

RESEARCH ARTICLE

A FIVE-YEAR TREND ANALYSIS OF THE PHILIPPINE NURSE LICENSURE EXAMINATION (2014-2018)

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Abstract

Purpose: This study analyzed the trend of the Philippine Nurse Licensure Examination (NLE) results from 2014 to 2018.

Design: A retrospective research design was used to describe the five-year trend in the NLE. It determined the association between NLE outcome (pass/fail) and the type of examinee (first time vs. repeat examinees) and timing (month) of taking the exam (May/June vs. November).

Methods: Trends in NLE results were examined to determine the pass and fail rates over five years as an indication of the quality of nursing education. Secondary data analysis was conducted after collecting publicly available NLE data. Odds ratios were estimated to express whether the odds of passing differ for the type of examinee and month of taking the NLE.

Findings: The overall pass rates indicated a decreasing trend over the past five years (47.5% to 41.3%). The first-time pass rates showed an increasing trend (70.6% to 77.3%) while the repeat pass rates revealed a decreasing trend (31.6% to 28.2%). The odds of passing the NLE among first-time examinees is 7.01 times the odds of passing the NLE compared to repeat examinees [OR = 7.01 (95% CI = 6.86, 7.12)]. The odds of passing the NLE in November is 1.32 times the odds of passing in May/June [OR = 1.32 (95% CI = 1.29, 1.34)].

Conclusions: Despite the increasing first-time pass rates, a large number of nursing graduates still fail the NLE, especially among the repeat-takers. The results of this study can be used to improve nursing programs by developing measures to increase the NLE passing performance through assisting at-risk first-time examinees prior to taking the NLE and developing programs to assist graduates who will retake the NLE.

Keywords: nurse licensure examination, first-time pass rates, nursing education, Philippines

Introduction

Most countries require graduates to pass a licensure examination prior to entry into the nursing profession. In the Philippines, graduates are required to pass the Nurse Licensure Examination (NLE) prior to starting nursing practice (BON, 2017). Republic Act 9173 mandated the Board of Nursing (BON) to administer the NLE to measure the entry-level competencies of new nurses.

One way to measure the quality of a nursing program is the performance of graduates in the licensure examination (Banua, 2017; CHED, 2017; Rosales, Arugay, Divinagracia, & Castro-Palaganas, 2014). The first-time pass rate on the licensure exam is regarded as a primary criterion in measuring the quality of nursing programs (Taylor, Loftin, & Reyes, 2014). RA 9173 or

Philippine Nursing Act of 2002 mandated the Professional Regulation Commission through the BON to administer the NLE to graduates of Bachelor of Science in Nursing (BSN) programs to determine eligibility for professional practice (Rosales et al., 2014).

The NLE blueprint, "Philippine Nurses' Licensure Examinations Covering Nursing Practice (NP) I, II, III, IV, and V" was based on the provisions of RA 9173 and the BSN curriculum mandated by the Commission on Higher Education (CHED) (BON, 2017; Rosales et al., 2014). The NLE is a five-part 500-question paper-and-pencil test given over two days twice a year, in May or June and in November. Each part of the NLE consists of a 100-item

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multiple choice test that covers Basic Foundations of Nursing and Professional Nursing Practice (NP I), Community Health Nursing and Care of Normal and High-risk Mother and Child (NP II), and Care of Clients with Physiologic and Psychosocial Alterations A, B, and C (NP III, IV, and V, respectively). An examinee must achieve an average rating of 75% in all five areas with no rating below 60% in any area in order to pass the NLE (BON, 2017).

A review of the literature revealed only two published national studies analyzing the Philippine NLE results for the past 12 years, where both studies reported a deteriorating quality of nursing education in the country. Rosales et al. (2014) analyzed NLE trends from 2006 to 2010 while Bautista, Ducanes, & David (2018) studied NLE results from 2010 to 2016. In their studies, the NLE overall pass rate (OPR) from 2006 to 2016 was 44.0%. The lowest NLE OPR was in 2013 (37.1%) and the highest OPR was in 2015 (51.8%). In a study by Banua (2017), the five-year NLE passing rate for graduates in one university was 57.9%. These findings are significant because both the BON and CHED use NLE results as a major criterion to monitor the quality of nursing schools. In 2013, CHED, as a government regulatory body with its effort to maintain quality nursing education in the country, issued warnings to nursing schools that only achieved 46-55% OPR, ordered probations for phase-out for 31-45% OPR, and the gradual phase-out for less than 30% OPR (CHED, 2017). CHED's actions on imposing moratorium on the opening of new nursing programs, warnings to 152 nursing schools, and ordering closures of 218 out of the 491 nursing schools in the Philippines were concrete indicators of the quality of nursing education in the country (Bautista et al., 2018).

Bronfenbrenner's socioecological model (SEM) provides a conceptual framework in understanding the multidimensionality of individual, interpersonal, organizational, and environmental factors that impact an examinee's performance on the licensure exam (Hickey, Harrison, & Sumsion, 2012). Individual factors, such as students' demographics and academic performance, and contextual factors that include interpersonal variables can affect academic success and outcome of the NLE. Academic factors such as college grade point average (GPA), college entrance test, and nursing courses have significant association with NLE ratings (Banua, 2017; De Leon, 2016; Ong, Palompon, & Banico, 2012). First-time examinees have higher pass rates and chances of passing the NLE than repeat examinees (Rosales et al., 2014). Organizational factors such as accreditation status (Rosales et al, 2014), school type and size, location, ownership, and year of establishment were also associated with NLE pass rates (Bautista et al., 2018). Environmental factors, such as increased demand for Filipino nurses in the global market, overcrowded nursing curriculum to fit global employer needs, and the proliferation and commercialization of nursing schools, were identified to contribute to the deterioration in quality nursing education (Masselink & Lee, 2010; Ortiga, 2014).

Analyzing the trend in licensure examination results is significant for three reasons. First, it is an objective valid measure of the quality of nursing education in an institution (Bautista et al., 2018; CHED, 2017; Taylor et al., 2014). Second, it provides information about the comparability of Philippine nursing education with global nursing standards (Lurie, 2016; Xu, 2010). Third, it has implications for the global nursing workforce since the Philippines is the world's leading supplier of migrant nurses to over 50 countries (Ortiga, 2014). Nursing demand in the United States (U.S.) significantly affects the enrollment in Philippines nursing schools (Arends-Kuenning, Calara, & Go, 2015) since the U.S. is the preferred destination of Philippine-educated nurses (Marcus, Quimson, & Short, 2014). Moreover, more than half of the internationally educated nurses in the U.S. are from the Philippines (Spetz, Gates, & Jones, 2014).

Thus, the study sought to analyze the overall trend in NLE results from 2014 to 2018 to enhance knowledge of this understudied area that has important implications for nursing education and nursing workforce in the Philippines and internationally. The concerning status of the Philippine nursing education based on NLE results (Bautista et al.; Rosales et al., 2014) is a major impetus to conduct the study and to continuously monitor the trend of NLE results. This study adds to the limited NLE studies by analyzing the trends in NLE results from 2014 to 2018. This study provides new knowledge on the NLE and a new perspective on the odds of passing the NLE based on the type of examinee and the timing of taking the examination.

Research Questions

This study aimed to answer the following research questions: 1) What is the overall pass rate (OPR) in the Philippine NLE from 2014 to 2018? 2) What is the trend among the first-time pass rate (FPR) compared to repeat examinees pass rate (RPR)? 3) What are the odds of passing the NLE according to the type of examinee (first-time vs. repeat examinee) and timing (month) of taking the exam (May/June vs. November)?

Methods

This study used a retrospective research design to describe the trend in the NLE from 2014 to 2018 and to detect associations between passing the NLE with first-time examinee vs. repeat examinee and timing of taking the exam (May/June vs. November). Trend analysis was used as a method to determine the NLE pass rates over a period of time and across different samples. Trend analysis is commonly used in educational policy research as a means to provide a broad perspective about educational data over several years (Griffone, Phenice, & Hsieh, 2014). The use of trend analysis in analyzing NLE results provides a rich source of educational research information from 166,717 Philippine examinees over a five-year period. An institutional review board (IRB) approval was not sought since data was collected from a publicly available source, the official website of

the PRC-BON. The results from each NLE cohort, for May/June and for November, were manually entered into a Microsoft Excel spreadsheet for data analysis. Frequency and percentage distribution described the number of examinees and NLE passing rates. Odds ratios were estimated to express whether the odds of passing differ for the type of examinee and timing of taking the NLE.

Results

NLE Overall Pass Rate (OPR)

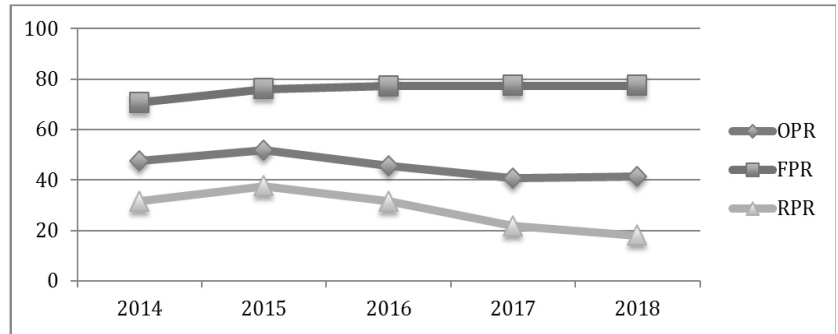
The OPR slightly increased from 2014 (47.5%) to 2015 (51.7%) and then steadily declined from 2016 (45.7%) to 2017 (40.6%). It had a slight increase in 2018 (41.3%). As shown in Figure 1, the first-time pass rate (FPR) had a positive trend with a steady increase from 2014 (70.6%) to 2018 (77.3%). On the contrary, the repeat pass rate (RPR) had a consistent negative trend from 2015 (37.6%) to 2018 (18.0%), a 52.1% reduction within a four-year period.

Table 1 presents the number of examinees, frequency of passed, failed, and conditional examinees, and OPR from 2014 to 2018. Of the 77,151 new registered nurses (RN) who passed within the five-year period, most passed in 2014 (N=26,517) and this steadily decreased each year through 2018 (N=9,037). There was a consistently decreasing trend from 2014 (N=55,873) to 2018 (N=21,904), accounting for a 60.8% reduction in the number of examinees. The five-year OPR was 46.3%. Examinees in 2015 had the highest OPR (51.7%) while 2017 had the lowest OPR (40.6%). Years 2017 and 2018 both had lower OPR (40.6% and 41.26%, respectively) compared to the 2014, 2015, and 2016 OPR (47.5%, 51.7%, and 45.7%, respectively). The Nov. 2014 NLE had the highest OPR (57.3%) while June 2017 NLE had the lowest OPR (34.7%).

First-time NLE Examinees' Pass Rates

Figure 2 and Table 2 show the trend in first-time takers' pass rate (FPR) from 2014 to 2018. The five-year FPR is 74.5%, which indicates that one in four first-time examinees did not pass the NLE. Examinees in 2017 had the highest FPR (77.4%), followed closely by 2018 (77.3%), while examinees in 2014 had the lowest FPR (70.6%). The June 2018 NLE produced the highest FPR (83.0%) while May 2014 NLE had the lowest FPR (66.4%). Five NLE periods (Nov. 2018, June 2017, Nov. 2015, Nov. 2014, and May 2014) had lower than the five-year FPR (73.8%, 73.4%, 73.7%, 75.0%, and 66.4%,

Figure 1. Overall trend of NLE results from 2014 to 2018



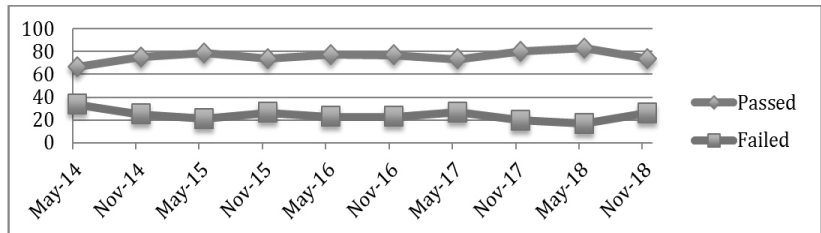
Note: OPR-overall pass rate; FPR-first-time pass rate; RPR-repeat pass rate

Table 1. Overall pass rates of NLE examinees from 2014 to 2018

	Passed	Failed	Conditional	Total examinees	OPR
Overall Total	77,151	89,381	85	166,717	46.3 %
2014 Total	26,517	29,332	24	55,873	47.5 %
Nov	15,292	11,374	19	26,685	57.3 %
May	11,225	17,958	5	29,188	38.5 %
2015 Total	18,821	17,525	45	36,391	51.7 %
Nov	9,114	9,346	40	18,500	49.3 %
May	9,707	8,179	5	17,891	54.3 %
2016 Total	13,019	15,480	5	28,504	45.7 %
Nov	6,836	7,485	1	12,422	47.7 %
June	6,183	7,995	4	14,182	43.6 %
2017 Total	9,757	14,283	5	24,045	40.6 %
Nov	5,875	6,992	2	12,869	45.7 %
June	3,882	7,291	3	11,176	34.7 %
2018 Total	9,037	12,761	6	21,904	41.3 %
Nov	4,811	7,216	4	12,031	40.0 %
June	4,326	5,545	2	9,873	43.8 %

Note: NLE-nurse licensure exam; OPR-overall pass rate

Figure 2. The overall trend of FPR in 10 NLE examinations from 2014 to 2018



Note: FPR-first-time pass rate; NLE-nurse licensure examination

respectively). Both 2016 NLE (77% and 77.2%) had higher FPR while the 2014 NLE had lower FPR (75.0% and 66.4%) than the five-year FPR.

Repeat NLE Examinees Pass Rates

Table 3 and Figure 2 show the repeat pass rates (RPR) within the five-year period. The five-year RPR is 29.5%, which means that only three out of ten

repeat examinees passed the NLE. The highest RPR was in 2015 (37.6%) while the lowest RPR was in 2018 (18.0%). The two most recent years had the lowest RPR pass rates. These low RPR in 2017 (21.7%) and 2018 (18.0%) accounted for low OPR of 2017 (40.6%) and 2018 (41.3%) examinees. The Nov. 2014 NLE produced the highest RPR (44.1%) while the Nov. 2018 had the lowest RPR (12.8%).

Odds of Passing the NLE Based on Type of Examinee and Month of NLE

The odds of passing the NLE is seven times higher for first-time examinees compared with repeat examinees (OR = 7.01, 95% CI = 6.86, 7.12). In the same way, the odds of passing the NLE is 1.32 times more likely to be during the November timing of the exam (OR = 1.32, 95% CI = 1.29, 1.34).

Discussion

The findings in this study showed that despite the increase in first-time NLE pass rates, there was a decline in the number of total NLE examinees and over-all NLE performance within the years of 2014 to 2018, which can be attributed to the low pass-rates of repeat examinees. The decreasing enrollment trend in nursing schools in recent years is attributed to the reduced demand for nurses in the U.S., a major determinant of Philippine nursing school enrollment (Arends-Kuenning et al., 2015) and introduction of the K-12 curriculum in basic education, which significantly reduced college enrollment (Bringula, Balcoba, Alfaro & Merritt, 2018).

In this study, the majority of first-time NLE examinees passed the exam while most repeat examinees failed. Only three out of four new nursing graduates passed the NLE the first time. These findings support the two studies (Bautista et al., 2018; Rosales et al., 2014) about the concerning quality of nursing education in the country. Although the FPR increased from 2014 to 2018, one in four first-time NLE examinee failed the exam. FPR is a major criterion used to measure the quality of nursing programs (Taylor et al., 2014). It is used by the BON and CHED in monitoring the performance and quality of nursing schools in the country and is used in making decisions for closing BSN programs (CHED, 2017). This study supports Rosales et al.'s study (2014) that being a first-time examinee improves the chances of passing the NLE and taking the NLE in November slightly increases the odds of passing the exam.

A limitation of this study is the focus on NLE as a measure of quality education. Using the SEM as a

Table 2. First-time pass rates of NLE examinees from 2014 to 2018

	Passed	Failed	Conditional	Total First-time Examinees	FPR
Overall Total	46,365	15,802	45	62,212	74.5 %
2014 Total	16,428	6,825	9	23,262	70.6 %
Nov	8,534	2,834	8	11,376	75.0 %
May	7,894	3,991	1	11,886	66.4 %
2015 Total	10,166	3,167	24	13,357	76.1 %
Nov	5,246	1,854	21	7,121	73.7 %
May	4,920	1,313	3	6,236	78.9 %
2016 Total	6,800	2,018	3	8,821	77.1 %
Nov	3,647	1,092	0	4,739	77.0 %
June	3,153	926	3	4,082	77.2 %
2017 Total	6,309	1,836	4	8,149	77.4 %
Nov	3,873	954	2	4,829	80.2 %
June	2,436	882	2	3,320	73.4 %
2018 Total	6,662	1,956	5	8,623	77.3 %
Nov	3,961	1,404	4	5,369	73.8 %
June	2,701	552	1	3,254	83.0 %

Note: NLE-nurse licensure exam; FPR-first-time pass rate

Table 3. Repeat-pass rates of NLE examinees from 2014 to 2018

	Passed	Failed	Conditional	Total Repeat Examinees	RPR
Overall Total	30,786	73,579	40	104,405	29.5 %
2014 Total	10,089	22,507	15	32,611	31.6 %
Nov	6,758	8,540	11	15,309	44.1 %
May	3,331	13,967	4	17,302	19.3 %
2015 Total	8,655	14,358	21	23,034	37.6 %
Nov	3,868	7,492	19	11,379	34.0 %
May	4,787	6,866	2	11,655	41.0 %
2016 Total	6,219	13,462	2	19,683	31.6 %
Nov	3,189	6,393	1	9,583	33.3 %
June	3,030	7,069	1	10,100	30.0 %
2017 Total	3,448	12,447	1	15,896	21.7 %
Nov	2,002	6,038	0	8,040	24.9 %
June	1,446	6,409	1	7,856	18.4 %
2018 Total	2,375	10,805	1	13,181	18.0 %
Nov	850	5,812	0	6,662	12.8 %
June	1,525	4,993	1	6,619	24.6 %

Note: NLE-nurse licensure exam; RPR-repeat pass rates

Table 4. Odds of NLE passing based on the type of examinee and month of NLE*

	N			OR	95% CI
	Passed	Failed	Total		
First-time examinee	46,365	15,802	62,167	7.01	6.86, 7.12
Repeat examinee	30,786	73,579	104,365		
November	41,928	42,413	84,341	1.32	1.29, 1.34
May/June	35,223	46,968	82,191		

Note: NLE-nurse licensure examination; OR-odds ratio; CI-confidence interval; *From 2014 to 2018 data

conceptual framework, individual factors (college GPA, college entrance tests, and nursing courses), organizational variables (school characteristics and curriculum overload), and environmental factors (global nursing supply and demand) are identified in the literature that affect NLE performance (Banua, 2017; Bautista et al., 2018; Masselink & Lee, 2010; Ong, 2012; Ortiga, 2014; Rosales et al., 2014). These factors need to be considered in understanding the multidimensionality of factors affecting licensure examinations and quality of education.

Conclusion, Implications, and Recommendations

Using a retrospective design, it was found that the overall trend on passing the Philippine NLE from 2014 to 2018 decreased. First time examinees had an increasing trend in NLE pass rates and had increased odds of passing the NLE. Repeat examinees had a decreasing trend in NLE pass rates and lower odds of passing the NLE. Taking the NLE in November slightly increases the odds of passing the NLE.

These findings support other studies about the concerning quality of nursing education in the Philippines. Nursing programs should review admission, retention, and promotion policies that affect NLE performance. Remediation measures for at-risk students and for those who retake the NLE are needed. There is a need to further evaluate the factors affecting the NLE outcomes as this has been greatly understudied. Research on individual and institutional factors that affect NLE performance is needed to address the deterioration of nursing education in the country.

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