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Admission criteria and subsequent academic performance of general nursing diploma students

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Abstract

Objective: To determine the relationship between admission criteria used to select students and their subsequent academic performance in general nursing diploma Programmeme in the province of Sindh

Methods: Using a descriptive co-relational study design, data was collected retrospectively from records of the entire nursing student population of the batch of 2004. Using multiple linear regression analysis method, three regression models were developed to identify the group of variables that could predict academic performance of the students in the three-year general nursing diploma programme.

Results: Results identified a significant relationship between admission criteria and subsequent academic performance of the students in the general nursing diploma programme. Specific factors which were found significant included entry qualification, previous academic performance and gender.

Conclusion: The study concluded that academic factors considered in the admission criteria were better predictors of students' academic performance than the non academic factors. These factors should be considered in the admission criteria for general nursing diploma programme (JPMA 58:128;2008).

Introduction

Nursing educators and institutions have an ethical obligation to ensure admission criteria and academic standards that are reasonable and fair, yet effective indicators of students' success.[1] When an educational institution issues a diploma to one of its students, it is, in effect certifying the society that the student possesses all the knowledge and skills that are required in his chosen discipline.[2] To remain competitive and accountable, it is imperative for nursing programmes to have efficient and reliable admission criteria. Quantitative data and research-based facts are essential for the development, revision and modification of the admission criteria to guide nursing educators to identify and select those students who will successfully complete the nursing Programme. It also helps in minimizing the wastage of human and material resources that occur due to student failure and attrition.[3]

Majority of research studies on predictive ability of admission criteria have examined various academic and non-academic factors that include measures of previous academic performance such as college and high school grade point average (GPA), scores of different aptitude tests, and certain demographic characteristics such as age, gender, marital status, ethnicity, residential background, and

previous work experience. Evidence suggests that certain academic and non-academic variables could play a very important role in predicting academic performance of the students and can thus be justified to use in the admission process.[4-6] Though most research studies surrounding this issue have been conducted in developed countries, some research has also been conducted to identify predictor variables in various professional Programmes in Pakistan.

A study conducted to identify predictors of performance in first year of the basic nursing diploma Programme found academic factors as better predictors of students' academic performance than the non-academic factors.[6]

Another study examined the predictability of the performance of the medical students during the first trimester from their admission test scores, interview ratings and system of education. Findings indicated a significant relationship between admission test scores and the subject test scores in MBBS part I examination. An association was also found between the system of education and academic ability of the students. The study concluded that the system of education from which the student received his or her previous education, has an effect on certain courses such as community health sciences and physiology but not in anatomy, biochemistry, Islamic and Pakistan studies. Age and interview rating at the time of admission were not found associated with the student performance in the M.B.B.S part I examination.[7]

Admission in a nursing Programme is the first step for entering in the nursing profession. Identifying and recruiting students who are most likely to succeed in the nursing Programme is an important role of the admission criteria. Effective admission criteria not only helps in selecting the appropriate candidates, but also helps in identifying students who are at a risk of failure. Furthermore, knowledge about predictors of academic performance helps in developing strategies to facilitate students' success in the nursing education Programmes and licensing examination.[8,9] This study sought to investigate the predictive ability of admission criteria in relation to the subsequent academic performance of the students of general nursing diploma Programme in the province of Sindh.

Methodology

Factors considered in the admission criteria for selection of the appropriate candidates for the general nursing programme were selected as predictor variables of this study. These factors included entry qualification of the student at the time of admission in the general nursing diploma programme; previous academic performance measured by the percentages obtained in the previous academic programmes; age, gender and marital status at the time of admission in to the general nursing diploma programme, gender, marital status at the time of admission.

The outcome variable was the academic performance measured in percentage, obtained in each nursing examination conducted by Sindh Nurses Examination Board at the end of each academic year of the general nursing diploma Programme.

Using a descriptive corelational design, data was collected by reviewing the records of 644 students of the class of 2004 in Sindh. Entire nursing student population of the batch of 2004 from all schools of nursing in the Sindh province participated in the study. Information regarding enrollment characteristics was collected from the students' files available in their respective schools of nursing. Data about academic performance in the three-year general nursing diploma Programme were obtained from Sindh Nurses Examination Board (SNEB).

Using Statistical Package for Social Sciences (SPSS) version 11.5, data analysis was carried out in the three stages including descriptive, univariate, and multiple linear regression analyses. Descriptive analysis was done on all 644 students. However, the remaining analysis was done on 628 students excluding those with the bachelors (n=15) and masters degree (n=1) due to the small number. The groups of Intermediate Arts and Intermediate Commerce were merged together due to the small number of students in Intermediate Commerce group and similarity of the subjects in both the groups. The univariate and multiple linear regression analysis for the preliminary year were done on 544 students who successfully completed the academic year excluding students who dropped-out (n=53) or were terminated (n=31). The analysis for second year was done on 500 students excluding students who dropped-out (n=44) in the second year. Similarly, the analysis for final year was done on 343 students who successfully completed the final year. Students who dropped out (n=5) and those who were still in the programme (n=152) were not included in the analysis

In the univariate analysis, the coefficient for determination (R) and coefficient of correlation (R2) were followed along with F test values. All those variables with a statistical significance of p value = 0.2 in univariate analysis were considered for multiple linear regression analyses. After developing the main effect model, plausible interaction between predictor variables were evaluated. The selected model was evaluated for model adequacy using normal probability plots, and plots of standardized residuals against un-standardized predicted values. The same procedure was used to develop regression models for all three academic years of basic nursing diploma programme.

The approval of the study was obtained from the University Ethical Review committee and permission was obtained from all schools of nursing to collect the data from students' academic records. Confidentiality and anonymity of the data was assured by using codes and numbers instead of names of the students from records.

Results

Table 1 presents the summary of the results of descriptive analysis of entry characteristics of the study population.

According to the findings of the univariate analysis, the variables of entry qualification, previous academic performance was found significantly related to the academic performance of the nursing students in all three years of the general nursing programme. Age was found significant only in the final year. The variable of gender was found significant in the preliminary and the final year only. The variable of marital status was not significant. The variable of place of domicile was found significant only in final year.

The multiple linear regression models for the preliminary, second and final year could explain 36.6%, 44.3% and 28.4% of the variation in the academic performance in respective years of the general nursing diploma Programme. The variables of entry qualification (p

Table 1. Descriptive Profile of the Study Population (N = 644).

Variables	Total	Percentage	Range	Mean	SD
Entry Qualification					
Matric Arts	155	24.0	-	-	-
Matric Science	345	53.6	-	-	-
Intermediate Arts/Commerce	45	6.9	-	-	-
Intermediate Science	83	13.0	-	-	-
Bachelors	15	2.3	-	-	-
Masters	01	0.2	-	-	-
Previous Academic					
Performance (in percentage)					
Matric Arts	(155)	(100)	45.0 - 76.8	56.0	8.1
45-54	81	53.5	-	-	-
55-64	42	27.0	-	-	-
> 64	29	19.5	-	-	-
Matric Science	(345)	(100)	44.82 - 88.53	60.33	10
< 45	01	0.30	-	-	-
45-54	116	33.6	-	-	-
55-64	127	37.0	-	-	-
> 64	101	29.1	-	-	-
Intermediate Arts/Commerce	(45)	(100)	34.5 - 69.1	49.1	7.95
< 45	13	28.9	-	-	-
45-54	21	46.6	-	-	-
55-64	09	20.0	-	-	-
> 64	02	4.5	-	-	-
Intermediate Science	(83)	(100)	43.64 - 72.5	56.3	7.37
< 45	02	2.4	-	-	-
45-54	33	39.7	-	-	-
55-64	36	43.4	-	-	-
> 64	12	14.5	-	-	-
Bachelors of Arts (BA)	(15)	(100)	23.36 - 70.5	43.0	15.34
$\leq$34	09	40.0	-	-	-
>34	09	60.0	-	-	-
Masters of Arts (MA)	(01)	(100)	-	-	-
42	01	100	-		
Type of School of Nursing					
Public	352	54.6	-	-	-
Private	292	45.4	-	-	-
Age (in years at the time					
of admission)			15 - 34	20.25	3.45
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	-	-	-

Table 2. Summary of Multiple Linear Regression Analysis for the Preliminary, Second and Final Year of the General Nursing Diploma Program

Variables	Preliminary Year (N= 544)			Second Year (N= 500)			Final Year (N- 344)		
	ß	S.E (ß)	p-value	ß	S.E (ß)	p-value	ß	S.E (ß)	p-value
Entry Qualification									
Intermediate Science	4.301	0.822	< 0.001**	6.274	0.891	< 0.001**	1.817	1.026	< 0.001**
Intermediate Arts/Commerce	3.348	1.014	0.001**	4.770	0.993	0.001**	4.436	1.193	< 0.001**
Matric Science	0.637	0.607	0.294	0.811	0.637	0.204	2.041	0.800	0.011**
(ref=Matric Arts)									
Previous Academic Performance (%)	0.239	0.027	< 0.001**	0.267	0.028	< 0.001**	0.267	0.278	< 0.001**
Gender									
Male	-	-	-	-3.172	0.515	< 0.001**	-4.725	0.674	< 0.001**
(ref=Female)									
Place of Domicile	-	-	-	-	-	-	1.462	0.588	0.013*
Urban									
(ref=Rural area)									
Schools Type									
Private	7.429	0.052	< 0.001**	8.614	0.619	< 0.001**	5.008	0.624	< 0.001**
(ref=Public)									

*p < 0.05 **p <0 .01

< 0.01), previous academic performance(p < 0.01), and school type (p < 0.01) were found significantly related to the academic performance of the students in all three years of the general nursing diploma Programme. The variable of gender was found significantly related to the academic performance of the students in the second (p < 0.01), and the final year (p < 0.01) only. The variable of place of domicile was found significantly related to the academic performance only in the final year (p < 0.05). The variable of marital status was not found significant in any of the years of the general nursing diploma Programme. A summary of the analysis is presented in the Table 2.

Discussion

According to the study findings, students of the general nursing diploma programme were predominantly unmarried young females of 15-25 years of age. This finding reflects the usual composition of pre-licensing nursing educational Programmes of any country. The proportion of students from urban and rural areas was almost equal.

Consistent with previous studies, entry qualification and previous academic performance was found significantly related to the academic performance of the student in the basic nursing diploma programme.[10,11] The study supports the notion that past academic performance could predict future academic performance of the students.[12-15] In addition, supporting previous studies, results indicated that students with science background performed better as compared to the students with arts background.[16-18] The reason could be that the majority of the subjects taught in basic nursing diploma programme were science subjects; therefore, the students with science background performed well in these subjects as compared in the students with arts background.

Contrary to previous research, the study did not find any association between age, marital status and academic performance of the students.[12,19,20] It suggests that candidates regardless of their age and marital status may apply for admission and perform well in the general nursing diploma programme.

Gender was found significantly related to academic performance of the nursing students. Findings support researchers who assert that female students perform better than the male students[21,22] but contradict the researches that the identified male gender as an indicator of academic performance of undergraduate nursing students.[16] Small number of male students in the study may be one of the reasons for this finding. They may have been more involved in the outdoor social and earning activities as compared to the female students who are restricted in the home or hostel due to cultural norms. Further research is warranted to understand the reason for the difference in academic performance of male and female students.

Congruent with previous research, place of domicile was found significantly related to the academic performance of the students[22] only in the final year of the general nursing diploma programme. The findings should be interpreted cautiously as it has been evident only in the final year of the programme. There is a need to further

explore factors underlying this finding.

An interesting finding of the study was that the students studying in private schools of nursing performed far better than those studying in the public schools of nursing. One of the reasons could be that the private schools provided better opportunities of learning than the public schools of nursing. The findings need to be considered cautiously, taking into account that the private schools of nursing were concentrated in Karachi only, whereas the public schools of nursing were scattered in the province. It may result in disparity of facilities and academic resources available in the school consequently affecting the academic performance of the students.

Based on this analysis it can be stated that entry qualification, previous academic performance and gender could predict academic performance of the students in the general nursing diploma programme.[6,12,15,23] Additionally, students of private schools of nursing were found to perform better academically than the students studying in the public schools of nursing.

Limitations, Recommendations and Conclusions

Generalization of the study is limited to the province of Sindh only, consequently, replication of the study in other provinces is recommended. Exclusion of incomplete records might also have affected the findings of the study. Further research is warranted to identify the factors responsible for remaining amount of variance in the academic performance, as a large amount of variance in the academic performance of the students remained unexplainable. Research needs to be conducted to explore the factors responsible for the difference in academic performance of the students of private and public schools of nursing. Research studies should also be conducted to identify the reasons of student failure and attrition. The effect of critical thinking abilities, time management, financial status, family and work responsibilities, and social issues on success needs to be examined. The study also recommends considering certain other factors such as motivation towards nursing, aptitude tests during the admission process, as these factors could affect the students' academic performance.

The study concluded that the academic factors considered in the admission criteria could predict the subsequent academic performance of the nursing students in the general nursing diploma programme. Therefore, it is appropriate to consider these variables in the admission and selection of the nursing students.

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