEX_RN success and to determine its predictor	A convenience sample (n=206)	Non-standardized Questionnaire Non-parametric test	Factors affecting NCLEX passing rates: (1) Standardized entrance examination score and Scholastic Aptitude Test (SAT) scores during admission criteria, (2) Clinical practice proficiency and exit examinations score as part of graduation requirements, (3) nursing reviews
Hinderer et al.[10]	Retrospective descriptive,	To discover the association between the Health Education Systems, Inc. (HESI) Admission Assessment (A2), preadmission grade point average (GPA), and nursing GPA into the NCLEX performance	A baccalaureate nursing program during the period 2008–2010. (n=89)	Department records. Inferential statistical analyses	No significant association between preadmission, exit examination, and GPA
Homard [21]	Quantitative, ex post facto correlational	To match the exit examination grade scores towards NCLEX-RN success	Purposive sampling (N = 269)	HESI Exit Exam	standardized test examination test taking strategies is associated to higher exit examination scores and higher NCLEX-RN passing rates
Horton et al. [16]	Quantitative, descriptive,	To evaluate the success of an remediation study on the NCLEX-RN first time takers	Convenience sample, (n1=41;n2=51)	Total curriculum support (TCS) from MEDS Publishing for remediation and tutorials t test Logistic regression	Remediation classes and academic courses (e.g., medical–surgical course) is associated to NCLEX-RN passing rate
Kaddoura [11]	Retrospective ex post facto, descriptive, correlational	To assess the association between the Critical thinking (CT) skills and NCLEX-RN success.	Convenience sample, Students who graduated from 2007 - 2009, (n = 110)	Nursing school records t-test logistic regression	Entry and exit assessment score is associated NCLEX-RN pass rate.

Lauer & Yoho [22]	Quantitative, descriptive	To compare the mean HESI Exit Exam (E2) scores of student who attended review with students who did not attended schools	Convenience sample, September 1, 2007, and August 31, 2008 (n=3,758)	Eighth Validity Study Questionnaire t test	Examination scores were significantly is significantly related to NCLEX-RN pass rate.
Lockie et al.[17]	Quantitative, descriptive	To examine the relationship between students' demographic and academic variables towards performance on the NCLEX-RN	Purposive sample (n= 197)	Questionnaire two-sample t tests, chi-square	Student's learning style and chemistry grade is associated to NCLEX-RN
McCarthy et al.3	Quantitative, retrospective	To assess the relationship between NCLEX-RN pass rates to their prenursing academic aptitude variables	All nursing students academic years 2009–2010 and 2010–2011(n= 794)	TEAS preadmission test, Multiple linear regression analysis, logistic regression	Assessment Technologies Institute scores is significantly NCLEXRN pass rates.
Newton & Moore [4]	Quantitative, descriptive	To assess the associations between nursing aptitude test, BSN student attrition grade, scholastic aptitude, and student readiness for the NCLEX-RN.	All first semester nursing students during SY 2004 (n=107)	Institution's prenursing database, Logistic regression	nursing aptitude test, BSN student attrition grade, scholastic aptitude is associated to NCLEX-RN
Romeo [18]	Quantitative, ex post facto	To examine the students' GPA, SAT score in towards NCLEX-RN.	A convenience sample of the records of two-year nursing program From 2005 to 2007,(n=182)	Assessment test composite score, Logistic regression analysis	Students' nursing GPA and standardized assessment examination score predict NCLEX-RN success
Schooley|& Kuhn [19]	Quantitative	To examine the association between course grades, HESI test results towards NCLEX-RN passing rate	A convenience sample from SY 2007 -2010, (n=306)	HESI scores Students' academic records, ANOVA	Examination test scores is associated of NCLEX-RN passing rates. • General education courses affect Examination test scores
Spurlock & Hunt [23]	Quantitative, Retrospective descriptive	To identity reason on why the actual NCLEX-RN pass rate towards the nursing program.	Graduating Student records January 2004 to July 2005(n=179)	Students' names, Health Education Systems, Inc. (HESI) Exit Exam scores Logistic regression, ANOVA	Clinically focused on standardized examination evaluates students' readiness to graduate
Dorris Todd et al.[24]	Quantitative, single-group pre-test/post-test	To assess the Kaplan educational modules for NCLEXRN preparation, towards student's readiness	Purposive sample (n=15)	Questionnaire t-tests	review class and readiness testing examination was felt to be a viable strategy to help with NCLEX-RN success
Trofino [20]	Quantitative, descriptive	To examine the program criteria towards NCLEX-RN students first time takers	Convenience sample,(n=99)	Pre-entrance test, nursing program courses, Logistic regression	The preadmission examination score in nursing courses is associated to NCLEX-RN passing rate.

Results

Nursing academic courses and their grades

Six studies included academic nursing courses predicts success in nursing board examination.8,16,17,18,19,20 Three of these were related to high GPA.8,17,18 Bosch8 explored the association between five different features of entering students in the bachelor's program and success in National Council Licensure Examination-Registered Nurse (NCLEX-RN) exams. Romeo18 found that higher GPAs investigated the nursing GPA, and remediation exercise examination score was significantly related to a higher passing NCLEX-RN percentage. Lockie 17 examined the association between students' demographic profile towards NCLEX-RN performance and found that academic courses and student learning style can predict board examination. Meanwhile, three separate quantitative studies in the US16,19,20 that explored the success of remediation on NCLEX-RN passing rates. These studies found that remediation and student's medical-surgical course score predicts NCLEX-RN passing rate.

Different types of test taking assessment skills strategies

Several studies highlighted the different types of test-taking assessment skills strategies to pass the national board examination.2,3,12,16,17,18,19,20,21,22,23,24 Crow9 cited that entrance exam and aptitude test during admission, exit examination and subjects' reviews determine the NCLEX_RN success. Six separate studies conducted in the US 12,18,19,21-23 found that test examination and higher exit examination grade predicts NLE success. Two separate studies McCarthy et al. 3 revealed that aptitude nor nursing aptitude was NCLEX-RN pass rates.

Discussion

This study aims to provide a rigorous understanding of the Nursing students' academic performance and its relation to success in nursing licensure examination. This review provides evidence on the student's success in nursing licensure examination. All studies (n=15) were conducted in the US. Two significant themes are generated from this study.

First, nursing academic courses and their grades are significantly associated with NCLEX. Seven studies 8,16,17,18,19,20 revealed that high-grade point average (GPA) of academic courses. The lack of academic preparedness and lower GPA grade is frequently mentioned as a vital challenge of nursing student facing less successful in nursing programs.8 Specifically, the success of the NCLEX-RN exam is considerably connected to pre-GPA ($p = 0.025$). 7,17

Horton et al.;16 Schooley|& Kuhn;19 described an association between NCLEX-RN passing rate with fundamental academic courses with nursing students. The chances of NCLEX-RN passing rate are lower if a student repeats the fundamental nursing course.19 Hence, poor grade performance on the fundamentals courses directs for early administrative.

Next, nursing GPA is an indicator of a student's performance which positively af-

fects NLE over time. The higher GPA score the higher NCLEX-RN outcomes.16,18, 19,24 This is similar to findings of one study that students with grades C or D below have a lower chance of passing the NCLEX-RN. 3 Therefore, GPA is an essential aspect for NLE passing score. However, limitations should be acknowledged and considered when utilizing the findings of the three studies, which only focused on one institution, a self-reported interview, and used convenient sampling. These factors limited the generalizability of the results.

Second, nursing education institutions are constantly striving for different types of test-taking assessment skills strategies in preparation for future qualified nurses. The success of the exit examination predicts NCLEX-RN success has been revealed in several types of research of NCLEX-RN examinees. 18,19, 24 Three studies Crow et al., 9 Homard, 21 Kaddoura, 11 have reported in evaluating student learning skills during the nursing program is required because of speedy variations in health care practice, which mandate parallel revision in nursing education to improved student's clinical performance in NLE scores.19,23,24 This implies that discussing the learning styles during the first year must be measured in the earlier nursing courses. Hence, faculty and administrators need to recognize different learning style which supports students in understanding how they learn.

HESI evaluates students' readiness to take the NCLEX-RN. 21, 22,23,24 These frequent test examinations may offer an instant response, including rationales material for recognised weakness area (HESI). 17,21,23 Nevertheless, findings of these three studies should be interpreted carefully, given that the local of the study is in the US setting. Thus, future research should study other countries components in a bigger sample population.

Conclusion

The main challenge for nursing education programs is to produce graduates who are successful in the NLE. This review highlights the student's factors in success for NLE and increasing current effective actions for improving NLE readiness. Nursing academic courses and their grades and different types of test-taking assessment skills strategies are significantly associated with the success of NLE. More research could deliver further suggestion for nursing programs to develop an action regarding different types of test-taking assessment skills strategies and academic progression policies. Therefore, in turn, could encourage graduates to improved safe quality nursing care based on the success of NLE.

Summary implication

The study findings can be used as a guide in establishing commercially available measurement tools, and monitoring students' nursing GPA are readily available methods. Students found to be lower GPA grade in each course can be offered timely remediation in weak areas. Remediation should contain exercises patterned by NLE preparatory programs and directed towards teaching strategies in the classroom and clinical setting. Also, mentor-

ing courses for students who perform poorly in academic courses in order to improve test-taking skills and study habits. Effective learning program outcomes, academicians could have incorporated a diverse of teaching approaches depending on their teaching styles. Finally, study result could enlighten nurse academicians to influence curriculum revision and guide future decisions anchored in the NLE concepts.

Key Point Box

In recent years, there has been an increasing interest in student success in the nursing profession.

Different types of test-taking assessment skills strategies predict nursing licensure examination

The higher the student's GPA score, the higher the chance to pass the nursing licensure examination

The study findings can be used as a guide in establishing commercially available measurement tools and monitoring students' nursing GPA are readily available methods.

Mentoring courses for students who perform poorly in academic courses in order to improve test-taking skills and study habits Two major themes were derived from the synthesis of the findings: (i) Nursing academic courses and their grades, (ii) Different types of test taking assessment skills strategies.

Acknowledgement

The authors would like to thank all who provided the possibility to complete this paper.

Conflicts Of Interest

The author declare that there are no conflicts of interest.

REFERENCES

1. Quinn B, Smolinski M, Peters A. Strategies to Improve NCLEXRN Success: A Review. Teaching and Learning in Nursing. Teaching and Learning in Nursing 2018; 13:18–26.
2. Alamri M, Almazan J. Barriers of physical assessment skills among nursing students in Arab Peninsula. International Journal of Health Sciences 2018; 12: 1-9.
3. McCarthy, M. Harris, D, Tracz, S. Academic and Nursing Aptitude and the NCLEX-RN in Baccalaureate Programs. Journal of Nursing Education 2014; 53: 3.
4. Newton SE, Moore G. Use of aptitude to understand Bachelor of Science in Nursing student attrition and readiness for the National Council Licensure Examination-Registered Nurse. Journal of Professional Nursing 2009; 25: 273–278.
5. Rafiee G, Moattari M, Nikbakht AN, Kojuri J, Mousavinasab M. Problems and challenges of nursing students' clinical evaluation: A qualitative study. Iranian Journal of Nursing and Midwifery Research. 2014;19: 41-49.
6. Najimi A, Sharifirad G, Amini MM, Meftagh SD. Academic failure and students'

viewpoint: The influence of individual, internal and external organizational factors. Journal of Education and Health Promotion 2013; 2:22.

7. Mcgillis Hall, Lalonde M., Kashin J, Yoo C, Moran J. Changing nurse licensing examinations: media analysis and implications of the Canadian experience. International Nursing Review 2018;65: 13–23.
8. Bosch PC, Doshier SA, Gess-Newsome J. Bilingual Nurse Education Program: Applicant Characteristics that Predict Success. Nursing Education Perspectives 2012; 33: 90-95.
9. Crow CS, Handley M, Morrison RS, Shelton M. Requirements and interventions used by BSN programsto promote and predict NCLEX-RN success: A national study. Journal of Professional Nursing 2004; 20: 174–186.
10. Hinderer KA, DiBartolo MC, Walsh CM. HESI admission assessment examination scores, program progression, and NCLEX-RN success in baccalaureate nursing: An exploratory study of dependable academic indicators of success. Journal of Professional Nursing. 2014; 30: 436–442.
11. Archer J, Lynn N, Coombes L, Roberts M, Gale T, Price T, et al. The impact of large-scale licensing examinations in highly developed countries: a systematic review. BMC Medical Education 2016; 16: 212.
12. Kaddoura MA, Van Dyke O, Yang Q. Correlation between critical thinking skills and national council licensure examination for registered nurses success in accelerated bachelor nursing students. Teaching and Learning in Nursing 2017; 12: 3-7.
13. Whittemore, R. & Knafl, K. The integrative review: updated methodology. Journal of Advanced Nursing 2005; 52: 546–553.
14. Kmet LM, Lee RC, Cook LS. Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields. Alberta Heritage Foundation for Medical Research, Edmonton AB. 2004.
15. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology 2006; 3: 77-101.
16. Horton C, Polek C, Hardie T. The relationship between enhanced remediation and NCLEX success. Teaching and Learning in Nursing 2012;7: 146–151.
17. Lockie N, Van Lanen R, Mc Gannon T. Educational Implications of Nursing Students' Learning Styles, Success in Chemistry, and Supplemental Instruction Participation on National Council Licensure Examination-Registered Nurses Performance. Journal of Professional Nursing. 2013; 29:49-58
18. Romeo EM. The predictive ability of critical thinking, nursing GPA, and SAT scores on first-time NCLEX-RN performance. Nurs Educ Perspect. 2013; 34:248-53.
19. Schooley A. Kuhn J. Early Indicators of NCLEX-RN Performance. Journal of Nursing Education.2013;52:539-542

20. Trofino R. Relationship of associate degree nursing program criteria with NCLEX-RN success: What are the best predictors in a nursing program of passing the NCLEX-RN the first time? Teaching and Learning in Nursing 2013;1:4-12
21. Homard, Catherine M. Impact of a Standardized Test Package on Exit Examination Scores and NCLEX-RN Outcomes. Journal of Nursing Education 2013;52:3
22. Lauer ME, Yoho MJ. HESI exams: consequences and remediation. Journal Professional Nursing 2013; 29:22-7.
23. Spurlock D, Hunt L. A study of the usefulness of the HESI Exit Exam in Predicting NCLEX-RN Failure. Journal of Nursing Education 2008; 47:157-166
24. Doris Todd J, Stephanie H, Sorrell T. A Strategy for Success on the National Council Licensure Examination for At-Risk Nursing Students in Historically Black Colleges and Universities: A Pilot Study. International Journal of Caring Sciences 2017; 10 :1705.