

Predictors of Academic Performance in Professional Nursing Courses in a Private Nursing School in Kalibo, Aklan, Philippines

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Abstract – Many efforts have been made to define an array of factors related to what determines students' board exam performance, but few studies were conducted in the Philippines as to what can predict academic performance of nursing students. This descriptive correlational study was an attempt to increase understanding of the academic and non-academic attributes of academic performance in professional nursing courses. Correlations among overall performance in professional nursing courses and the following variables: sex, monthly income, type of high school attended, residence, High school GPA, NAT ratings; as well as grades in English content courses, Math content courses, Science content courses were computed for the 60 students of Batch 2013 of Saint Gabriel College with complete records from the school registrar. The secondary data obtained were statistically analyzed with the use of the weighted mean, rank, Chi square, Pearson *r* and regression analysis. Type of school attended, and all academic factors were correlated with academic performance in professional nursing courses. Multiple linear regression analysis revealed performance in English and Science courses as predictors of respondents' academic performance in professional nursing courses. This study concludes that academic factors are better predictors of academic performance in professional nursing courses. The challenge for the colleges and schools is to develop strategies aimed at addressing these factors that are appropriate to specific contexts and student cohorts.

Keywords – Academic Performance, Nursing

I. INTRODUCTION

Regarded as the “best for Filipinos but the choice of the world”, Filipino nurses are preferred over their other contemporaries because of their competence and the tender loving care they offer to their patients. However, before one can practice as a professional in the Philippines, one has to finish the Bachelor of Science in

Nursing (BSN) program and pass the Philippine Nurse Licensure Examination (PNLE). The BSN curriculum, then, serves as the foundation of preparing nursing students to become professionals equipping them with the necessary knowledge, attitude, and skills to deliver what is expected of them. There is no doubt that nursing students need to get the best quality of education and training for them to render competent and quality nursing care to their clients, pass the licensure exam, and become registered professionals.

The results of previous studies of Neri (2009); Garcia (2011); Navarro, Vitamog, Tierra & Gonzalez (2011); Ong, Palompon & Banico (2012) have shown that the academic performance of the students in the BSN program are good predictors of passing the PNLE. However, there are limited studies on what predicts the academic performance of students in the BSN curriculum. Several comparative studies have been conducted to find an accurate predictor of success, but few have yielded reliable results over time (Vance & Davidhizar, 1997 in Ali, Bustamante-Gavino & Memon, 2007). Certain academic and non-academic factors are found in the related literature such as gender, socioeconomic status of parents, place of domicile, high school grade point average (GPA), nursing aptitude test (NAT), English proficiency, and other academic content areas that could predict the academic performance of the students in various academic programs (Ali, 2008; Martha, 2009; Capellari, 2004; Geiser & Santelices, 2007; Zeinder, Kremer-Hayon & Laskov, 2006; Salamonson, 2008; Wolkowitz & Kelley 2010; Bancroft-McKenzie, 2008).

The study of Ali et al. (2007) about the predictors of Academic Performance in the First Year of Basic Nursing Diploma Programme in Sindh, Pakistan concluded that academic factors are better predictors of students' academic performance than the non-academic factors. Consequently, the study of Ali (2008) further confirmed this. Studies conducted in the Philippines are, however, limited.

According to Wan Chik et al. (2012), males represent less than 10 percent of the nursing workforce in developed countries, with some developing countries experiencing even lower participation rates. Although the numbers of men entering the nursing profession are increasing, societal stereotypes and the lack of male role models in nursing may have a negative impact on motivation, and hence, academic performance. Conversely, Blackman, Hall & Darmawan's (2007) study reported that achievement for beginning entry nursing students during their third year assessment of Nursing and Midwifery School in Australia is not related to student demographics such as age or gender. Gross (2011) and Reyes (2007) also reported that common factors in the literature predictive of academic outcomes, such as gender, were not found to be associated with academic achievement or performance in the same manner that gender was not also a predictor of academic success in a Licensed Practical Nurse program at a two-year public technical college (Bancroft-McKenzie, 2008).

Tang et al. (1998) cited in Law & Arthur (2003) reported that annual parental income was found to be a predictor of the intention to study nursing among students. Respondents who perceived their parents' annual income falling into the middle income group were more than three times more likely to study nursing than those who perceived their parents' annual income falling into the lower income group.

Cappellari (2004) studied the relationship between the type of high school attended (general versus technical; private versus public) and indicators of subsequent performance using micro data on the 1995 cohort of Italian high school graduates. Results indicate that the type of high school attended greatly depends upon the family of origin and prior school performance. General high schools are found to increase the probability of transition to university and to improve performance once at the university. On the other hand, private high schools appear to be associated with lower academic performance. Technical schools improve the quality of the school-to-work transition, both in terms of participation and employment probabilities.

Ali (2008) of the records of 644 students of the class of 2004 in Sindh, Pakistan about the academic performance of general nursing diploma students revealed that the variable of place of domicile was found significant only in the final year of the nursing program.

Geiser & Santelices (2007) argued that high school grades are often viewed as an unreliable criterion for college admissions, owing to differences in grading

standards across high schools, while standardized tests are seen as methodologically rigorous, providing a more uniform and valid yardstick for assessing student ability and achievement.

This study aimed to discover and identify the relationship between the students' academic and non-academic variables and whether or not these factors can predict the students' performance in the BSN program.

II. OBJECTIVES OF THE STUDY

This study was conducted to determine the non-academic and academic predictors of academic performance in professional nursing courses of nursing students of Saint Gabriel College (SGC) Batch 2013. Specifically, this study aimed to determine the profile of the respondents in terms of age, sex, monthly family income, type of high school attended and place of Residence; to determine the level of performance of the respondents in high school; to determine the level of performance of the respondents in the NAT specifically in verbal ability; numerical facility; Science and Health Information, spatial perception, and overall NAT performance; to determine the level performance of the respondents in English content courses specifically in English 1: Communication Skills 1, English 2: Communication Skills 2, English 3: Speech Communication, English 4: Technical Writing and overall English content courses performance; to determine the respondents' level of performance in Math content courses specifically in Math 1: College Algebra, Biostatistics and overall Math content courses performance; to determine the respondents' level of performance in Science content courses specifically in Natural Sciences: General Chemistry, Biochemistry and Physics; Health Sciences: Anatomy and Physiology, Microbiology and Parasitology, Pathophysiology and Pharmacology; and the overall Science content courses performance; to determine the respondents' level of academic performance in professional nursing courses specifically in Theoretical Foundations in Nursing, Fundamentals of Nursing, Community Health Nursing, Maternal and Child Health Nursing, Medical-Surgical Nursing, Psychiatric Nursing, Nursing Research, Nursing Leadership and Management and overall level of academic performance in professional nursing courses; to test the correlation between non-academic variables and overall academic performance in professional nursing courses; to test the correlation between academic variables and overall academic performance in professional nursing courses; and to determine the predictors of academic performance in professional nursing courses.

III. METHODS

The descriptive correlational study was employed to determine the predictors of academic performance of nursing students in professional nursing courses at SGC and to determine the relationships between academic and non-academic variables and academic performance.

The study was limited to the analysis of the students' sex; monthly family income; type of high school attended; place of residence; scores in High school, NAT, English, Math, Science content subjects and identifying whether the performance in these variables can be used as a criterion for determining the students' academic performance in professional nursing courses. This also included determining the correlation of the level of performance of the students in selected non-academic and academic variables and the different professional nursing subjects. However, other factors that may affect performance of students in nursing courses like age, marital status, attitudes, study habits, self-efficacy, and others were excluded.

All students who graduated in April of 2013 with complete records -- students' high school GPA, grades in the general education subjects and professional nursing courses, and NAT scores taken last 2010 -- available in the registrar's office were included in the study.

The population of this study includes the 60 BSN students Batch 2013 of SGC, Kalibo, Aklan who successfully complied with the requirements of the BSN program. No sampling was done. All nursing students who completed the BSN program at SGC from first to fourth year and with complete records from the registrar were included in the study.

The researcher utilized secondary data which included the official records of the students composed of High school GPA, the outcomes of their NAT taken when they were in Level II, grades in English, Math, Science, and professional nursing courses. These were obtained from the college registrar and the Year-Level adviser. The monthly family income was taken by the researcher himself from individual students through individual interview.

Prior to obtaining the data, the researcher sought approval from the Dean of the College of Nursing of SGC by giving a letter of permission to conduct the study. For ethical considerations, the Dean was assured of the confidentiality of the data and anonymity of the subjects included in this study and such will only be used for academic and research purposes.

The data were processed using the Statistical Package for Social Sciences (SPSS) version 20 and were analyzed using descriptive and inferential statistics.

For purposes of clarity and interpretation, the high school grading system adapted from DepEd Order. 31 series of 2012 was used to describe the high school performance of the respondents: 90% and above: Advanced; 85-89%: Proficient; 80-84%: Approaching Proficiency; 75-79 %: Developing; 74% and below: Beginner.

The Center for Educational Measurement (2013) standard Quality Index (QI) was used to supplement the interpretation of Standard Score (SS): 675 – 800: Excellent; 626 – 675: Superior; 676 – 625: Above average; 526 – 575: High average; 476 – 525: Average; 426 – 475: Low average; 376 – 425: Below average; 326 – 375: Poor; and 200 – 325: Very poor.

To interpret the scores in English, Math, Science, and Professional Nursing courses, the Grading System of SGC was adapted with its corresponding verbal interpretation: 95-100: Excellent; 89-94: Above average; 83-88: Average; 77-82: Fair; and 75-76: Passing.

IV. RESULT AND DISCUSSION

Table 1 presents the personal characteristics of the respondents. Majority (86.7%) were 21 years old and below and were predominantly females (61.7%). The youngest was 19 years old and the oldest was 28 years old with a mean age of 20 years old. The data imply that most of the respondents started Grade 1 when they were six to seven years old, while the rest could have temporarily stopped school or entered college in their later years.

As to their income, most (61.7%) had a low monthly family income of below Php 26,000 with an average monthly earnings of Php 26, 233.33. The highest income reported was Php 100,000, while the lowest was Php 10,000. This could explain why most of the respondents usually were unable to pay their tuition fees on or before the examination time. Furthermore, income was based solely on the self-report of the students of the monthly income of their family; support from relatives for their schooling was not included.

A little over half (55.0%) came from private high schools and two thirds (66.9%) were living outside Kalibo. This means that most of the respondents are probably living in boarding houses, especially those whose residences were located in other nearby towns. For some, it may take longer hours to reach the school or the hospital to be present on time for their classes or when attending to their clinical duties.

Nearly half were **proficient** in their level of performance in high school. More than one-third of them had **approaching proficiency** level of

performance while only a minority had **advanced** level of performance.

Table 1. Personal Characteristics of the Respondents

Socioeconomic-demographic Characteristics (N = 60)	f	%	Range	Mean
Age				
21 and below	52	86.7	19 to 28	20
Above 21	8	13.3		
Sex				
Male	23	38.3	-	-
Female	37	61.7		
Monthly Family Income				
High(Php 26,000 & above)	23	38.3	Php 10,000 to 100,000	Php 26, 233.33
Low (Below Php 26,000)	37	61.7		
Type of High school Attended				
Private	33	55.0	-	-
Public	27	45.0		
Place of Residence				
Within Kalibo	20	33.3	-	-
Outside Kalibo	40	66.7		

In addition, there were still two respondents whose performance was only **developing in proficiency**. On average, the respondents were **proficient** in their level of performance in high school with a mean GPA of 86.14. This means that the respondents having a proficient level of performance had developed the fundamental knowledge and skills and core understanding and can transfer them independently through authentic performance tasks (DepEd, 2012).

The overall performance of respondents in the NAT was **average**, obtaining a mean standard score (SS) of 478. The respondents performed **average** in three out of four subtests and performed best in science and health technology (498), Rank 1, followed by verbal ability, Rank 2, numerical facility, Rank 3, and least in the spatial perception subtest, Rank 4, with only a **low average level** of performance.

The respondents performed **average** in all English content courses, and performed best, Rank 1, in English 3 or Speech and Oral Communications. Moreover, the respondents Ranked 2nd in English 4 or Technical Writing, Ranked 3rd in English 1 or Communication Skills 1, and Ranked 4th in English 2 or Communication Skills 2. This implies that students have an average command in both written and oral English communication skills.

The respondents had a **fair** level of performance in both of the Math content courses included in the BSN Curriculum. However, they performed better in Math 1 or College Algebra compared to Biostatistics.

While the students performed fairly in these courses, Mathematics is needed in nursing, primarily in calculating IV flow rate and correct dosage of medications. Hence, rudimentary knowledge of mathematical operations and statistics is imperative and will help students do well in their research course.

Overall, the respondents had a **fair** level of performance in Science content courses. They also had a **fair** level of performance in both Natural Sciences and Health Sciences. While the students performed best in Biochemistry, Rank 1, with an **average** level of performance, they performed least in Psychopathophysiology, Rank 6, and Pharmacology, Rank 7, with only a **passing** level of performance. These two, together with the other health sciences courses which include Anatomy and Physiology and Microbiology and Parasitology, are of great importance in learning Medical-Surgical concepts in professional nursing courses.

The respondents also performed **average** in General Chemistry, Rank 2, and Ranked 3rd in Microbiology and Parasitology, Ranked 4th in Anatomy and Physiology, Ranked 5th in Physics where they had a **fair** level of performance in these subjects.

In all professional nursing courses and in their overall performance in professional nursing courses, the respondents had a **fair** level of performance. To add, they performed best, Rank 1, in Psychiatric Nursing and least, Rank 8, in Nursing Research. This could be attributed to the fact that Psychiatric Nursing deals with normal and abnormal behavior of human beings that the students can simply relate with.

A **fair** level of performance in Fundamentals of Nursing, Rank 2, Leadership and Management in Nursing, Rank 3, and Maternal and Child Health Nursing, Rank 4 was also noted.

Although the respondents had an overall **fair** level of performance in professional nursing courses, they had a mean score of below 80 in the three courses, namely: Community Health Nursing, Rank 8, Theoretical Foundations of Nursing, Rank 7, and Medical-Surgical Nursing, Rank 6.

The type of high school attended by the respondents had a **significant correlation** with academic performance in professional nursing courses as shown in Table 2. This fails to reject the null hypothesis that there is no relationship between the two variables. This means that the type of high school attended by the

respondents (private or public) has a significant bearing on their academic performance in professional nursing subjects.

On the one hand, the respondents' sex and place of residence indicated **no significant correlation** with academic performance while monthly income had a **negligible correlation** with the dependent variable. The hypothesis that there is no correlation between sex,

place of residence, monthly family income and academic performance in professional nursing subjects is hereby accepted. This suggests that students, regardless of their sex, place of residence, and monthly family income may apply for admission into the nursing program and may perform well or otherwise in professional nursing courses.

Table 2. Relationship between Non-academic factors and Academic Performance in Professional Nursing Courses

Non-academic Variables	<i>r</i> or Chi-square value	df	Sig. (2-tailed)	Decision H ₀	Interpretation
Sex	3.720	3	0.293	Accept	Not significant
Monthly Income	0.017	-	0.896	Accept	Negligible
Type of High school attended	10.267	3	0.016	Reject	Significant
Place of Residence	1.368	3	0.713	Accept	Not significant

Data in Table 3 show the relationship between academic factors and academic performance in professional nursing courses. Statistical analysis revealed that NAT performance has a **significant substantial correlation** with the respondents' academic performance in professional nursing subjects, while high school performance and overall performance in Math content courses has a **significant high correlation** with academic performance. Further, a **significant very high correlation** was found between overall performance in English and Science content courses and academic performance in professional nursing courses. This rejects the hypothesis that there is no significant relationship between academic factors specifically High school GPA, NAT score, overall

performance in English, Math and Science content courses and academic performance in professional nursing courses.

Statistics would tell us that all academic variables in this study are significantly associated with the academic performance of the respondents in their professional nursing courses as compared to non-academic variables. This implies that performance in High school, NAT, English, Math, and Science content courses can contribute to the academic performance in professional nursing subjects. It further denotes that good performance in those subjects, would likely result to good performance in professional nursing courses and vice versa.

Table 3. Relationship between Academic factors and Academic Performance in Professional Nursing Courses

Academic Variables	<i>r</i> value	Sig. (2-tailed)	Decision H ₀	Interpretation
High school GPA	0.670	0.000	Accept	High correlation
NAT	0.497	0.000	Accept	Substantial correlation
English	0.874	0.000	Accept	Very high correlation
Math	0.751	0.000	Accept	High correlation
Science	0.868	0.000	Accept	Very high correlation

Bivariate analysis of data revealed significant correlation in all academic variables and only one non-academic variable (type of high school attended) was associated with academic performance. Data in Table 4 show the multiple linear regression model analysis of this study and revealed that the variable performance in English and Science content courses were found to best predict the academic performance in professional nursing courses. These two variables were also found to be very highly correlated with academic performance in

professional nursing courses. When grouped according to sex, monthly family income, type of high school attended and place of residence, none of the non-academic factors were found to predict academic performance in professional nursing courses. While performance in High school, NAT, and Math content courses, which were found to be substantially and highly correlated with academic performance in the bivariate analysis, did not predict academic performance in the multiple linear regression model.

Table 4. Multiple Linear Regression Model for Predictors of Academic Performance in Professional Nursing Courses

	Beta	t	Sig.	Interpretation
Non-academic				
Sex (Female)	0.094	1.283	0.205	Not significant
Monthly family income	0.011	0.177	0.860	Not significant
Type of High school attended (Public)	-0.048	-0.608	0.546	Not significant
Place of Residence (Outside Kalibo)	0.011	0.164	0.870	Not significant
Academic				
High school GPA	-0.042	0.441	0.661	Not significant
NAT	0.145	1.858	0.069	Not significant
English	0.514	3.657	0.001	Significant
Math	0.024	0.210	0.835	Not significant
Science	0.390	2.214	0.009	Significant

V. CONCLUSION AND RECOMMENDATION

The students taking BSN and enrolled at SGC are primarily fresh graduates from private high schools living outside of Kalibo and nearby municipalities and belong to families with an average income of Php 26,000. Nursing is still a female-dominated course.

Students who entered nursing have a proficient level of performance in high school. This helps them cope with the rigor of nursing education which requires them to have a good high school standing. It advocates that the basic education sectors (both public and private) have done their part to some extent in honing students for college success. Likewise, instructors and teachers in general education have done their share, to some extent, in providing good foundation in English courses as shown by the average performance of students in these subjects and fair level of performance in Math and Science courses.

Furthermore, the students have an average performance in the NAT. There is also a need to strengthen students' foundation in core professional nursing subjects. Instructors in professional nursing courses may have fallen short in educating the students as shown by the students' fair level of performance in these subjects.

The type of high school attended has a significant bearing on the academic performance in professional nursing courses, in the same manner that performances in high school, NAT, English, Math, and Science courses contribute to the academic performance in nursing subjects. This study concludes that academic factors are better predictors of academic performance in professional nursing courses over non-academic factors. Specifically, performances of students in English and Science content courses are the best predictors of academic performance in professional nursing courses.

Due to the decline in the admission in the BSN program, it is recommended that the college should strengthen their marketing strategy among private high schools to mark up enrollments since most of the students were from this classification, at the same time not neglecting the public school sector to encourage their students to enroll at SGC. Scholarships should also be provided to deserving students because the cost of nursing education is basically expensive and most of the students belonged to the bracket of having a family income below Php 26,000.

As nursing is dominated by females, promoting academic support, encouragement and guidance to male nursing students may assist in increasing the number of male registered nurses in the nursing workforce.

Teachers of the basic education curriculum should continually improve their instruction and teaching delivery to enhance the proficiency of students to be ready for college education and training as only a few had an advance level of proficiency.

NAT was found to be correlated with academic performance, but not as a predictor, hence, it should not be used as the sole predictor of academic success in the nursing education. Likewise, NAT should not also be used a single factor in identifying the admission and retention policy of the school. Rather, it is highly suggested that a comprehensive admission policy is developed to include High school GPA and other records of previous academic work especially in English and Science subjects.

Instructors in English and Science content subjects should strengthen students' foundation in these courses as performance was only average and fair. Extra attention should also be given to psychopathophysiology and pharmacology for students had only a passing performance in these subjects. Similarly,

instruction should focus on strengthening performance in professional nursing courses as students were found to have only a fair level of performance on these areas. More time must be given to Medical-Surgical Nursing, Theoretical Foundations of Nursing, Community Health Nursing and especially to Nursing Research to cover all the important concepts and further strengthen students' understanding of the lessons. Instructors designated to teach these subjects should have a good background on the subject matter and should have a solid relevant experience to impart the essential knowledge and properly discuss the topics ensuring students' deep processing of information and understanding. They should also be updated about current trends and issues related to nursing for them to be able to share this with the students.

Instructors, guidance counselors, including the parents should monitor the performance of students periodically to provide the needed remedial if necessary. Use of formative assessment is highly encouraged and instructors should take the necessary steps to improve students' performance in areas where it is not satisfactory. Nursing students, however, should also learn how to self-regulate and do their best to expand their knowledge on topics and concepts in Nursing subjects, English and Science.

To further enhance concepts learned in didactic lecture discussion, the Nursing Skills Laboratory should acquire better equipment and facilities where students can practice and simulate clinical skills. Moreover, there should be more books, references and other updated sources of information in English, Science and Professional Nursing Courses in the library that should be easily accessible to student nurses.

In terms of Related Learning Experience, ward classes should be practiced to reinforce the knowledge gained in the classroom and also to help students understand cases that they encounter in the actual hospital or clinical setting. Students should also be rotated to relevant areas, as their exposures can serve as sources of authentic learning experience.

Finally, further studies should include identifying other variables that relate to academic performance like motivation, study habits, attitudes, and learning styles. Identifying specific areas of the NAT and HS subjects can also be piloted to strengthen and support the findings of this study. Future investigators interested on studying the academic performance of students should consider conducting the study in a wider scope.

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