RESEARCH ARTICLE

Scoping Review of Factors Affecting Philippine Nurse Licensure Examination Outcomes

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Abstract

Aim: This scoping review synthesized the existing literature on factors affecting Philippine nurse licensure examination (PNLE) outcomes.

Background: Studies about the nurse licensure examination in the Philippines had gained popularity in recent years. Various studies reported different factors affecting PNLE outcomes, since licensure examination is an interplay between individual, academic, institutional, and environmental factors. This review is the first study that synthesized the literature on factors affecting PNLE outcomes.

Methods: A scoping review of research articles published from 2000 to 2020 described the existing literature explaining the various factors affecting PNLE outcomes. The Preferred Reporting for Integrative Studies and Meta-Analysis for Scoping Reviews (PRISMA-ScR) was used to guide the study. Using the set inclusion criteria, 4,208 articles and gray literature were eligible for initial screening. A total of 29 studies were included in this review.

Findings: Majority of the PNLE studies were quantitative research, used correlation research designs, and were published between 2011 to 2020. The average PNLE first-time pass rate from 2014 to 2018 was 75 percent and overall passing rate improved from 39.2% in 2010 to 45% in 2016. First-time examinees and those who take the PNLE in November have increased odds of passing the examination. Wide variability in PNLE results were observed in the May/June PNLE. Intellectual ability, learning styles, and psychosocial behaviors impact individual PNLE outcomes. Academic performance in high school and nursing school, college admission test, nursing aptitude test, achievement exams, pre-board examinations, clinical nursing courses, English courses, and Microbiology and Parasitology are significant academic predictors of PNLE success. Institutional variables such as school size, type of school ownership, year of establishment, accreditation status, and faculty-student ratio are associated with PNLE outcomes.

Conclusion: Various individual, academic, and institutional factors influence PNLE outcomes. Identifying these factors is crucial in understanding the multidimensionality of variables that may impact PNLE performance. An insight into these factors may assist individual nursing students and graduates, as well as nursing schools, in developing strategies to increase their likelihood of passing and increasing the first-time pass rates in the PNLE.

Keywords: *nurse licensure examination, nursing education, Philippines*

Introduction

The first-time pass rate (FTPR) in licensure examinations is commonly used as one of the major criteria in evaluating the quality of educational programs (Commission on Higher Education [CHED], 2017; Taylor et al., 2014). In the Philippines, the Professional Regulation Commission-Board of Nursing (PRC-BON) and the CHED use the Philippine Nurse Licensure Examination (PNLE) results as a benchmark in determining the quality of nursing programs. Performance in licensure examinations is an interrelation of different factors such as individual characteristics, academic variables, institutional and programmatic factors, and circumstances influencing the nature and administration of the licensure examination

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(Bautista et al., 2018; Dator, 2016; Montegrico, 2020; Rosales et al., 2014). Several studies have been published to describe the various factors influencing PNLE outcomes. This scoping review is the first to synthesize the state-of-the-science on this phenomenon.

Background

The success of educational programs is typically measured by student achievements, academic performance, retention, attrition, and graduation rates, as well as performance in licensure examinations (CHED, 2017; Jeffreys, 2015; Scott & Zerwic, 2015). Nurse licensure examination results are commonly used as evaluative measures to assess the quality of nursing education. Regulatory and accrediting agencies in the Philippines such as the CHED, PRC-BON, and the Philippine Association on Accreditation of Schools, Colleges, and Universities (PAASCU) use the PNLE results as a major criterion in granting government permits to continually operate nursing schools, rewarding nursing programs and schools with exemplary PNLE performance, and imposing penalties to low-performing nursing institutions (CHED, 2017).

In the past 15 years, a few published studies using national PNLE data have reported alarming concerns on the quality of nursing education in the Philippines (Bautista et al., 2018; Montegrico, 2019; Rosales et al., 2014). In a study of PNLE results from 2014 to 2018, only 75% of nursing graduates passed the examination on their first take (Montegrico, 2019). Within this period, 15,802 out of 62,212 nursing graduates failed the PNLE (Montegrico, 2019). A high number of PNLE failures among nursing graduates and high failure rates in nursing schools are concerns that call for identification of factors that influence PNLE outcomes. This scoping review explores the current evidence that describes these factors.

Failing the PNLE can have negative individual and institutional consequences. For the individual, this may result in disappointment, embarrassment, low self-esteem, stress, social stigma, and trauma and failure to practice the nursing profession (Eddy & Epeneter, 2002). In the Philippine cultural context, it may mean a loss of potential opportunity for personal, financial, and professional growth since a nursing license is perceived as a ticket to a bright future (Castro-Palaganas et al., 2017; Montegrico, 2021; Roa et al., 2011). Failing the PNLE restricts one's goals for advancing their nursing education, results in failure to practice the nursing profession, and may potentially limit opportunities for getting local and international nursing employment (Oducado et al., 2019). For nursing educational institutions, a high PNLE failure rate is a ground for suspension or revocation of license to operate (CHED, 2017). On a macrolevel, a high failure rate in a nursing licensure examination can adversely impact the health care system (Roa et al., 2011). The Philippines is the world's largest producer of international nurses. When a high percentage of nursing graduates fail the PNLE, this reduces the pipeline of nurses for local and international employment. It is therefore imperative that factors influencing PNLE outcomes be explored and understood.

Taking a licensure examination is a multifactorial phenomenon that is primarily influenced by the graduates' individual and academic characteristics and the nursing educational system (Gates, 2018; Jeffreys, 2015; Relf, 2016). The nature and characteristics of the examination itself may also impact test outcomes (Oermann & Gaberson, 2017; Waltz et al., 2017). We used Jeffrey's Nursing Universal Success and Universal (NURS) model, a widely used model for understanding the multidimensionality of success in nursing education (Jeffreys, 2015), as the conceptual framework in this review. Identifying the factors that influence PNLE outcomes is crucial in developing individual and institutional interventions to improve the chances of nursing graduates to pass the PNLE and increasing the PNLE FTPR of nursing schools. This scoping review adds to the body of literature by synthesizing the available evidence about the multiplicity of variables that impact PNLE outcomes. This is the first review to map the available evidence on this topic, which can serve as a benchmark for future research by identifying variables not yet explored by earlier scholars.

Purpose

This scoping review aims to determine the state-of-the-science on factors influencing PNLE outcomes. Specifically, it seeks to answer the following question using the participants, concept, and context (PCC) framework: What factors influence the outcomes of nursing graduates' performance in the Philippine nurse licensure examination?

Methods

Identification and Selection of Evidence

A scoping review of research articles published from 2000 to 2020 described the existing literature explaining the various factors affecting PNLE outcomes. To improve the transparency of the search process and to guide the reporting of this study, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis for Scoping Reviews (PRISMA-ScR, Figure 1) was used (Peters et al., 2020). The following search terms were utilized: “nurse licensure examination”, “nursing board exam”, and “Philippines” on the databases, Google scholar, HERDIN, and Philippine E-Journal. Inclusion criteria include full-text articles and abstracts that were published from 2000 to 2020, written in the English language and peer-reviewed, but we also included unpublished master's theses and dissertations, and

publications from local school research journals, in an attempt to capture the available gray literature in this area. From 4,208 articles eligible for initial screening, a total of 29 studies (Table 1), composed of 23 peer-reviewed articles, one unpublished master's thesis, and five abstracts were included in this review.

Data Extraction

Data extraction from the selected evidence involved charting relevant information in tables in accordance with the objective and research question of this scoping review. This information included year of publication, research design, sampling technique, sample size, research design, research variables such as individual, academic, and institutional factors that are related to and predictive of PNLE outcomes. Both principal investigators reviewed the extracted data to reduce bias. Although assessment of methodological limitations is not required in scoping reviews (Peters et al., 2020), we included methodological appraisal in preparation for future systematic reviews and other research on this area.

Data Analysis

Consistent with current recommendations for the conduct of scoping reviews (Peters et al., 2020), data analysis involved basic descriptive analysis of the research variables using frequency and percentage distributions. The most common individual, academic, and institutional factors associated with PNLE outcomes were reported in this study. Unusual and contradictory findings were presented as a benchmark for future research. Narrative analysis of 29 research articles, abstracts, and unpublished thesis was done and presented.

Reporting Review Findings

The findings of this study are presented in two parts: results of the search strategy and research findings relevant to the research aim and question. The result of this scoping review is presented in both tabular and narrative forms, to illustrate the individual findings (tabular form) and the synthesized evidence of the selected articles (narrative form). These forms of detailed result

Figure 1. *PRISMA Flow Chart*

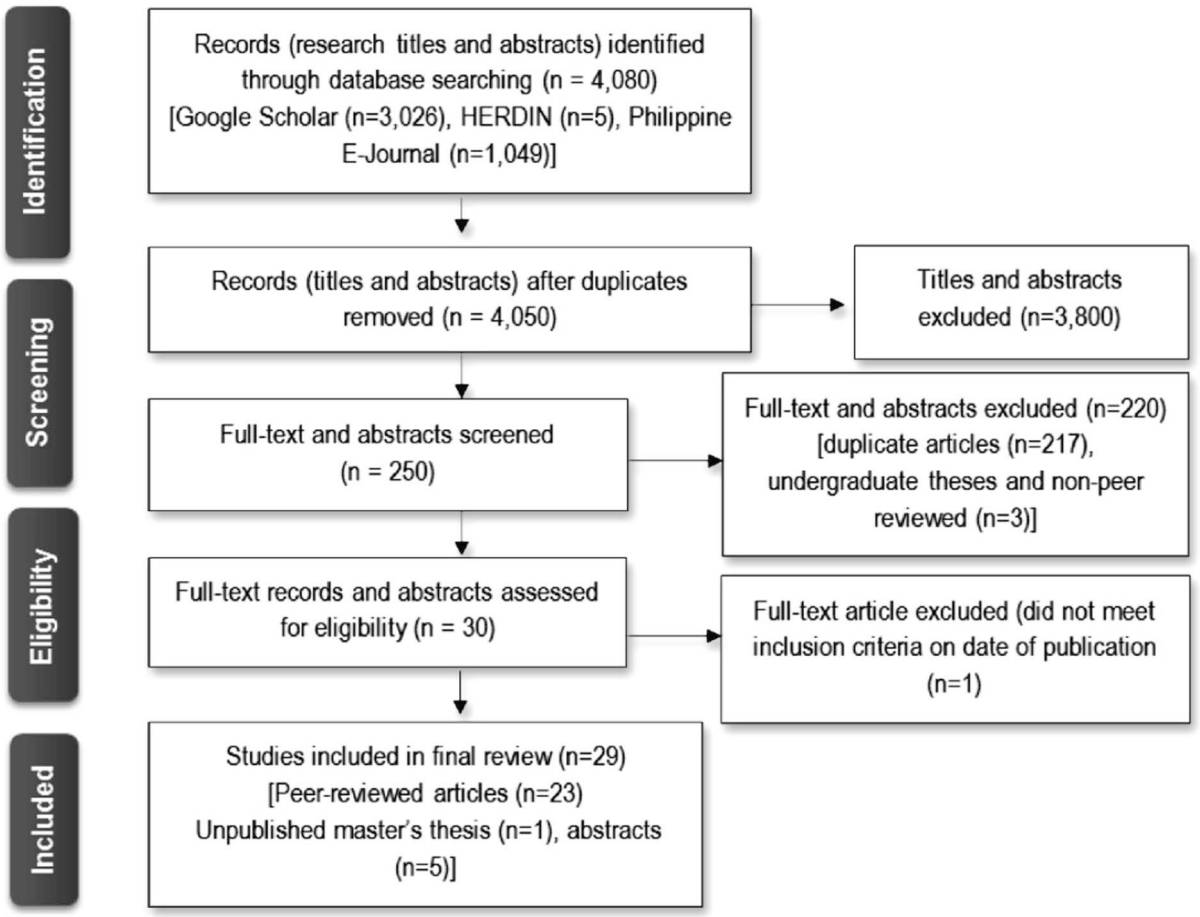

Figure 1. Preferred Reporting for Items for Systematic Reviews and Meta-analysis (PRISMA) flow diagram. Adopted from Moher, Liberati, Tetzlaff, & Altman, (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. *PLoS Med 6*(7): e1000097. doi:10.1371/journal.pmed1000097.

Table 1. *Summary of relevant findings from selected evidence*

Author(s)	Year	Purpose	Methods	Factors affecting PNLE outcomes and relevant findings
Banua	2017	To determine the relationship of pre-admission profile, academic performance and NLE	Descriptive-evaluative State university Secondary data analysis of 247 2003-2007 graduates	*AF:* Academic performance in anatomy and physiology (A&P), and related learning experience (RLE), r^2= 35.4%. 62% of those who passed academically failed PNLE. 16.5% with superior AP failed PNLE.
Bautista et al.	2019 PR	To describe NLE trends in 2010 to 2016, compare low- and high-performing HEIs, and examine the association of HEIs' characteristics with NLE passing rate.	Descriptive-correlational 2010-2016 PNLE Secondary data analysis of HEIs (n=472-497)	*InsF:* School location, size, type, year of establishment, and student-faculty ratio were associated with PNLE passing rate. (School size: larger schools, higher FTPR; schools with higher faculty-student ratio have lower FTPR; Year of establishment: before 1970, higher FTPR; Most public HEIs are high performing schools in PNLE) 54.5% are low-performing HEI; 45.5% are high-performing. Downward trends in NLE takers and passers. Improvement in passing rate of at least 45% from 2014 to 2016, from <42% in 2010 to 2013.
Consad	2015 MT	To determine the relationship between AP, English and Microbiology/Parasitology (MP) and PNLE rating	Descriptive - correlational 2007 to 2009 graduates Secondary data analysis	*AF:* Significant relationship among nursing subjects (PHC 2, NCM 100), English, MP, and PNLE rating. r^2 = 23.3% due to English and MP and r^2=22% due to nursing subjects
Dator*	2016	To determine the relationship between NLE and accreditation status	Quantitative study Secondary data analysis of 174 HEIs	*InsF:* NLE is dependent on level of accreditation. Accrediting agency is independent of NLE performance of the institution.
De Castro & Villanueva	2014	To predict the fractality of the performance of PNLE among schools in the Philippines	Fractal analysis Secondary data analysis of 489 HEI	*InsF:* Low performing HEI has more irregular results than high-performing schools. High-performing schools take the May/June PNLE that skew variability in PNLE trends. June PNLE has more irregular (higher variability) results vs. December PNLE.
De Leon	2016	To determine correlation of PNLE and AP	Descriptive- correlational Secondary analysis of 2,180 students from 2010 to 2012 Survey-questionnaire to 23 faculty	*AF:* AP is related to PNLE. Difficulty passing MSN, MHPN. Substantial correlation of PNLE with Foundations of Nursing, NCM 1 & 2, Curative 1, Nursing Leadership (low correlation with NP III). Low correlation of PNLE with NCM 1 & 2, CHD, & Research. July PNLE examinees had higher ratings. Lowest PNLE ratings - NP IV & V; highest is NP 2.
De Leon et al.	2016	To evaluate the relationship between eLearning (eL), GWA, and PNLE performance	Descriptive -correlational Secondary data analysis of 1,257 graduates from 2011 to 2013	*AF:* eL and GWA are predictors of NLE. r^2 = eL and GWA accounted for 51-61% of variance in PNLE passing. Difficulty passing NP IV.
Del Rosario & Estrada*	2010	To determine the predictive ability of high school GWA, CAT, NCM grades and emotional intelligence on PNLE passing	Correlational Graduates from 2004 to 2006	*AF:* Aggregated NCM grade and CAT are the best predictors of PNLE. A corresponding 0.946 level increase in PNLE score is predicted for every one level increase in NCM grade when CAT is held constant. For every one level increase in the entrance examination result, a 0.046 level increase is expected in PNLE score, when effect of average NCM grade is held constant. The NCM grade however has a higher influence to PNLE success. A cut off grade of 80-85 for NCM grades and Entrance Examination grade increases likelihood of passing the PNLE.
Estrada et al.	2015	To explore the experiences of 13 Thomasian PNLE topnotchers from 2012-2014	Qualitative - descriptive phenomenological n=13	Themes: Dreamed Beyond Our Seeing, Embodied the Culture of Excellence, Touched with the Flame of Kindness, and Imbued with Unending Grace. Subthemes: Envision Success, Begin Early, Innovate Learning, Engage Vigorously, Glowing Compassion, Hearty Wisdom, Acclaimed Competence and Countless Opportunities.
Garcia	2011	To identify the correlates of PNLE performance rating	Descriptive - correlational 2006-2007	*IndF:* Age and gender are not significantly related with PNLE. *AF:* NAT is significant with BSN courses but not for PNLE. Nursing review program is the best predictor of PNLE. MP (r^2=8%), CHD, NCM are significantly related with PNLE.

Gutierrez	2016	To correlate the status and level of accreditation of nursing colleges and PNLE performance	Descriptive - correlational Secondary data analysis of 38 HEIs from 1994 to 1998	*InsF:* Level of accreditation is significantly related with PNLE ratings. Accredited HEIs have higher mean PNLE rating (88.9%) than non-accredited HEIs (50%).
Herbosa et al.*	2011	To determine the factors affecting the performance of the nursing students batch 2009 in the PNLE	Correlational design	*AF:* PNLE performance is not significantly related to their Final Academic Grade, Comprehensive Achievement Exam, and Comprehensive Nursing Achievement Test.
Ignacio et al.	2016	To determine correlates of the PNLE	Descriptive - correlational 2014 graduates	*AF:* Mock board exam is significantly correlated with PNLE. GWA is a significant predictor of PNLE passing. A grade of at least 2.25 is needed to have a high chance of passing the PNLE.
Kiblasan & Ligligen	2020 PR	To ascertain relationships and predictors of the PNLE	Descriptive- retrospective design Secondary data analysis of 208 graduates from 2013 to 2017	*AF:* Strong positive relationship between AP and PNLE (r=.514). Five from 21 nursing courses are significant predictors of PNLE passing. NCM 101 (MCN) and NCM 106 (MSN) were significantly predictive of PNLE in all NP tests. NCM 101 is highly predictive in NP II, IV, and V. NCM 106 is highly predictive in NP I and V and very highly predictive in NP IV. Variances: NP I (r^2=.259), NP II (r^2=.296); NP III (r^2=.318); NP IV (r^2=.359), NP V (r^2=.347)
Llego et al.	2020	To assess the predictive strength of academic performance in passing the PNLE	Correlational Regression analysis 107 graduates from 2014-2016	*AF:* NCM courses (r=.59), NCM RLE = (.56), and pre-board exam (r=.32) are significantly related to PNLE passing. AP has a moderate influence (r^2=38&) in passing the PNLE. Grades in NCM and RLE courses and pre-board examination is a weak determinant in passing the PNLE. Grades in NCM courses have the highest predictive value in passing the PNLE.
Montegrico	2019 PR	To analyze the trend in PNLE results from 2014 to 2018.	Retrospective, correlational Secondary analysis of 166,717 PNLE examinees from 2014 to 2018	Increasing trend in first-time pass rate (70.6% to 77.3%) and decreasing trend in repeaters' pass rate (37.6% to 18%), a 52.1% reduction in 4 years. Average 4-year FTPR is 74.5%. Odds of passing NLE is higher the first time (OR=7.01) and in November (OR=1.32)
Navarro et al.	2011	To determine if the College Admission Test (CAT), Nursing Aptitude Test (NAT) and AP are significant predictors of the PNLE	Descriptive- correlational 750 graduates of 2006 to 2009	*AF:* CAT, NAT and AP are significant predictors of performance in the PNLE. AP is the best predictor of PNLE passing. 40.3% of PNLE variance due to CAT, NAT, and AP.
Neri	2009	To determine factors that predict performance in the PNLE	Descriptive ex-post facto	*AF:* PNLE passers were students performed well in the classroom, during clinical duties, and in the in-house review after graduation. In contrast, the non-passers are students who performed poorly in these 3 areas. Both groups of students identified Medical-Surgical Nursing as their waterloo. PNLE Scores are lowest in Curative Care which comprised Medical-Surgical Nursing topics. *IndF:* Although passers of the PNLE have higher intellectual ability compared to the non-passers, they had "low passing" scores (75-79). The student nurses' attitude, knowledge and skills in nursing, which are learned in academic and clinical environments, and supplemented by the intensive reviews given after graduation contribute to a 55% chance of passing the PNLW.
Ocampo	2015 MT	To create a document regarding the "Marks of a Self-reviewee Board Passer" for future reviewees	Qualitative, case study n=7	*IndF:* Different approaches and learning styles in studying for the NLE
Oducado et al.	2019 PR	To determine the relationship of institutional terminal competency assessment (TCA) and other factors on PNLE performance	Correlational 354 graduates from 2015-17	*AF:* TCA is significantly related with PNLE passing. High School Grade General Average (r=.365), College Grade GWA (r=-.644) and scores in CAT (r=.297), NAT (r=.438), and pre-board examination (r=.435) were significantly correlated with PNLE rating.

Oducado et al.	2020 PR	To ascertain the influence of English language proficiency on the AP of students in professional nursing courses and the PNLE	Retrospective descriptive correlational Secondary data analysis of 141 graduates	*AF:* PNLE ratings is significantly related to Verbal Ability (r=.366) and the three English courses (101, r=-.541; 102, r=-.340; 103m r=-.362). AP and Verbal Ability subscale of the NAT (r=1.252; p=0.003) and the three English courses in the nursing curriculum (101, r=.692; 102, r=-.558; 103, r=-.538) are significantly related.
Ong et al.	2012	The study determined the predictors of licensure examination performance of nursing graduates	Descriptive-correlational n=163	*IndF:* IQ test (r=.47) is related to PNLE performance. *InsF:* NAT (r=.50), college GWA (r=.65), and pre-board examination performance (r=.48) were significantly correlated with PNLE performance. College GWA and pre-board examination are predictive of PNLE performance (r^2= 52.3%).
Onievas et al.*	2015	The study determined the experiences BSN graduates after failing the PNLE	Qualitative	*IndF:* Themes related to causes of PNLE failure: overconfidence, incompetence, test anxiety, lack of focus, effortlessness, disinterestedness and stress.
Pacis at al.	2020	To determine success factors of PNLE and weaknesses	Descriptive - correlational 86 graduates from 2012-2017	*AF:* GWA, CA 1 & 2, NCM 101 to 107 were positively correlated with PNLE. GWA has highest correlation. Highest PNLE rating is NP I (74.4%), lowest is lowest NP III. (59.3%). 40.7% of graduates failed NP III. Graduates had lowest grade in FNP but highest (NP I) in PNLE.
Pengson, R.*	2010	To determine the relationship between academic achievement and PNLE performance	Descriptive - correlational 148 2004-2007 graduates	*AF:* AP is significantly related with NLE performance.
Rosales et al.	2014 PR	To describe how graduates of colleges of nursing nationwide performed in the NLE and to determine the factors that correlate with the examinees' scores.	Descriptive correlational Secondary data analysis of 577,914 examinees from 2006 to 2010	*IndF:* First-time exam takers have higher pass rates and ratings than retakers. Number of PNLE attempts is negatively correlated with PNLE passing (r=-.203 to -.310). *InsF:* Graduates of accredited and government-owned schools have higher NLE pass rates. Graduates of Level III accredited schools have higher pass rate and and ratings than graduates of Level I and III accredited schools. PAASCU-accredited schools have higher performance scores than those accredited by other agencies. State universities' graduates have higher pass rate and rating than government-owned local universities. Highest ratings in NP I and III and lowest in NP IV.
Salustiano	2013	To determine the relationship of CAT, NAT, and GWA with PNLE	Descriptive - correlational 1,708 graduates from 2007-2011	*AF:* CAT (r=.49), NAT (r=.46), and AP (r=-.56) were significantly related with PNLE.
Soriano	2016 PR	To determine the relationship between the AP and PNLE performance of graduates of a city-subsidized university	Descriptive - correlational n=75	*AF:* CA II, NCM 104 and NCM 106 were significant predictors of PNLE performance. All courses, except health assessment and nursing research, are significantly related to PNLE rating. AP accounts for 43.19% variance on PNLE passing.
Yasa & Gonzales	2016	To determine the predictors of performance of the nursing graduates in the PNLE	Descriptive correlational 67 graduates from 2013 to 2015	*AF:* NAT and AP are significant predictors of PNLE.

Note: *Abstract; AF-academic factors; AP-academic performance; CA-competency appraisal; CAT-college admission test; GWA-general weighted average; HEI-higher education institution; IndF-individual factors; InsF-institutional factors; MP-microbiology and parasitology; MT-master's thesis; NAT-nursing aptitude test; NCM-nursing care management; PNLE-Philippine nurse licensure examination: PR-peer-reviewed article in indexed outlets

presentation will allow future researchers to map the available evidence and identify gaps in the literature (Peters et al., 2020).

Results

Characteristics of Included Evidence

The selected 29 studies that analyzed nursing graduates' PNLE performance were predominantly quantitative studies and employed secondary data analysis. Only seven full text articles from peer-reviewed journals indexed in international outlets (Scopus or Web of Science) are available while the rest are from school based and local journals, in abstract form, and unpublished master's thesis and doctoral dissertation. Majority of the studies utilized school-based student records (n=21) while a few used the CHED (n=4) and PRC (n=3) databases. Methodological issues involved lack of reported

assumptions testing (n=23), use of grades that were grouped as ordinal data (n=2), wrong or debatable choice of statistics (n=2), failure to address missing data, poor or confusing data presentation, and conflicting results reported on the abstract and research findings.

Trends in PNLE Results

There is a decreased trend in PNLE takers and FTPR from 2006 to 2014 (Bautista et al., 2018; Rosales et al., 2014) and increased FTPR from 2014 to 2018 (Montegrico, 2019). The overall passing rate for both first-time test takers and repeat test takers has decreased from 49.2% in 2006 to 35.2% in 2010 and increased to 45% in 2016 (Bautista et al., 2018; Rosales et al., 2014). From 2014 to 2018, only 75% of nursing graduates passed the PNLE as first-time takers and first-time examinees who took the November/December PNLE had higher odds of passing the PNLE compared to those who took the May/June PNLE (Montegrico, 2019). Conversely, Ong et al. (2012) argued that those who took the PNLE in May/June have higher FTPR. Fractal analysis revealed a higher variability in PNLE result in the May/June PNLE compared to the November/December PNLE (De Castro & Villanueva, 2014).

First-time examinees were more likely to pass the PNLE (OR=7.01) compared to those retaking the examination (Montegrico, 2019; Rosales et al., 2014). Within the same period, there was a higher number of repeat PNLE examinees compared to first-time examinees (Montegrico, 2019). Those repeating the PNLE are less likely to be successful in the exam as the number of repeats is negatively correlated with PNLE success (Rosales et al., 2014). Using fractal analysis, De Castro and Villanueva (2014) reported a higher variability in examination results in the June PNLE and among low-performing nursing schools compared to December PNLE and high-performing nursing schools, respectively.

Multiple studies reported that PNLE ratings in Nursing Practice (NP) I and NP II were higher compared to NP IV, and NP V ratings (De Leon et al., 2016; Ong et al., 2012; Pacis et al., 2020; Rosales et al., 2014). NP I scores were reportedly within the 76.9% to 84.1% range compared to NP IV mean score of 72.2% (Ong et al., 2012; Soriano, 2016). Findings for NP III were contradictory; Rosales et al. (2014) reported NP III as the highest test in the PNLE while Pacis et al. (2020) and Neri (2009) both claimed NP III had the lowest rating. When analyzed separately as predictors of PNLE success using simple regression, NP I (r^2=25.9%), NP II (r^2=29.6%), NP III (r^2=31.8%), NP IV (r^2=35.9%), and NP V (r^2=34.7%) were all predictive of PNLE outcomes (Kiblasan & Ligligen, 2020). Similarly, both graduates who passed and failed the PNLE identified Medical-Surgical Nursing as their weakest area and a common reason for failing NP III (Neri, 2009).

Individual Factors Affecting PNLE Outcomes

Very few studies have reported the influence of individual factors on PNLE outcomes. Age and gender were not associated with PNLE performance (Garcia, 2011). Those who passed the PNLE have higher intellectual ability than those who failed the exam (Neri, 2009). However, Ong et al. (2012) argued that intelligence quotient (IQ) is not a good predictor of PNLE because their findings showed that those with low IQ achieved high PNLE ratings. While effective learning styles were pointed out as strategies that ensure PNLE success (Ocampo, 2015), various psychosocial factors such as overconfidence, incompetence, lack of focus, test anxiety, stress, effortlessness, and disinterestedness were reported as contributory to failing the PNLE (Onievas et al., 2015). Qualitatively, diligence, hard work, goal-setting, and intrinsic motivation to succeed academically were described as factors contributing to success in the licensure exam (Estrada et al., 2015).

Academic Factors Affecting PNLE Outcomes

Academic performance, reflected as the general weighted average (GWA), emerged as the most common academic factor that is significantly correlated (r=.514 to .65) with PNLE ratings and outcome (Banua, 2017; Ignacio et al., 2016; Kiblasan & Ligligen, 2020; Llego et al., 2020; Neri, 2009; Oducado et al., 2019; Ong et al., 2012; Pacis et al, 2020; Pengson, 2010; Salustiano, 2013; Yasa & Gonzales, 2016). Only the study of Herbosa et al. (2011) refuted this claim. Interestingly, in Banua's (2017) study, 62% of nursing graduates who passed academically and 16.5% of those who had superior academic intelligence failed the PNLE. Other scholars suggested that a grade of at least 2.25 (Ignacio et al., 2016) or 80% to 85% (Del Rosario & Estrada, 2010) in nursing courses increases the chances of PNLE passing.

GWA was a significant predictor in multiple studies (Banua, 2017; De Leon et al., 2016; Ignacio et al., 2016; & Navarro et al., 2011), accounting for 44.2% of the variance in PNLE outcomes (Soriano, 2016). Regression analysis revealed the significant influence of combining GWA with other variables as predictors of PNLE success. GWA and (related learning experience) RLE or clinical/practicum (r^2=35.4%), GWA and e-learning (r^2=51%-61%), GWA, college admission test (CAT), and nursing aptitude test (NAT) scores (r^2=40.3%), and GWA and pre-board examination (r^2=52.5%) accounted for significant variances in PNLE outcomes (Banua, 2017; De Leon et al., 2016; Navarro et al., 2011; Ong et al., 2012).

While almost all nursing subjects (Nursing Care Management [NCM] courses) have significant moderate to strong correlations with PNLE ratings (Consad, 2015; De Leon et al.,

2016; Pacis et al., 2020; Llego et al., 2020), Community Health Development (CHD) and Nursing Research were found to have weak correlation with PNLE ratings (De Leon et al., 2016). NCM courses (combined theory and RLE) and pre-board or mock board examinations (Garcia, 2011; Ignacio et al., 2016; Llego et al., 2020; Neri, 2009; Oducado et al., 2019; Pacis et al., 2020), as well as terminal competency assessments (Oducado et al., 2019), have significant statistical relationship with PNLE ratings. This is contradictory to Herbosa et al.'s (2011) findings, which claimed that achievement tests and nursing comprehensive examinations were not related to PNLE outcomes.

NCM subjects are the strongest predictors of PNLE success, responsible for 38% of the variance in PNLE results (Llego et al., 2020). Primary Health Care 2 and NCM 100 explained 22% of the variance in PNLE outcomes (Consad, 2015). Analyzed separately, the subjects NCM 101, NCM 104, Competency Appraisal II, and Nursing Review were also predictive of PNLE success (Garcia, 2011; Kiblasan & Ligligen 2020; Soriano, 2016). Pre-board examinations were highly predictive (r^2=48%) of PNLE success (Ong et al., 2012; Ignacio et al., 2016). Moreover, NCM 106 was highly predictive of NP I rating and very highly predictive of NP IV rating (Kiblasan & Ligligen, 2020; Soriano, 2016).

Non-clinical or non-professional nursing subjects that were significantly correlated with PNLE ratings include English (Consad, 2015; Oducado et al., 2020) and Microbiology and Parasitology (Consad, 2015; Garcia, 2011). Interestingly, Anatomy and Physiology had low correlation with PNLE rating (De Leon et al., 2016). In simultaneous regression analysis, English and Microbiology and Parasitology accounted for 23.2% of the variance in PNLE outcomes (Consad, 2015). Using simple regression analysis, Microbiology and Parasitology explained 8% of the variance on PNLE success (Garcia, 2011).

Other academic factors that have a statistically significant relationship with PNLE outcomes include high school GWA, CAT, and NAT scores (Oducado et al., 2019; Salustiano, 2013; Yasa & Gonzales, 2016). Further, e-learning, NAT, and CAT (r^2=50%) were significant predictors of PNLE success (De Leon et al., 2016; Navarro et al., 2011; Ong et al., 2012). On the contrary, some studies concluded that NAT (Garcia, 2011), Health Assessment, and Nursing Research (Soriano, 2016) were not significantly related with PNLE outcomes.

While almost all studies analyzed factors affecting positive PNLE outcomes, only one study reported poor performance in academics, RLE, and in-house review as factors related to PNLE failures, and improvement in these areas may increase the chances of passing the PNLE by 55% (Neri, 2009).

Institutional Factors Affecting PNLE Outcomes

Institutional factors were reported to influence PNLE outcomes. Analysis of PNLE results revealed that 54.5% of 497 nursing schools in the Philippines were categorized as low-performing higher education institutions (HEI) while 45.5% were high-performing HEIs (Bautista et al., 2018). Larger schools, public schools, and schools established before 1970 have higher PNLE FTPR compared to smaller schools, private schools, and schools established after 1970 (Bautista et al., 2018; Rosales et al., 2014). State universities performed better in the PNLE than local government schools (Rosales et al., 2014). In addition, nursing schools with high faculty-student ratio demonstrated lower PNLE FTPR (Bautista et al., 2018). PNLE results are dependent on school's accreditation status (Dator, 2016; Gutierrez, 2016; Rosales et al., 2014) while type and level of program accreditation further influenced PNLE outcomes. Schools with Level III accreditation have higher FTPR than those with Level I and Level II accreditation, and PAASCU-accredited schools exhibited higher FTPR compared to schools accredited by other regulatory bodies (Rosales et al., 2014).

Discussion

This scoping review synthesized the available evidence of factors influencing PNLE outcomes. Twenty-nine published studies and gray literature over the last 20 years were predominantly quantitative, descriptive-correlational studies. Secondary data analysis of nursing graduates' PNLE results from nursing schools was the most common data collection method, followed by analysis of government data using the CHED and PRC-BON's databases.

An FTPR of 75 percent, reduced trend in FTPR, and majority of HEIs categorized as low-performing schools based on PNLE results are manifestations of deteriorating higher educational system (Bautista et al., 2018; Masselink & Lee, 2010; Montegrico, 2019; Ordonez & Ordonez, 2009; Rosales et al., 2014). The proliferation of nursing schools, influx of nursing students, loose government regulation, and commercialization of nursing schools, which were influenced by increased global demand for nurses, may have contributed to this concern (Masselink & Lee, 2014; Ordonez & Ordonez, 2009; Ortiga, 2014). The huge demand for nurses in the U.S. in the late 1990s to the mid-2000s created a platform to open nursing programs, which might have contributed to the proliferation of substandard nursing schools that compromised the quality of nursing education (Bautista et al., 2014; Masselink & Lee, 2010; Montegrico, 2019; Ortiga, 2014; Rosales et al., 2014). From 190 nursing schools in 1995, this increased to more than

500 nursing schools at present, which is a response to international migration opportunities (Masselink & Lee, 2010; Ortiga, 2014), particularly U.S. migration (Arends-Kuenning et al., 2015) since the U.S. is the most preferred destination of Filipino nurses (Marcus et al., 2014). This sudden influx of nursing students created a need for more nursing faculty members and clinical spaces, the lack of which may have produced adverse consequences to the teaching-learning process, and impacted program and institutional outcomes (Squires et al., 2017; Oermann & Gaberson, 2017). Further, the influx of students translated to more nursing graduates and PNLE examinees that was seen as business opportunity between nursing review centers and nursing schools, paving the way for the commercialization of nursing education in the country, where almost 90% of nursing schools had affiliations with review centers (Masselink & Lee, 2010).

The decreased number of PNLE test takers from 2010 to 2014 is an effect of the reduced enrollment in nursing schools brought about by the U.S. visa retrogression in the mid-2000s. Philippine nursing education is largely influenced by the socio-political climate in the U.S. surrounding the hiring of internationally educated nurses (IEN) (Arends-Kuenning et al., 2015). As the major source of IEN in the U.S. (Marcus et al., 2014; Ortiga, 2014), a reduced U.S. demand for IEN significantly affected enrollment in Philippine nursing schools (Arends-Kuenning et al., 2015; Eder, 2016; Masselink & Lee, 2010). Moreover, the CHED-mandated closure of low-performing nursing schools based on PNLE results and moratorium in opening new nursing programs contributed to the reduction in nursing schools (Bautista et al., 2018). Thus, the reduction in the number of nursing graduates and PNLE examinees.

The variability in PNLE results between the May/June and November/December examinations is reflective of two common practices in nursing schools governing PNLE. The first practice involves the selection process of nursing schools where graduates who are more likely to pass are allowed to take the May/June PNLE while those who are less prepared are given more time to prepare for the November/December PNLE. The second practice pertains to institutional preference to have their graduates take the November/December PNLE. Thus, some high-performing schools with better prepared graduates may take the May/June PNLE, while other schools provide more time for their graduates to prepare for the November/December PNLE, thus causing high variability in PNLE results (De Castro & Villanueva, 2014).

The available literature presented limited evidence on the influence of individual factors on PNLE outcomes. The findings on intellectual ability or IQ were contradictory (Neri, 2009; Ong et al., 2012), which indicates a need for further studies. The learning styles that helped nursing graduates pass the PNLE (Ocampo, 2015) can be adapted by those who are preparing for the examination, while the contributory factors to PNLE failure (Onievas et al., 2015) should be avoided by prospective PNLE test takers.

Academic performance was consistently identified as the strongest predictor of PNLE success (Banua, 2017; Ignacio et al., 2106; Kiblasan & Ligligen, 2020; Llego et al., 2020; Navarro et al., 2011; Neri, 2009; Oducado et al., 2019; Ong et al., 2012; Pacis et al., 2020; Pengson, 2010; & Salustiano, 2013; Yasa & Gonzales, 2016). Students who performed academically well in the nursing program are likely to perform better in the licensure examination. This finding is supported by a systematic review of academic factors affecting nursing licensure examinations in other countries, such as the National Council Licensure Examination-Registered Nurses (NCLEX-RN) in the U.S. (Banks et al., 2019). While academic performance is an interplay between the student and teacher within the teaching-learning process, it is imperative that nursing schools develop and maintain essential structures and processes that are needed to deliver effective theoretical and clinical instruction since clinical nursing courses are all significant predictors of PNLE success. In addition, the review reported that high school GWA, CAT, NAT, achievement exams, pre-board exams, and pre-licensure review programs influence PNLE outcomes (De Leon et al., 2016; Garcia, 2011; Navarro et al., 2011; Oducado et al., 2019; Ong et al., 2012; Salustiano, 2013). This finding is consistent with NCLEX-RN studies that reported end-of-program performance as predictors of NCLEX-RN success (Banks et al., 2018; Brussow & Dunham, 2018; Kaddoura et al., 2017). It is critical that nursing schools develop admission, retention, promotion, graduation, and licensure exam policies and guidelines to support students' development as they progress in the nursing program.

Three parts of the PNLE, namely, NP III, NP IV and NP V, are primarily medical-surgical nursing (MSN) concepts. Identified as a major area of weakness by nursing graduates (Llego et al., 2020) and the most common cause of PNLE failure (Pacis et al., 2020), this finding emphasizes the need for nursing programs to have a strong MSN theoretical and clinical instruction. This finding further supports widely accepted evidence that MSN is a strong predictor of international nursing licensure examination such as the NCLEX-RN (Banks et al., 2018; Hererra & Blair, 2015). Additionally, providing adequate medical-surgical clinical experiences is essential since theory-practice gap is an identified issue among Philippine senior nursing students (Factor et al., 2017). Furthermore, the

relationship between grades in English courses and PNLE is relevant to mention since the PNLE is written in the English language. It should be noted, however, that the influence of language in any examination may constitute a construct-irrelevant variance (Waltz et al., 2017) because language may account for as much as 20% of the variance in licensure examinations (Johnston, 2001). Lastly, while most of the available evidence analyzed correlates and predictors of PNLE success, a major limitation of predictive studies is their inability to predict failures. Caution must then be exercised in interpreting and using the results of predictive studies.

Institutional characteristics that impact PNLE outcomes include school size, ownership (private/public), year of establishment, accreditation, and faculty-student ratio (Bautista et al., 2018; Dator, 2016; Gutierrez, 2016; Rosales et al., 2014). The majority of high-performing schools were public universities and colleges, accredited, and have lower faculty-student ratios. With government subsidy, state-run nursing schools have sufficient resources for faculty and students. Accreditation ensures that nursing schools meet higher-than-minimum requirements set by the government to operate, thus, ensuring more resources and efficient processes. Older schools have established structures and processes that may have been tested to be effective in delivering their nursing programs compared to newly established schools.

Conclusion and Recommendations

This is the first scoping review that synthesized the state-of-the-science on factors affecting PNLE outcomes. Various individual, academic, and institutional variables were found to influence PNLE success. Based on the results of this review, the following recommendations were made to help individual nursing students and nursing schools improve their performance in the PNLE. Recommendations for future research are also provided.

Prospective nursing students should adequately prepare academically before entering nursing school since high school GWA, CAT, and NAT scores influence future PNLE performance. Academic performance in nursing school is critical in ensuring PNLE success. While it is important to focus on all subjects in the nursing curriculum, emphasis should be placed on subjects that are strongly predictive of PNLE success. Nursing schools should provide sufficient resources and programs to support student success and achieve positive PNLE outcomes. There is a need to address programmatic areas that predict PNLE outcomes such as developing evidence-driven policies, having smaller faculty-student ratio, undergoing accreditation, and strengthening medical-surgical courses. Finally, for future researchers, there is a need to explore the influence of other variables related to PNLE outcomes that were not investigated in these studies.

References

Arends-Kuenning, M., Calara, A., & Go, S. (2015). *International migration opportunities and occupational choice: a case study of Philippine nurses 2002 to 2014*. Paper presented at the Institute for the Study of Labor. Bonn, Germany.

Banks, J., McCullough, E., Ketner, D., & Darby, R. (2019). Tailoring NCLEX-RN indicator assessments for historically black colleges and universities: Literature review. *Journal of Professional Nursing, 34*(5), 331-345. https://doi.org/10.1016/j.profnurs.2018.05.007

Banua, A. S. (2017). Determinants of performance of nursing graduates in licensure examination. *BU R&D Journal*, *20*(1), 113-118.

Bautista, J. R., Ducanes, G., David, C. (2018). Quality of nursing schools in the Philippines: Trends and evidence from the 2010-2016 Nurse Licensure Examination results, *Nursing Outlook, 67*(3), 259-269. https://doi.org/10.1016/j.outlook.2018.12.012

Brussow, J. & Dunham, M. (2018). Students' midprogram content area performance as a predictor of end-of-program NCLEX readiness. *Nurse Educator, 43*(5), 238-241. https://doi.org/10.1097/NNE.0000000000000499

Castro-Palaganas, E., Spitzer, D., Kabamalan, M., Sanchez, M., Caricativo, R., Runnels, V., Labonte, R., Murphy, G., & Bourgeault, I. (2017). An examination of the causes, consequences, and policy responses to the migration of highly trained health personnel from the Philippines: The high cost of living/leaving – a mixed method study. *Human Resources for Health, 15*, 25. https://doi.org10.1186/ s12960-017-0198-z

Commission on Higher Education. (2017). *CHED memorandum order no. 15 series of 2017. Policies, standards, and guidelines for the Bachelor of Science in Nursing (BSN) program.* https://ched.gov.ph/wp-content/uploads/ 2017/10/CMO-15-s-2017.pdf

Consad, H. B. (2015). *Predictors of nursing graduates' performance in licensure examination.* (Unpublished master's thesis). Palawan State University.

Dator, W. (2016). Accreditation and its relationship to the performance in the nurse licensure examination of higher education institutions in the Philippines. *International Journal of Evidence-Based Healthcare*, *14*(s9). https://doi.org/10.1097/01.XEB.0000511624.93121.49

De Castro, M. R., & Villanueva, T. M. (2014). Performance on the Philippine nurses' licensure examination: Variability and roughness analysis. *Recoletos Multidisciplinary Research Journal*, 2(1), 133-147.

De Leon, J. (2016). Academic and licensure examination performances of BSN graduates: Bases for curriculum development. *International Journal of Educational Policy*

Research and Review, 3(4), 64-72. http://dx.doi.org/10.15739/IJEPRR.16.009

De Leon, J.M., Mejilla, J.L., Sagun, C.G., Garcia, M.C., & Alviar, P.R. (2016). E-learning and general weighted average as predictors for nurses licensure examination. *International Journal of Educational Policy Research and Review, 3*(2), 14-19. http://dx.doi.org/10.15739/IJEPRR.16.003

Del Rosario, B. I., & Estrada, R. D. (2010). Predictors of Success in the Philippine nursing licensure examination (PNLE) among DDC nursing graduates (2004 – 2006). *Davao Doctors College, College of Nursing Faculty Research Journal, 1*(1).

Eder, R. (2016). I am where I think I will work: Higher education and labor migration regime in the Philippines. *Educational Studies, 52*(5), 452-468. https://doi.org/10.1080/00131946.2016.1214913

Eddy, L., & Epeneter, B.J. (2002). The NCLEX-RN experience: qualitative interviews with graduates of a baccalaureate nursing program. *The Journal of Nursing Education, 41*(6), 273-8. DOI:10.3928/0148-4834-20020601-08

Estrada, M.G., Gascon, A.J., & Lazalita, L.A. (2015). What it takes to succeed in the Philippine nursing licensure exam? A retrospective qualitative inquiry on the journey of Thomasian board topnotchers. *American Research Journal of Nursing*, 1(4), 1-10.

Factor, E., Matienzo, E., de Guzman, A. (2017). A square peg in a round hole: Theory-practice gap from the lens of Filipino student nurses. *Nurse Education Today*, 57, 82-87. https://doi.org/10.1016/j.nedt.2017.07.004

Garcia, E.C. (2011). Correlates of board examination performance of nursing graduates of Lyceum –St. Cabrini College of Allied Medicine. *Lyceum of the Philippines–Laguna Research Journal, 1*(1), 1-13.

Gates, S. (2018). What works in promoting and maintaining diversity in nursing programs. *Nursing Forum*, *53*(2), 190-196. https://doi.org/10.1111/nuf.12242

Gutierrez, N.P. (2016). Level of accreditation and board performance of the colleges of nursing in the National Capital Region. *International Education & Research Journal*, 2(5), 21-29.

Herbosa, J. M., Hernandez, J. R., Holgado, S. M., Javier, C., & Javier, J. A. (2011). Factors affecting the performance of Letran Calamba nursing students batch 2009 in the nursing licensure examination. *Ani: Letran Calamba Research Report*, 1(1), 119-120.

Herrera, C. & Blair, J. (2015). Predicting success in nursing programs, *Research in Higher Education Journal, 28*, 1-8.

Ignacio, M. L. A., Bantique, E. V., & De la Pena, T. S. M. (2016). Correlates of nurse licensure exam (NLE): An analysis of Baliuag University BSN graduates' performance. *Harvest, 12*(1).

Jeffreys, M. (2015). Jeffrey's Nursing Universal Retention and Success model: Overview and action ideas for optimizing outcomes A-Z. *Nurse Education Today*, *35*(3), 425-431. https://doi.org/10.1016/j.nedt.2014.11.004

Johnston, J.G. (2001). Influence of English language on ability to pass the NCLEX-RN. In E. Waltz & L. Jenkins (Eds.), *Measurement of nursing outcomes* (2nd ed.). New York; Springer Publishing.

Kaddoura, M., Flint, E., Van Dyke, O., Yang, Q, & Chiang, L. (2017). Academic and demographic predictors of NCLEX pass-rates in first and second-degree accelerated BSN programs. *Journal of Professional Nursing*, *33*(3), 229-240. https://doi.org/10.1016/j.profnurs.2016.09.005

Kiblasan. J. A., & Ligligen, S. C. A. (2020). The academic and licensure examination performances of Bachelor of Science in Nursing graduates in a state college. *Philippine Journal of Nursing*, *90*(2), 15-20.

Llego, J. H., Al-Saqri, S., Gabriel, E. P., & Corpuz. J. L. (2020). The predictive strength of academic performance in passing the Philippine Nurse Licensure Examination. *International Journal of Innovation, Creativity and Change,* 13(1), 425-437.

Marcus, K., Quimson, G., & Short, S. (2014). Source country perceptions, experiences, and recommendations regarding health workforce migration: a case study from the Philippines. *Human Resources for Health, 12*(62). https://doi.org/10.1186/1478-4491-12-62

Masselink, L. & Lee, S. (2010). Nurses, Inc.: Expansion and commercialization of nursing education in the Philippines. *Social Science & Medicine, 71*(1), 166-172.https://doi.org/10.1016/j.socscimed.2009.11.043

Moher, Liberati, Tetzlaff, & Altman, (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097.

Montegrico, J. (2021). *The experiences of internationally educated nurses while preparing for the NCLEX-RN*. [Doctoral dissertation, The University of North Carolina at Greensboro]. ProQuest Dissertations Publishing.

Montegrico, J. (2020). A 15-year trend study of internationally educated nurses' NCLEX-RN performance: A case study for the Philippines. *Nursing Education Perspectives*. https://doi.org/10.1097/01.NEP.0000000000000660

Montegrico, J. (2019). A five-year trend analysis of the Philippine nurse licensure examination. *Philippine Journal of Nursing, 89*(2), 47-51. Navarro, R. T., Vitamog, A. T., Tierra, R. J. C., & Gonzalez, D. M. J. (2011). Predictors of nursing board examination performance. *JPAIR Multidisciplinary Research Journal, 6*(1), 232-246. https://doi.org/10.7719/jpair.v6i1.147

Neri, D.L. (2009). Intellective variables as predictors to nursing licensure examination performance. *Liceo Journal of Higher Education Research, 6*(1), 56-75.

Ocampo, N. M. (2015). *The self-review stories of seven first-taker board passers in the Philippine nursing licensure examination (P.N.L.E.): A multiple case study* (Unpublished master's thesis). St. Paul University Manila.

Oducado, R.M. F., Cendaña, D. P., & Belo-Delariarte, R. G. (2019). Institutional competency assessment and other factors

influencing the nurse licensure examination. *International Journal of Scientific & Technology Research*, 8(12), 268-270.
Oducado, R. M. F., Sotelo, M. G., Ramirez, L. M., Habaña, M. P., & Belo-Delariarte, R. G. (2020). English language proficiency and its relationship with academic performance and the nurse licensure examination. *Nurse Media Journal of Nursing*, *10*(1), 46-56. https://doi.org/10.14710/nmjn.v10i1.28564
Oermann, M. & Gaberson, K. (2017). *Evaluation and Testing in Nursing Education* (5th ed.). Springer Publishing Company. New York.
Ong, M., Palompon, D. R., & Bañico, L. (2012). Predictors of nurses' licensure examination performance of graduates in Cebu Normal University, Philippines. *Asian Journal of Health, 2*(1), 130-141.
Onievas, C., Batanes, K.R., Bonus, E.S., & Conor, W.N. (2015). On failing the nurses' licensure Examination: Lived experiences of Letranite BSN graduates. *Ani: Letran Calamba Research Report*, 2(1), 111-112
Ordonez, G., & Ordonez, V. (2009). Accreditation in the Philippines: A case study. *In Higher Education in Asia/Pacific Quality and the Public Good*. Edited by T. W.Bigalke & D.E. Neubauer. Series: International and Development Education. Palgrave Macmillan.
Ortiga, Y. (2014). Professional problems: The burden of producing the "global" Filipino nurse. *Social Science & Medicine, 115*, 64-71.
Pacis, M., Fontanilla, D. M., Panopio, A. R., & Concepcion, L. (2020). Correlation analysis of selected academic parameters and the nurse licensure examination performance of the National University-Manila BSN graduates. *Journal of Sciences, Technology and Arts Research*, Allied Health Special issue, 15-28.
Pengson, R. (2010). Nurse licensure examination (NLE) performance of Baliuag University graduates from 2004-2007 in relation to their academic achievement. *Harvest, 6*(1).
Peters, M. D., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBI Evidence Synthesis*, 18(10), 2119-2126. https://doi.org/10.11124/JBIES-20-00167.
Relf, M. (2016). Advancing diversity in academic nursing. *Journal of Professional Nursing,* 32(5), S42-S47. https://doi.org/10.1016/j.profnurs.2016.02.010
Roa, M., Shipman, D., Hooten, J., & Carter, M. (2011). The costs of NCLEX-RN failure. *Nurse Education Today*, 31(4), 373-377. https://doi.org/10.1016/j.nedt.2010.07.009
Rosales, A., Arugay, Y., Divinagracia, C., & Castro-Palaganas, E. (2014). Analytical study of the nurses licensure examination performance of graduates of Philippine colleges of nursing. *Philippine Journal of Nursing*, *84*(1), 4-23.
Salustiano, R. P. (2013). Correlation analysis of performance in college admission test, nursing aptitude test, general weighted average and nurse licensure examination of nursing graduates. *Arellano University Graduate School Journal*, 11(1).
Scott, L. & Zerwic, J. (2015). Holistic review in admissions: A strategy to diversify the nursing workforce. *Nursing Outlook, 63*(4), 488-495. https://doi.org/10.1016/j.outlook.2015.01.001
Soriano, G. P. (2016). Relationship between academic performance and the nursing licensure examination of graduates from a city-subsidized university. *Philippine Journal of Nursing, 86*(1), 72-83.
Squires, A. (2017). A case example of a transitional education program for internationally educated nurses from Mexico. *Nursing Economics, 35*(1), 30-37.
Taylor, H., Loftin, C., & Reyes, H. (2014). First-time NCLEX-RN pass rate: Measure of program quality or something else? *Journal of Nursing Education, 53*(6), 336-341. https://doi.org/10.3928/01484834-20140520-02.
Waltz, C., Strickland, O., & Lenz, E. (2017). *Measurement in Nursing and Health Research* (5th ed.). New York: Springer Publishing Company.
Yasa, C. C., & Gonzales, L. D. (2016). Predictors of the nurse licensure examination of Baliuag University college of nursing graduates. *Harvest, 12*(2).

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