Factors Influencing The Educational Achievements of Student Nurses in an Armed ForcesNursing School

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ABSTRACT

Objective: To determine the factors affecting the educational achievements of student nurses in armed forces nursing school.

Study Design: Mixed method explanatory sequential study.

Place and Duration of Study: PNS Shifa Naval Hospital Karachi, Pakistan from Sep 2020 to Jan 2021.

Methodology: The quantitative phase of study was conducted using self-administered questionnaire with mostly closed ended questions. Each questionnaire comprised of age, gender, marital status, family income, urban/rural background, type of previous school, and entry grade. The questionnaire had 40 items, classified as: Student associated factors, Hostel-associated factors, School-associated factors and Teacher-associated factors. The qualitative data was collected in second phase, from student nurses who had either had good or poor academic grades. The participants were selected through purposeful opportunistic sampling techniques.

Results: A total of 108 nursing students having a mean age of 23.37±4.135 years were included. The school associated factors had the highest impact with a mean value of 3.564±1.23. This was followed by low impact of teacher related factors having a mean value of 3.072±1.09 and hostel related factors having a mean value of 2.992±1.31. Whereas, student related factors having a mean value of 1.930±1.04 had the lowest influence on educational performance of student nurses.

Conclusion: School associated factors had high impact whereas teacher associated, hostel associated and student associated factors had low influence on educational performance of student nurses.

Keywords: Academic performance, Home-associated factors, School-associated factors, Teacher-associated factors.

INTRODUCTION

Nursing profession despite having a vital role in patient care has been seldom given the deserving attention and recognition that led to a drastic shortage of trained nurses and paramedics in Pakistan. The existing doctor to nurse ratio of 1:2.7 and nurse to patient ratio of 1:20 are far below the ideal recommended strength i.e. nurse to patient ratio of 1:10.[1] The shortage of nurses, job dissatisfaction and attrition can be related to various social, environmental, cultural, economic and political factors including unfriendly image of nursing profession.[2] Apart from these issues, analysis of quality of nursing education and its impact in terms of academic achievements of nursing students during their courses is essential to develop a cadre of motivated, well-educated and skilled nurses. It is imperative to analyze and explore the factors that are associated with sub optimal academic performance in order to plan and implement remedial strategies.

Academic achievement of nursing students in various nursing programs across various cultures and ethnicity is affected by multiple factors which may be external or internal and may be academic or non-academic. External factors included teacher-associated factors, home-associated actors and school-associated factors, while internal factors included personal factors and study habits.[3] Certain demographic variables like age, gender, marital status, employment status, ethnicity, socioeconomic status and previous school attended had been found to have variable impact on student nurse's academic achievement.[3-5] Pitt V *et al.,* in a comprehensive literature review explored the impact of various factors on nursing student's academic performance, clinical performance and attrition rate.[4] Elsabagh EEM *et al.,*[6] in their study identified that school-associated factors had the highest impact on educational performance of student nurses, followed by study habits and teacher-associated aspects, whereas Alos SB *et al.,*[7] reported teacher-related factors having highest influence followed by study habits and school-related aspects. Ali PA *et al.,* in their study found that Pakistani female diploma nursing students performed significantly

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better than males, however, non-significant correlation between age and academic performance was observed in their study.[8] They also identified that academic variables like pre admission qualification, students with high scores in previous academic programs and students from private school background performed better in nursing diploma program.[8,9]

Moreover, diversity of culture of armed forces nursing school may yield divergent results. In this context, this study was done to identify and explore correlation of various factors with the academic performance of student nurses enrolled in an undergraduate nursing program. The study was intended to further explore the factors which student perceive as impediment or hurdle to their academic success.

METHODOLOGY

This mixed method explanatory sequential study was carried out among nursing students undertaking diploma in general nursing course duly recognized by Pakistan Nursing Council (PNC) at Pakistan Navy Medical Training School (PNMTS) located at PNS Shifa Naval Hospital Karachi from September 2020 to January 2021. After taking approval from hospital ethical review committee (ERC/2018/Med Edn/02), informed written consent was taken from the students.
Inclusion Criteria: Nursing students of 2nd and 3rd year were included.

Exclsuion Criteria: Nursing students of 1st year and those who did not have final results were excluded.

Calculated sample size was 108 nursing students using a computer program known as Creative Service Systems (http://www.surveysystem), having margin of error of 5%, confidence level of 95%, and response rate of 50% and representative population of 150.[10] In the first phase of study convenience sampling technique was employed in selecting the sample. The quantitative phase of study was conducted using self-administered questionnaire with mostly closed ended questions. The researcher had adapted the self-reporting questionnaire of Elsabagh EEM *et al.,*, and Alos SB *et al.,* that was already validated and reliable with slight modifications according to local context.[6,7] A panel of experts gave its content validation and it was pilot tested on 10% students for reliability which was followed by conducting reliability analysis using Cronbach Alpha coefficient that was 0.890 which showed good internal consistency. Two parts were included in each questionnaire. Part 1 consisted of following items (age, gender, marital status, family income, urban/rural background, type of previous school, and entry grade). Part 2 was on the factors that influence the educational performance of the nursing students. The questionnaire consisted of 40 items classified as: Student associated factors, Hostel-associated factors, School-associated factors and Teacher-associated factors. Each factor had subgroup indicators which was given analogous ranking by the respondents using Likert Scale of 5 to 1 i.e. always to never.

Qualitative data was collected in second phase from student nurses who either had good or poor academic grades. The participants were selected through purposeful opportunistic sampling techniques.[10] Interviews were used after quantitative survey in order to help further investigate the data collected.

The actual exam percentage was used as an academic performance indicator that was confirmed from the official data as well keeping the anonymity and confidentiality. Examination grades with > 60% was considered good while < 60% was considered as poor.

SPSS version 20.0 was used for data analysis. Mean ± standard deviation for quantitative variables (age) and frequencies along with percentages for qualitative variables (gender, year of training, economic status, marital status, previous education and FSc grades) were used to describe the data. Pearson correlation coefficient was used to determine correlation between academic grades and mean of factors of academic performance. Independent sample t-test was used to analyze changes between two groups. *p*-value≤0.05 was considered statistically significant.

Analysis of personal interview data involved thematic analysis of the interview data in identifying and developing the main themes and sub-categories. Qualitative data was analysed using protocols of content analysis. A code was given to each student during data collection, its analysis and interpretation and only the researcher knew about the student identity and allocated codes.

RESULTS

A total of 108 nursing students of 2nd and 3rd year completed the questionnaire. Mean age of the study population was 23.37±4.135 years (Range: 18-32 years). Mean age of male students were 23.86±4.482 years, whereas mean age of female students were

22.80±3.653 years (*p*=0.184). Demographic and socioeconomic factors of study population including gender, year of training, economic and marital status and previous education were given in Table-I.

Table-I: Demographic and Socioeconomic Factors of Study Population (n=108)

Characteristics	n (%)
Gender	
Male	58(53.70)
Female	50(46.29)
Year of Training	
Second	58(53.70)
Third	50(46.29)
Economic Status	
High (> 50 K)	62(57.40)
Low (< 50 K)	46(42.59)
Marital Status	
Married	35(32.40)
Unmarried	73(67.59)
Previous Education	
Private	51(47.22)
Public	57(52.77)

The highest mean value of 3.564±1.23 having high impact was found to be in school related factors. This was followed by teacher related factors having a mean value of 3.072±1.09 and hostel related factors having a mean value of 2.992±1.31; both of which had low influence on educational performance of students. Whereas, student associated factors having a mean value of 1.930±1.04 had the lowest impact (Table-II).

Table-II: Factors Influencing the Educational Performance of Student Nurses

	Grand Mean ± SD	Remarks *
School Related Factors	3.564±1.23	High Impact
Teacher Related Factors	3.072±1.09	Low Impact
Hostel Related Factors	2.922±1.31	Low Impact
Student Related Factors	1.930±1.04	Very Low Impact

* (No Impact: 1.0-1.7) (Very Low Impact: 1.8-2.5) (Low Impact: 2.6-3.3) (High Impact: 3.4-4.1) (Very High Impact: 4.2-5)

It was suggested from the results that the set of factors with the highest impact on the educational performance of nursing students were the school associated factors (Table-III). Most of the factors in school related aspects fell in the high impact with factors like 'regular follow up of time schedule', availability of lab facilities' and 'comfortable classrooms' were having high impact (Table-III). In the teacher related aspects, the result suggested that they

Table-III: Factors Affecting the Academic Performance of the Nursing Students

Academic Factor	Mean±SD
STUDENT RELATED FACTORS	
Personal Condition	
Feeling sleepy in class	1.89±0.89
Feeling hungry in class	2.00±0.92
Difficulty in seeing	1.46±0.77
Difficulty in hearing.	1.41±0.74
Difficulty in breathing.	1.33±0.73
Study Habits	
I study only when there is a quiz.	2.29±1.14
I feel tired, bored and sleepy.	1.88±1.04
I prefer listening to radio, watching TV before finishing my study/assignment.	1.95±1.22
I am lazy to study.	1.81±1.06
I am disturbed when studying.	1.89 ± 1.17
I have no time to study at home/ hostel	2.37 ± 1.16
I study only when l like.	2.60 ± 1.30
I don't have a comfortable place to study.	2.36 ± 1.32
I copy the assignment of friends/colleagues	1.78 ± 1.13
HOSTEL-RELATED FACTORS	
I have learning materials (books, dictionary, and laptop) suitable for my learning.	3.61 ± 1.52
I easily get distracted by my friends/colleagues	2.31 ± 1.02
Mobile phone/Television/Radio/gadgets distract me while studying my lesson	2.31 ± 1.39
I have my tutorial session after class	2.01 ± 1.19
I do too much households work in hostel	2.42 ± 1.28
My family experience financial problem	2.14 ± 1.25
I have a calm and peaceful environment to study (justice)	3.26 ± 1.36
Availability of water and electricity is adequate	3.82 ± 1.31
Availability of recreational facilities is adequate	3.44 ± 1.39
Spacious and well ventilated rooms are available which facilitates study	3.90 ± 1.38
SCHOOL-RELATED FACTORS	
The time schedule is followed.	4.50 ± 0.91
There are school programs which are followed meticulously.	3.97 ± 1.00
There are available library facilities.	4.05 ± 1.32
Classroom is comfortable enough.	4.15 ± 1.20
There is fast internet access in the Library.	2.41 ± 1.47
There is enough space in the library.	2.83 ± 1.41
I get enough time to use library resources	3.04 ± 1.31
TEACHER -RELATED FACTORS	
Teacher has mastery of the subject matter	4.23 ± 1.00
Teachers discuss many topic in a short period of time	3.23 ± 1.33
Teachers uses audio/visual aids	3.72 ± 1.21
Teacher gives too much memory work/homework	2.98 ± 0.97
Teachers are organized in presenting subject matter by systemically following course routine.	4.12 ± 1.16
Teachers' uses lecture method only.	3.44 ± 1.12
Teacher always scolds students.	2.63 ± 1.17
Teachers are frequently out/absent from class	1.68 ± 0.99
Teachers are always late.	1.62 ± 0.85

played an essential role in the educational performance of the students. The items like 'teacher

has mastery of subject' had the mean of 4.23±1.00 and 'teachers are organized in presenting subject matter' had the mean of 4.12 ± 1.16; both had high impact. Whereas, items like 'teachers are frequently absent' and 'teachers are always late' had lower mean of 1.68±0.99 and 1.62±0.85. Most of the hostel associated factors were found to have a low impact on nursing students' educational performance. The item with the highest mean was 'availability of learning material in hostel', 'availability of water and electricity adequately' and 'availability of spacious and well ventilated rooms'.

Table-IV revealed that there was a significant difference in the impact of gender and economic status on the educational performance of the nursing students as indicated by the p value of 0.029 and 0.014 respectively. The male gender had higher mean than female students and students with lower income (< 50000 per month) had higher mean values. Whereas, year of training, marital status, and previous education had no significant differences in the impact (p=0.221, 0.920 and 0.955 respectively).

Table-IV: Relationship between Factors and Academic Performance

Factor	n	Mean±SD	p value
Gender			
Male	58	2.75 ± 0.448	0.029
Female	50	2.58 ± 0.327	
Year of Training			
Second Year	58	2.63 ± 0.394	0.221
Third Year	50	2.72 ± 0.413	
Economic Status			
High (>50K)	62	2.59 ± 0.388	0.014
Low (< 50 K)	46	2.78 ± 0.403	
Marital Status			
Married	35	2.67 ± 0.373	0.920
Unmarried	73	2.67 ± 0.420	
Previous Education			
Private	51	2.67 ± 0.421	0.955
Public	57	2.67 ± 0.392	

There were 78(72.22%) students with good academic grades (60% or more), while 30(27.77%) students had poor academic grades (< 60%). There was a strong linear correlation between academic grades and mean values of factors (good grades 2.50 and poor grades 3.13) with Pearson's correlation coefficient of r = 0.698 and p value < 0.01.

Thematic analysis of data that hindered the academic performance was collected through interviews from the nursing students and it identified four themes (Table-V). During personnel interviews,

Table-V: Exploration of Factors that hindered Academic Performance

Theme	Subtheme	Word Frequency (count)	Comments Verbatim
Tough routine	Burden of Job	Workload Burden (10) Time table Strictness (5) Co-curricular Activities (4)	"We have to face extra hospital work that hampers our studies" "Extracurricular activities waste our time and put stress on us"
	Tired and Fatigue	Hospital Job (5) Environment not good (4)	"It is exhausting to do hospital work and studying together"
Favoritism	Biased Teaching	Teacher Favoritism (6) Don't Appreciate (4)	"Some of the teachers ignore us and pay attention to certain other students"
	Personal Preference	No facilitation by teachers (3) Teachers not helpful (4)	"At times teachers don't inspire us and don't help us out"
Bullying	Furious attitude of teachers	Harsh attitude towards boys (4) Insulting language (2)	"At times teachers become harsh and use insulting language"
Hostel Environment	Atmosphere not favorable	AC not working (6) Lot of noise (5) Overcrowding of rooms (6)	"Most of the times atmosphere in hostel is tough" "Too many students are placed in one room creating lot of noise and space limitations"

researcher asked the participants about the reasons of low academic performance. Majority of participants said that the 'tough routine of hospital and burden of job' were the major reason. They also told that 'favoritism of teachers towards certain students' was also a factor for lower academic performance. The teachers also became 'furious and bullied towards the

individuals' that adversely affect their academic performance. Some of the students felt that 'hostel environment was not congenial' as there were many students in one room and lot of noise and lack of air conditioning hindered the academic performance.

DISCUSSION

Multiple academic and non-academic factors have been the focus of researchers investigating the academic performance of students in various nursing courses. The reasons for reduced induction, declining academic performance and higher attrition rate in the noble profession of nursing needs to be investigated. This research could help educationists and stake-holders in understanding the factors that influence student's performance during nursing courses in our set up. According to our study majority of students' nurses were male (53.70%) with mean age being 23.37±4.135 years and mostly unmarried (67.59%). Various national and international studies showed female preponderance ranging from 61% -90% and mean age ranging from 20.18-24.87 years with majority of students were unmarried (79%-95%).[3-13] The factors that influenced student's performance during nursing courses in our set up had been the school associated factors that had the greatest influence on academic performance with mean value of 3.564±1.23. This was followed by teacher associated factors, hostel associated factors and student associated factors. Various studies by Elsabagh EEM et al.,[6] and Khatun T et al.,[14] also showed that the school associated factors had the highest impact on educational performance of nursing students having mean value of 3.324 and 3.19±0.411 respectively. Whereas, other studies showed that teacher related factors had better impact on academic performance having mean values of 4.16, 3.89 and 3.90 respectively.[3-12] Hostel related factors had not been studied exclusively but it could be compared with home related factors studied by various authors and found the mean values between 2.698 to 3.54 which was almost near to our findings of hostel related factors i.e. 2.922±1.31. [3-12] Student related factors had very low impact on academic performance of students in our study which was in contrary to the results of other studies that showed significant impact of student related factors. [3-14]

In our study, gender, year of training, marital status, economic status and previous education by the student nurses showed varying extent of influence on their educational performance. The male gender had higher mean value than female students. The similar results of higher mean values by male gender were given in study by Alshammari F et al., 3. Whereas, Farooq MS et al.,[15] and Ali et al.,[8] in their studies revealed that females performed better than males in their academic performance. Fajr S et al.,[16] and Ali PA et al.,[8] in their study also revealed that gender had an effect on the educational performance of student nurses. However, Dante A et al.,[17] in their study found no significant correlation between gender and educational performance.

In our study year of training, marital status and previous education had no significant differences in the impact they had on educational performance of nursing student (p=0.221, 0.920 and 0.955 respectively). However there were studies that showed that entry qualification, previous academic performance, and type of school was highly significant (p<0.01) in relation to educational performance of student nurses.[9,13] Ali PA et al., showed that marital status was not significant in relation to academic performance.[9] Similarly, type of school attended, year level, marital status of the students had no significant difference on the academic performance of students.[3]

A qualitative exploratory data collection through interviews that revealed the reasons for poor academic performance yielded four themes in our study. Those themes were 'tough routine of hospital and burden of job' , 'favoritism of teachers towards certain students' , 'teachers were furious and bullied towards the individuals' and 'Hostel environment was not congenial'. Pinhas LN et al., also highlighted factors related to teaching strategies including sometimes teacher becoming furious with students and lack of comfortable university accommodation.[18] Abbassi M et al., also revealed in their study that reasons for poor academic performance include working in hospital did not give time to study, teaching methods of various teachers was not conducive and some teachers did not interact with their students.[19] In another study, Mthimunye KDT et al., found that students' academic performance is adversely affected by engagement in paid employment during their course and unfavorable physical teaching and learning environment.[20]

Although our study included the quantitative as well as the qualitative analyses of the nursing students, the main limitation of this study was that it was conducted on a small sample of students in one institution, thus the findings may not be generalized.

CONCLUSION

Based on the findings of the study, it was concluded that school related factors had high influence on educational performance of nursing students, whereas teacher associated, hostel associated and student associated factors had low influence on educational performance of student nurses. Moreover, there was a significant difference in the impact of gender and economic status on the educational performance of the student nurses.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

QUI: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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