Short Report

Predictors of Academic Performance in the First Year of Basic Nursing Diploma Programme in Sindh, Pakistan

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Abstract

Identification of the students who are most likely to succeed in the nursing programmes has always remained an important goal of nursing schools and nurse educators. This study was conducted to identify predictors of academic performance of the students in the first year of basic nursing diploma programme in the province of Sindh, Pakistan. For this descriptive study, data was collected from Sindh Nurses Examination Board and all schools of nursing in province of Sindh. Multiple linear regression analysis method was used to develop regression model that identified predictor variable. Results indicated that academic factors including entry qualification, previous academic performance, and type of school are significantly related with the academic performance of the students. The study concluded that academic factors are better predictors of students' academic performance than the non-academic factors.

Introduction

Nursing schools are responsible for producing well-educated, knowledgeable, and skilled nurses who "can make reasoned and informed patient oriented decisions in a variety of health care delivery settings".[1] Traditionally, admission criteria have been considered good predictors of students' success and have been used to screen out applicants in various academic and professional programmes including nursing, medicine, teaching, and other fields. Studies have found that certain academic and non-academic factors such as age, gender, ethnic background, preadmission qualification, and performance in aptitude tests could predict the academic performance of the students in various professional programmes.[2,3].

Research related to predictors of academic performance in nursing education has been done in United States, United Kingdom (UK), Canada and Australia.[3,4] Predictor variables identified in various studies are not consistent; for instance, some studies have identified younger age as a significant predictor of success[5] and others considered older age a significant predictor.[6] Besides, there are some research studies, which revealed age as a totally insignificant variable.[7] Few studies have found gender as a significant predictor of performance, however, preadmission academic performance was found to be a good predictor of performance by many researchers. "While a large number of comparative studies have been done to find an accurate predictor of success, few have proved reliable over time. No one factor alone can accurately predict individual passing".[8] While each study that has been conducted has provided data to support the ability to predict success by considering several factors, educators must use caution when viewing the results exclusively.

Though research has been conducted to identify predictors of academic performance in medical and dental education in Pakistan,[9,10] no attempt has been made to study the predictors of performance in nursing education. This study was conducted to fill this gap and to explore the predictors of academic performance of the students in first year of basic nursing diploma Programme in Sindh, Pakistan.

Methods and Results

For this descriptive study, data was collected from Sindh Nurses Examination Board (SNEB), Karachi, and all schools of nursing in the province of Sindh, Pakistan. Data was collected retrospectively by reviewing the records of nursing students of the batch 2004. The study utilized entire first year nursing student population in the province of Sindh, enrolled in the batch. However, only complete records were considered for the study.

The predictor variables of the study included academic and non-academic factors. The academic factors were entry qualification of the student at the time of admission in to basic nursing diploma Programme; previous academic performance measured by the percentages obtained in the previous academic Programmes; and the type of school of nursing whether public or private in which the student was enrolled. The non-academic factors included age, gender, marital status, domicile, and the time lapse between the last qualification and admission in the Programme. The outcome variable was the academic performance measured in percentage, obtained in nursing examination conducted by SNEB at the end of first year of basic nursing diploma Programme.

Data was analyzed using Statistical Package for Social Sciences (SPSS) version 11.5, in the three stages including descriptive, univariate, and multiple linear regression analyses.

Descriptive analysis was done on 644 students. However, the remaining analysis was done on 628 students excluding those with the bachelors degree (n=15) and masters degree (n=1) level of education due to small numbers. The groups of Intermediate Arts and Intermediate Commerce were merged together due to small number of students in these groups and similarity of the subjects in both the groups.

Table 1. Demographic and Academic Profile of the Study Population (n = 644)

Variables	Total	Percentage
Entry Qualification		
Matric Arts	155	24.0
Matric Science	345	53.6
Intermediate Arts	39	6.0
Intermediate Science	83	13.0
Intermediate Commerce	06	0.9
Bachelors of Arts (BA)	07	1.0
Bachelors of Science (BSc)	08	1.3
Masters of Arts (MA)	01	0.2
Type of School of Nursing		
Public	352	54.6
Private	292	45.4
Age (in years at the time of admission)		
15-19	417	64.8
20-24	179	27.8
25-29	35	5.40
30-34	13	2.0
Gender		
Male	176	27.3
Female	468	72.7
Marital Status		
Single	612	95.0
Married	32	5.0
Place of Domicile		
Urban	360	56.0
Rural	284	44.0
Time lapse (in years)		
0-4	524	81.4
5-9	87	13.5
10-14	22	3.4
15-19	11	1.7

Table 2. Multiple Linear Regression Model for academic performance of nursing students.

Variables	ß	S.E (ß)	p-value
Academic Variables			
Entry Qualification	4.301	0.822	< 0.001**
Intermediate Science	3.348	1.014	0.001**
Intermediate Arts/commerce	0.637	0.607	0.294
Matric Science			
(ref=Matric Arts)			
Previous Academic Performance (%)	0.239	0.027	< 0.001**
Schools Type			
Private	7.429	0.502	< 0.001**
(ref=Public)			

** p<0.01

Variables with a statistical significance of p value = 0.2 in univariate analysis were considered for multiple linear regression analyses. The main effect model was evaluated for plausible interaction between predictor variables, and model adequacy using normal probability plots, and plots of standardized residuals against un-standardized predicted values.

The approval of the study was obtained from the University Ethical Review committee. Permission was taken from the Director General Nursing, Sindh Pakistan and principals of schools of nursing to collect the data. Confidentiality and anonymity of the data was assured by using codes and numbers instead of names.

Majority of the nursing students (n= 500, 77%) entered in basic nursing diploma Programme after completing Matriculation, whereas only 122 (19%) students entered the Programme after Intermediate. Only 16 (2.5%) students were degree (bachelor's or master's) holders at the time of admission. There were 352 (54.6%) and 292 (45.4%) students studying in the public and private schools of nursing respectively. The age range was 15 -34 years with a mean of 20.25 $\pm$ 3.45 years. There were 468 (72.7%) female and 176 (27.3%) male students. Only 32 (5%) students were married. Fifty six percent (n=360) of the students belonged to urban areas. Majority of the students (n=524, 81.4%) entered in the Programme after a gap of 0 - 4 years. Range of the time lapse between last qualification and admission in to nursing was 0-18 years with a mean of 2.99 and a standard deviation of 3.12 years (time lapse 0 means no gap between last qualification and admission in to basic nursing diploma Programme) (Table 1).

In the univariate analysis, out of eight, four variables including entry qualification, previous academic performance, school type, and gender were found significant.

In multiple linear regression analysis, the omnibus test with entry qualification, previous academic performance, and type of school was highly significant ($p < 0.01$). The model could explain 36.6 % of the variability in the academic performance of the students in the first year of the basic nursing diploma Programme (Table 2).

The relationship between entry qualification and academic performance of the students was significant. Adjusting all other variables, the mean estimated percentage scored in the first year nursing examination by the students with Intermediate Science was 4.3% higher as compared to the students with Matric Arts ($p < 0.01$). The mean estimated percentage scored in by students with Intermediate Arts was 3.35% higher as compared to the students with Matric Arts ($p < 0.01$). The mean estimated percentage scored by the students with Matric Science was 0.634% higher as compared to the students with Matric Arts ($p < 0.05$).

The relationship between previous academic performance and academic performance of the students was highly significant ($p<0.01$). Adjusting all other variables, the mean estimated percentage scored in the first year nursing examination increased by 0.24% with every one percent increase in the percentage obtained in the previous academic Programmes.

The relationship between type of school and academic performance of the students was significant. Adjusting all other variables, students of private schools of nursing had mean estimated percentage scored in the first year nursing examination 7.43% higher than the students studying in public schools of nursing ($p< 0.001$).

Conclusion

The study concluded that academic factors are better predictors of academic performance of the students in the first year of basic nursing diploma programme than the non-academic factors. Nurse educators, administrators and policy makers may consider these variables in the admission and selection of nursing students.

References

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