Predictors of Nurses' Licensure Examination Performance of Graduates in Cebu Normal University, Philippines

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Abstract - The Nurses' licensure examination is conducted by the Professional Regulatory Commission to screen Nursing graduates who will be licensed to practice the nursing profession. The study determined the predictors of licensure examination performance of nursing graduates. The study used the descriptive design using inferential techniques. Some 163 graduates were studied based on their College Entrance Examination performance on IQ test, nursing aptitude test, the composite score of science, math and English tests, college grade point average and pre-board examination performance and the correlations of these variables with licensure examination performance. Results revealed that all variables significantly correlated with licensure examination performance but only two significantly predicted licensure performance, college grade point average and pre-board examination. The study concludes that students' academic performance in their baccalaureate program and their performance in the pre-board examination are significant bases in determining the success and failure of students' licensure examination performance.

Keywords - Nurses licensure, exam performance, predictors of exam passing

INTRODUCTION

The need to pass the board examination is propelled by the legal requirement that the practice of the nursing profession in the Philippines requires the passing of the Nurses' Licensure Examination as mandated in Section 12, Article IV of the Philippine Nursing Act 2002 or Republic Act 9173.

The Philippine nursing education is regulated by the Commission on Higher Education (CHED) for the purpose of rationalizing nursing education in the country which aims to provide quality health services and keep pace with global competitiveness. CHED Memorandum Order No. 30 was promulgated in 2007. This writ contains the updated policies and standards for nursing education. However, this law was amended through CHED Memorandum Order No. 14, series of 2009 which strengthens the regulation of the offering of nursing education in the country and the improvement of the nursing curricula in line with the Bologna accord.

At the formulation of this research, the demand for the nursing profession had continued to rise. Proliferation had been observed for new nursing schools and review centers. Such phenomena came into being due to the persistent motivation of nursing aspirants to enroll in nursing as a means of earning better abroad and their persistent goal to pass the nurses' licensure examination. In the year 2009, there was a slow decrease in the nursing education enrollment as an effect of the reduction of demand for nurses abroad due to global economic crisis and nationalization policies of countries.

Professional Licensure Examinations serve as a means of maintaining the quality of professionals after they had been trained and schooled in their respective institution. Such an examination measures the competencies of a professional who is believed to have acquired the necessary skills, knowledge and attitude in the practice of their respective profession.

Cebu Normal University (CNU) has as its mission to produce quality education to all students. Through the performance of the nursing graduates in the Nurses' Licensure Examination, such mission can be measured. For the 25 years, CNU College of Nursing has been consistent in producing top-notchers and a passing percentage higher

than the national passing rate of above ninety percent. It has also been recognized as one of the top four performing schools in the Philippines (PRC Certificates, 2003, 2004, 2005).

Observations were gathered thatboard performance in the NLE is due to the students who were screened prior to their entry into the university. Others commented that the university may have a very competent set of faculty members. With these queries in mind, the researchers tried to determine the predictors of the CNU nursing students' performance in the Nurses' Licensure Examination in the school year 2006-2007.

FRAMEWORK

Attribution theory (Weiner, 1980, 1992 cited by Lin and Bill 2003) is considered one of the most influential contemporary theories with implications for academic motivation. This theory incorporates behavior modification since it emphasizes that learners are strongly motivated by the pleasant outcome of feeling good about themselves. It further incorporates cognitive theory and self-efficacy theory in the sense that it emphasizes that learners' current self-perceptions will strongly influence the ways in which they will interpret the success or failure of their current efforts. Hence their future tendency to perform these same behaviors.

According to attribution theory, the explanations that people tend to make to explain success or failure can be analyzed in terms of three sets of characteristics: First, the cause of the success or failure may be *internal* or *external*. That is, professionals may succeed or fail because of factors in their origin within themselves or because of factors that originate in the environment. Second, the cause of the success or failure may be either *stable* or *unstable*. If the cause is stable, the outcome is likely to be the same if the same behavior is found on another occasion. If it is unstable, the outcome is likely to be different on another occasion. Third, the cause of the success or failure may be either controllable or uncontrollable. A controllable factor is one which can alter if desired. An uncontrollable factor is one that cannot easily bealtered.

An important assumption of attribution theory is that people will interpret their environment in such a way as to maintain a positive self-

image. That is, they will attribute their successes or failures to factors that will enable them to feel as good as possible about themselves. In general, this means that when learners succeed at an academic task, they are likely to want to attribute this success to their own efforts or abilities; but when they fail, they will want to attribute their failure to factors over which they have no control, such as bad teaching or bad luck. The basic principle of attribution theory as it applies to motivation is that a person's own perceptions or attributions for success or failure determine the amount of effort the person will expend on that activity in the future.

The performances of students in an examination can be attributed to some factors. In a study done by Besinque, Wong, Louie and Rho (2000) on the predictors of success rate in the California State Board of Pharmacy Licensure Examination; they have correlated demographic variables, preparation for the examination, study habits and grade point average with the success in the examination. From among the variables, grade point average was identified as an important factor in predicting success in licensure examination.

Hilario (2000) studied the factors influencing the licensure examination of teacher education institutions in the Cordillera Administrative Region. It was found that faculty qualification and curricula do not significantly influence the performance of the institutions in the licensure examination. Admission and retention policy of the institution has a significant positive influence on the performance in the examination.

Naron and Wedlack (1991) ventured on an ex post facto study on the predictive variables on National Council for Licensure Examination for Registered Nurse (NCLEX–RN) performance of students in Chicago Illinois' Olive-Harvey College. The study found that from among the variables nursing grades and grades in pre-nursing courses had significant influence over their performance in the examination.

McClelland (1992) also undertook a study on academic variables affecting the performance of baccalaureate nursing graduates on NCLEX-RN. But aside from the pre-nursing grade point average, American College Testing scores, which serve as their entrance examination, also predict NCLEX-RN performance. These same variables were also identified in the study of Lin & Fung (2003).

From the literature, most of the studies found grade point average and qualifying examination in college as predictors of licensure examination performance. Admission and retention policies also predict the performance. Faculty qualification was not significantly related with examination performance.

OBJECTIVE OF THE STUDY

This study aimed to determine the predictors for Nurses' Licensure Examination performance of the graduates of Cebu Normal University College of Nursing.

MATERIALS AND METHODS

A descriptive-correlation ex post facto research was utilized in which data on College Entrance Examination, Pre-board examinations and Nurses' Licensure Examination results were retrieved from the previous records.

This study took place in Cebu Normal University College of Nursing. This locale was chosen since the researchers were clinical instructors in this institution and they believed that as clinical instructors, it was their responsibility to guide students.

The unit of analysis in the study was the individual results of the college entrance examination, grade point average and Nurses' Licensure Examination performance of nurse graduates of Batch 2007 in Cebu Normal University. The total number of graduates in S.Y. 2006-07 was 170. The entire batch was included as part of the study, however, there were some incomplete data presented, thus the total sample size is 163.

Research Instrument

The data on the results of the College Entrance Examination were requested from the Testing Center of Cebu Normal University, college grade point average of the respondents were requested from the University Registrar and the pre-board examination scores were obtained from the review coordinator of the College of Nursing and

Inter-trends Review Center. Nurses' Licensure Examination (NLE) scores were obtained from the Philippine Regulations Commission (PRC).

Data Gathering Procedure

The data gathering commenced when Batch 2007 graduates gave their written consent to allow the researchers to obtain their records from the university and PRC. These consent forms were attached for the approval of the president of the university and the PRC Regional Officer. Data gathering took three months due to the difficulty in retrieving the results in the Testing Center in which the psychometrician has to select the results of the respondents out of three thousand applicants. Moreover, the researchers waited for the results of the Nurses' Licensure Examination which was mailed to the PRC National Office.

Data Analysis

Since the variables were treated as interval data, the mean and standard deviation were utilized to determine the profile. In interpreting IQ scores, Nursing Aptitude Test and Composite scores in the entrance examination a percentile classification was used based on Philippine Psychological Corporation: 97-99 very superior, 90-96 superior, 75-89 above average, 60-74 high average, 40-59 average, 24-39 low average, 10-23 below average, 4-9 low and 1-3 very low.

In correlating the variables with performance in the Nurses' Licensure Examination, Pearson r was utilized. To determine which variable predict licensure examination performance, the significantly correlated variables were entered into the multiple linear regression analysis. All correlations were interpreted as significant at 0.05 levels.

RESULTS AND DISCUSSION

Mean performance of the respondents in the respective test in the Nurses' Licensure Examination on June 2007, College Entrance Examination and College Grade Point Average are presented in Table 1.

Table 1. Mean performance of nurse graduates (N=163)

Performance	Mean	Standard Deviation
NLE Performance by test area:		
Nursing Practice I	84.14	3.20
Nursing Practice II	80.96	3.85
Nursing Practice III	80.21	2.80
Nursing Practice IV	77.28	3.87
Nursing Practice V	78.82	4.28
General NLE Performance	80.26	2.74
CEE: IQ Test	81.9	9.23
CEE: Nursing Aptitude Test	78.95	17.46
CEE Composite Score	89.20	9.55
College Grade Point Average (CGPA)	83.10	2.50
Pre-board Examination	70.71	2.07

NLE – Nurses Licensure Examination
CEE – College Entrance Examination

The Nurses' Licensure Examination is composed of five test areas at 100 items each in which major nursing subjects are integrated in each test area. Nursing Practice I consisted of test items derived from Fundamentals in Nursing, Research, Leadership and Management and Nursing Ethics and Jurisprudence; Nursing Practice II is composed of concepts from Community Health Nursing and normal Maternal and Child Nursing; Nursing Practice III is taken from the concepts of abnormalities in Maternal and Child Nursing and part of Medical-Surgical Nursing; Nursing Practice IV is composed of concepts on major Medical-Surgical cases and Nursing Practice V is from Mental Health Nursing.

The test area which had the highest mean score among the respondents was Nursing Practice I and the lowest was Nursing Practice IV within the cut-off score for passing in the NLE of 75%. However, it was noted that the score in Nursing Practice IV was low since this was

the test area which had the biggest coverage and has been noted as most difficult among the concepts included which is Medical-Surgical Nursing. The score which showed the greatest variability was Nursing Practice V while the rest have shown homogeneity in their scores which indicated that competence in mental health nursing has not fully been attained by most of the graduates. This is an expected finding since mental health nursing is a highly specialized course which further implies that more emphasis should be given on theoretical mastery and clinical skills competence. This, however, has been addressed to by the CMO 14, s. 2009 which offers mental health nursing as separate 3-unit course for third year students.

On the overall licensure examination mean score, they had acquired more than the passing score requirement of 75% which implied that majority of the graduates passed the examination having attained 98% passing percentage during the June 2007 licensure examination.

From the independent variables in this study, the College Entrance Examination of Cebu Normal University has the components of the IQ Test (OLSAT), Nursing Aptitude Test (NAT) and the composite scores of English, Math, reading comprehension examinations. The mean scores of IQ test, aptitude test in nursing and the composite scores were all above average. This indicates that nursing students who qualified for enrollment were highly intellectual and were expected to adjust to the academic demand of nursing as a course of the study.

Furthermore, the grade point average of the respondents when they graduated in their Bachelor in Nursing was above average which implied that respondents had shown academic performance beyond the minimum passing rate of 75%. With the entrance examination results and the grade point average, it can be deduced that students in nursing are selected highly intellectual personalities. However, the mean score of the pre-board examination of the respondents showed a failing mark at 70% which was lower than the passing rate in the Nurses Licensure Examination at 75%. This finding runs contrary to the expected performance of the respondents in the pre-board examination since their IQ, entrance examination, aptitude scores, grade point average in college and even their actual Nurses Licensure Examination performance had shown above average results. Based on these findings, it is inferred that the preboard examination is more difficult than the actual NLE taken by the respondents.

Table 2. Correlations with NLE performance (N=163)

	r coefficient	p-level
CEE: IQ Test (OLSAT)	0.47[s]	0.00
CEE: Nursing Aptitude Test	0.50[s]	0.00
CEE Composite Score	0.60[s]	0.00
College GPA	0.65[s]	0.00
Preboard Performance	0.48[s]	0.00

[s]*significant correlation at p=0.50*
NLE – Nurses Licensure Examination
GPA – Grade Point Average
CEE – College Entrance Examination

The null hypotheses that there are no significant correlations of students' NLE performance with their college entrance examination performance (IQ, NAT, composite), college GPA and pre-board performance were tested. It was gleaned from table 2 that all the independent variables were significantly correlated with the respondents' NLE performance. Students' performance in the entrance examination upon entry to the university, their IQ, aptitude in nursing, academic achievement in college contributes to the success or failure of the respondents in the board examination. With the null hypotheses rejected, it is inferred that students who performed better in the entrance examination, college academic achievement and pre-board examination perform better in the licensure examination. It is further implied that the quality of admission and retention policies of an institution is an important consideration that every college or university should strengthen in relation to their aspiration to have better licensure examination performance.

These findings support the results of the studies of Hilario (2000), Naron and Wedlack(1991)that admission and retention policies in an institution play a significant factor in the students' success in the licensure examination. The admission tests given to college aspirants measures the capacity of the students to surpass the difficulties and challenges which a particular course provide. It determines whether

a student is fit to enroll in the course having gone through with the aptitude test since one's interest in the course taken can influence the students' performance in the college years. Thus, nursing colleges should be vigilant of the consequences which may arise if and when admission measurements are not reasonably imposed to college aspirants especially in nursing education.

Moreover, it is noted that grade point average in college which shows the academic achievement of the student is highly correlated with NLE performance; hence, colleges of nursing should determine those who have attained the terminal competencies expected in a particular college level. If and when a student has not passed the standards of a particular course or subject, that student should be retained accordingly so that the student will be given the chance to master the competencies expected before being promoted to the next year level.

Table 3. Multiple linear regression analysis of the independent variables as predictors of NLE

Predictor Variables	coefficient	t	p	R^2
Constant	21.38	3.41	.00	
IQ Test*	0.01	0.28	.78	52.3%
Nursing Aptitude Test	0.01	0.70	.48	
CEE Composite Score	0.07	1.88	.06	
College GPA	0.39	4.63	.00	
Preboard Performance	0.27	3.13	.00	

*Ten unusual observations noted in IQ test and NLE Scores

When all independent variables were entered into the regression model, it was noted that only college GPA and pre-board performance showed significant predictive values with college GPA as the principal predictive variable. It is viewed that students' learning in the classroom and clinical exposures in their four years in nursing predicted their performance in the licensure examination, plus the immediate influence of students' performance in the pre-board examination

consisted a strong predictive power of these variables at 52.3% (R^2). Besinque, et al. (2002) presented the same predictive ability of college grade point average in students' success in the licensure examination. These findings are due to the fact that within the four years of college education of nursing students, they have specific competencies which they have acquired. When they graduate, they have mastered all these competencies to be declared as recipients of a Bachelor of Science in Nursing degree holder. The Board of Nursing NLE Test Framework has emphasized that the examinations are competency-based thus; the academic achievement in the four years of learning can indeed be a great factor that will predict the NLE performance.

Furthermore, the pre-board examinations as presumed to be competency-based in nature since these are test simulations of the actual NLE examination to prepare the students for real examination. Thus, the students' performance in the pre-board examination can contribute to the predictions of how they will perform in the actual examination.

Moreover, the analysis showed ten unusual observations in the IQ tests scores and licensure examination performance. Most of them showed low IQ scores with high licensure examination performance which indicates that IQ test result is not a good predictor of licensure examination performance.

It is noted that the variables included in this study are the student-related factors only, not considering the multifactorial influence of one's success or failure in the licensure examination such as the teacher factor and environmental factor. It is on these factors that the researchers attribute the other 48% which is not accounted for by the effect of students' college GPA and pre-board performance.

CONCLUSION

Student's capabilities such as IQ, aptitude towards a future task, academic performance and preboard examination performance influence the licensure examination performance of the students. Moreover, from these variables, students' academic performance and the rigid scrutiny of their possible performance in the licensure examination through the preboard examination are the best predictors of their success.

RECOMMENDATIONS

It is therefore recommended that nursing colleges should strengthen their admission and retention policies, curricular offering and delivery to maximize the students' learning during their college training years. Moreover, administeringpreboard examinations should be practiced by colleges as this has shown an important contribution in predicting students' success in the licensure examination.

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