Original Article

Relationship of Personal and Social Factors with Academic Performance of Undergraduate Nursing Students

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Abstract

Objective: The current study aimed to measure the relationship between baccalaureate nursing students' academic performance, measured in terms of cumulative grade point average (CGPA), and personal and social factors

Study Design: : A cross-sectional study was conducted.

Place and duration of study: A cross-sectional study was conducted on 160 undergraduate baccalaureate nursing students from a private college of nursing, Islamabad, Pakistan

Material and Methods: A cross-sectional study was conducted on 160 undergraduate baccalaureate nursing students from a private college of nursing, Islamabad, Pakistan. A stratified random sampling technique was used to select the study participants from each academic year.

Results: The CGPA of male nursing students was significantly higher than females (3.36 vs. 3.16, p <.001). Family monthly income, friends' gender, father' occupation, and semester significantly affected the academic performance (p-values <.05). In addition, family income above 60,000/- PKR (p-value 0.017) and father's employment (p-value 0.069) were positively correlated with academic performance.

Conclusion: In conclusion, multifaceted nature of factors are influencing nursing students' academic performance, including gender, socioeconomic status, and peer relationships in this study. These findings emphasise the need for tailored support systems and interventions to address disparities and enhance the academic performance of nursing students.

Keywords: Academic performance, academic achievement, nursing students, cumulative grade-point average.

1. Introduction

The success of any educational institution is measured by its academic performance or how well students meet the standards set out by it" [(1)]. In every educational institute, students' academic achievement is directly related to their growth and knowledge development [(2)]. Thus, students must work hard to achieve satisfactory grades and prepare themselves to tackle professional challenges [(3)] (Alos et al., 2015), which can only be achieved by monitoring the academic performance of learners and supporting them with remediation plan. Academic performance refers to the capacity of students to accomplish different study-related tasks assigned to them by their teachers [(4)]. Students' progress is monitored through various assessment strategies including written tests, vivas, written assignments, presentations, objective structured clinical examination (OSCE), small group discussions (SGD), problem-based learning (PBL), portfolios, and other home assignments. The success of the learner has great value for parents, faculty, management, and the country. [(5)]Elsabagh and Elhefnawy (2017) also found that teachers may identify alternative interventions to handle students with unsatisfactory academic results. Oducado and Penuela (2014) proposed a formative assessment to monitor students' progress. With this type of assessment, teachers can monitor learners' performance and improve their progress towards summative assessment which is generally one of the final assessments of the learner. [(6)]

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Various factors can lead to unsatisfactory academic performance, causing demotivation and negative psychological effects. Mthimunye and Daniels (2019) stated that a nursing institute's major goal is to identify leading factors of academic failure among students. By identifying such factors, faculty can assist their students in maintaining their academic performance according to the organizational set standards to decrease the attrition rate among nursing students. [7] They further suggested monitoring students' progress continuously to identify underperforming students and implement a remedial action plan as soon as possible to ensure the retention and successful completion of the program. The factors affecting academic achievement are demographic characteristics, student-related factors, teachers' competence, resources at school, classroom, home environment, and parents [3]. These similar factors may affect students' learning in our context because all the aforementioned factors are related to the background of our students, teachers, the institutional environment, and parents. Some of these factors include qualification (SSC, HSSC) at admission, teacher–student relationships, academic support services, teachers' ability, language of instruction, adequate learning facilities, teaching strategies, and parental involvement. In addition, a study by Dube and Mlotshwa (2018) highlights multiple interrelated factors that influence the academic performance of nursing students, including poor family background, poor metric results, distance to school, medium of instruction, and negative peer group influences. [1] In the same study, 55% of the students responded that literate parent can help in theier academic achievement and 84% of students responded that teacher support and guidance improved their academic outcomes.

A study conducted by Olufemioladebinu and Adediran (2018) revealed a significant association between the students' socio-economic characteristics including parental background, home-related factors, and students' academic performance, availability of school facilities also showed a significant correlation with academic success ($p < 0.05$). Furthermore, students' reading habits were significantly linked to their academic outcomes, and the effectiveness of teachers was also found to have a significant impact on students' academic performance ($p < 0.05$) [8].

Rational for Study: Analysing various factors to improve performance and overcome academic failure among students is a challenging task for educational institutions. This is because of the numerous leading nonacademic factors of unsatisfactory performance for learners. This leads to unsatisfactory academic performance which has a psychological impact on the students through demotivation. This may further cause anxiety and depression, and if remedial actions are not implemented, students may leave the program. Moreover, it creates a financial impact on parents as well as on the organisation. Multiple personal and social factors can hinder students' learning, and these factors may be related to students' academic performance.

2. Materials & Methods

A cross-sectional study was conducted on students enrolled in an undergraduate nursing program at a private nursing college in Islamabad, Pakistan. Write a bit about nursing program and its organization!

The Baccalaureate of Science in Nursing Students from Semesters II to VII were included in this study. Students from semesters I and VIII were excluded because they received GPA once their first-semester exams were conducted. Students who had repeated the semester or year of study during their course were also excluded from the study to ensures that all participants are at the same academic level and have had similar educational progression.

An OpenEpi Online calculator was used to calculate the sample size. The total calculated sample size was 151, based on a 95% confidence level and precision level of 5%. The probability of participants' attrition was 10% means 151+15=166. Therefore, the total sample size of this study was 166 participants.

A stratified random sampling technique was used based on the proportion of BSN students at a private nursing college in Islamabad. In the stratified sampling

technique, stratification decreases sampling error. The stratum was based on Semesters II–VII. After obtaining written approval from the college, a list of students was obtained from the student affairs office. The participants were selected using a simple random technique from the list provided by the students' affair office. In addition, semester coordinators were contacted regarding the schedule and availability of their students. The data collection tool had two parts: demographic profile and personal and social factors that affect students' academic performance. Demographic information consisted of age, gender, sponsorship, residence, motivation to join nursing, involvement in class activities, class attendance, and previous educational background. Parental background and friends' support were also included.The, Cumulative Grade Point Average (CGPA) is used as an independent variable, representing the overall academic performance of students throughout their academic program. The CGPA is used to evaluate student academic achievement in educational Institutions in Pakistan on the scale of 4.0, range from 0.00 to 4.00.

Tool reliability was also assessed by pilot testing on 10% of the study participants, who were selected randomly across the program. The sample size for pilot testing was 15 participants, who were excluded from the final study. The constructed variables and tools were reviewed and deemed feasible and appropriate for data collection. Data were entered, coded and analysed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics were used to calculate frequencies and percentages for qualitative variables, and quantitative variables were analysed using means and standard deviations to summarize the demographic characteristics. Inferential statistics such as the independent t-test, chi-square test, and Pearson correlation and Univariable and Multivariable mixed linear regression analyses were performed to examine relationships between variables. A significance level of $p < 0.05$ was considered.

3. Results

A total of 160 students participated in the study. The majority of students were female (77.5%), and the mean age was 21.3 ±1.4 years.

Table 1 presents the demographic characteristics of the participants (N =160). The study sample predominantly 77.5% comprised female nursing students compared to their male counterparts, and their mean age was 21.33 ±1.38 years. Moreover, most of the students (63.12%) were sponsored by the nursing institution, and 58.13% lived in hostels. Regarding motivation to join nursing, 49.38% of the participants chose nursing on their own, while 42.50% had joined nursing on their parents' choice. Regarding friends' support, the results indicated that 42.50% of the participants' friends were mostly supportive during the studies. Regarding educational background, most of the students had passed their SSC (74.38 %) and HSSC (76.25 %) from private institutions. The educational level of fathers was higher than that of mothers. Most mothers (79.75 %) were housewives, whereas fathers (85.53 %) were employed.

Table – 1: Descriptive analysis of demographic, personal and social information of students (n = 160).

Characteristics	N	n	Percent (%)
Age – years, Mean ±SD	160	21.33	±1.38
Gender	160		
Male		36	22.50
Female		124	77.50
Total household monthly income – PKR	160		
≤35,000		43	26.88
>35,000 – 50,000		62	38.75
>50,000 – 60,000		17	10.62
>60,000		38	23.75
Financial sponsorship for Studies	160		
Family		37	23.12
Institution		101	63.12
Both		22	13.75
Living during study period	160		
Home		57	35.63
Hostel		93	58.13
Relatives		10	6.25

Motivation to join nursing	160		
Self		79	49.38
Parents		68	42.50
Friends		13	8.13
Friends' gender	160		
Male		27	16.88
Female		78	48.75
Both male and female		55	34.38
Friends' support for Study	160		
Never		8	5.00
Sometimes		40	25.00
Most of the times		68	42.50
Always		44	27.50
Type of school at SSC	160		
Public		41	25.62
Private		119	74.38
Type of school at HSSC	160		
Public		38	23.75
Private		122	76.25
Parents living Status	160		
Both alive		138	86.25
Single parent		22	13.75
Mothers' education	160		
No formal education		58	36.25
SSC/Matric		42	26.25
HSSC/Intermediate		28	17.50
Graduation		19	11.88
Masters		8	5.00
Others		4	2.50
Father education	160		
No formal education		20	12.50
SSC/Matric		62	38.75
HSSC/Intermediate		27	16.88
Graduation		23	14.37
Masters		22	13.75
Others		6	3.75
Mother occupation	158		
Housewife		126	79.75
Employed		32	20.25
Fathers' occupation	159		
Unemployed		23	14.47
Employed		136	85.53
Study semester			
2nd		31	19.38
3rd		34	21.25
4th		30	18.75
5th		32	20.0
7th		33	20.62

SSC: Secondary School Certificate, HSSC: Higher Secondary School Certificate, PKR: Pakistan Rupees, SD: Standard Deviation

Qualitative variables are presented as frequencies and percentages. Quantitative variables are presented as Mean ±SD.

Table 2 depicts a comparison of students' performance (CGPA) with their demographic characteristics. According to the analysis, the mean CGPA of male students was significantly higher than that of female students (3.36:3.16, P-Value .001). In addition, the income range PKR 35000-50000 was significant (3.22, P-Value .017), followed by gender of friend (3.22, P-Value .001), occupation of father (3.23, P-Value .069), and semester-III (3.38, P = .001).

Table – 2: Comparison of students 'characteristics with cumulative GPA

		Cumulative GPA		
	Variables	n (%)	Mean ±SD	*P*-value
Age – r		160	-0.17	0.033*
Gender	Male	36 (22.5)	3.36 ±0.26	0.001*
	Female	124 (77.5)	3.16 ±0.33	
Total household monthly income – PKR	≤35,000	43 (26.9)	3.10 ±0.34	0.017*
	>35,000 – 50,000	62 (38.8)	3.22 ±0.30	
	>50,000 – 60,000	17 (10.6)	3.18 ±0.34	
	>60,000	38 (23.8)	3.33 ±0.33	
Financial Sponsorship	Family	37 (23.1)	3.26 ±0.27	0.168

for studies	Institution	101 (63.1)	3.21 ±0.34	
	Both	22 (13.8)	3.10 ±0.34	
Living during study period	Home	57 (35.6)	3.21 ±0.31	0.456
	Hostel	93 (58.1)	3.19 ±0.35	
	Relatives	10 (6.3)	3.33 ±0.22	
Motivation to join nursing	Self	79 (49.4)	3.23±0.32	0.427
	Parents	68 (42.5)	3.20 ±0.34	
	Friends	13 (8.1)	3.10 ±0.27	
Friend's gender	Male	27 (16.9)	3.40 ±0.28	0.001*
	Female	78 (48.8)	3.13 ±0.36	
	Both	55 (34.4)	3.22 ±0.27	
Friend's support for study	Never	8 (5.0)	3.23 ±0.28	0.813
	Sometimes	40 (25.0)	3.24 ±0.38	
	Most of the times	68 (42.5)	3.21 ±0.33	
	Always	44 (27.5)	3.17 ±0.29	
Type of school at SSC	Public	41 (25.6)	3.25 ±0.34	0.309
	Private	119 (74.4)	3.19 ±0.33	
Type of school at SSC	Public	38 (23.8)	3.18 ±0.33	0.500
	Private	122 (76.3)	3.22 ±0.33	
Parents' living status	Both alive	138 (86.3)	3.21 ±0.33	0.837
	Single parent	22 (13.8)	3.20 ±0.31	
Mother' education	No formal education	58 (36.3)	3.22 ±0.35	0.698
	SSC	42 (26.3)	3.17 ±0.33	
	HSSC	28 17.5)	3.24 ±0.31	
	Graduation	19 (11.9)	3.14 ±0.32	
	Masters	8 (5.0)	3.34 ±0.19	
	Others	4 (2.5)	3.25 ±0.32	
Father's education	No formal education	20 (12.5)	3.12 ±0.32	0.430
	SSC	62 (38.8)	3.18 ±0.35	
	HSSC	27 (16.9)	3.28 ±0.37	
	Graduation	23 (14.4)	3.20 ±0.30	
	Masters	22 (13.8)	3.29 ±0.27	
	Others	6 (3.8)	3.19 ±0.29	
Mother' occupation	Housewife	125 (78.1)	3.19 ±0.35	0.116
	Employed	32 (20.0)	3.29 ±0.24	
Father's Occupation	Unemployed	22 (13.8)	3.06 ±0.40	0.069
	Employed	136 (85.0)	3.23 ±0.31	
Semester	2nd		3.33 ±0.25	<0.001*
	3rd		3.38 ±0.34	
	4th		3.05 ±0.34	
	5th		3.12 ±0.26	
	7th		3.16 ±0.33	

Table 3 dipicts a simple linear mixed regression to predict the association between factors (related to students', parents, home) and students' academic performance. Based on the results of the current study, age was not significantly associated with academic performance (r = 0.02, 95% confidence interval (CI) =-0.06–0.03, p-value = 0.440). A significant correlation (r =-0.17, 95% CI-0.28–-0.06, p-value = 0.004) was found between gender and academic performance of the nursing students. Income was significantly (r=-0.14, 95% CI= 0.02 – 0.25, p-value= 0.022) correlated with the academic performance of nursing students. Similarly, the employment status of the parents had a significant effect (r =-0.17, 95% CI = 0.03–0.31, p =

0.015) on learners' grades. Moreover, friends' gender was also correlated with students' academic performance: students who have male friends have greater CGPA (r=0.25, 95% CI= 0.11" 0.38, p-value <0.001) along with having both male and female friends (r=-0.11, 95% CI= 0.01 – 0.21, p-value= 0.039). In addition, friends' CGPA also correlated with students' academic performance: students who had male friends had greater CGPA (r=0.23, 95% CI= 0.09 – 0.38, p-value= <0.002)

Table 3: Univariable and Multivariable mixed linear regression analyses of cumulative GPA with selected variables.

Factors	**Simple regression**		**Multiple regression**	
	Coef. (95% CI)	***P*-value**	**Coef. (95% CI)**	***P*-value**
Age	0.02 (-0.06 – 0.03)	0.447	-0.02 (-0.06 – 0.02)	0.330
Gender				
Male	Reference		Reference	
Female	-0.17 (-0.28 – -0.06)	0.004*	-0.01 (-0.16 – 0.15)	0.941
Total household monthly income – PKR				
≤35,000	Reference		Reference	
>35,000 – 50,000	0.14 (0.02 – 0.25)	0.022*	0.09 (-0.02 – 0.20)	0.122
>50,000 – 60,000	0.13 (-0.04 – 0.30)	0.136	0.15 (-0.01 – 0.31)	0.076
>60,000	0.24 (0.11 – 0.37)	<0.001 *	0.20 (0.07 – 0.33)	0.003*
Fathers' occupation				
Unemployed	Reference		Reference	
Employed	0.17 (0.03 – 0.31)	0.015	0.13 (0.01 – 0.26)	0.041*
Friends' gender				
Female	Reference		Reference	
Male	0.25 (0.11 – 0.38)	<0.001 *	0.13 (-0.05 – 0.32)	0.164
Both (male and female friends)	0.11 (0.01 – 0.21)	0.039*	0.06 (-0.05 – 0.16)	0.275
Friend's CGPA	0.23(0.09 – 0.38)	0.002*	0.18(0.03 – 0.32)	0.015*
GPA: Grade Point Average, CI: Confidence Interval				

Multiple mixed linear regression (Table 3) showed that income was not significantly (r=-0.15, 95% CI= -0.01 – 0.31, p-value= 0.076) positively correlated with the academic performance of nursing students. Likewise, income greater than PKR 60, 000/- was also significantly correlated with performance (r=0.20, CI=0.07-0.33), p =0.003). Another factor that showed significant results was the employment of the father of a student, where (r=0.13, CI=0.01-0.26, and p-value=0.041). Moreover, friends' CGPA was also significant with the performance of nursing students (r=0.18, CI=0.03-0.32, and p-value=0.015).

4. Discussion

This study aimed to measure the relationship between personal and social factors affecting the academic performance of generic baccalaureate nursing students at a private nursing college. Associations were measured between students' academic grades and their demographic characteristics, personal habits, parents'

backgrounds, and home-related factors. The findings revealed a correlation between the aforementioned factors and students' academic scores. This correlation was evident between family income, fathers' occupation, and friends' support for students' CGPA.

The main demographic characteristics of the current study revealed that, out of 160 students, most (77.5%) were female. These findings are consistent with those of Khatun et al. (2020), who found that 97.6% of the participants were female [9]. In line with these two studies (Alshammari et al., 2017; George et al., 2017), there were more female students (61.7%) in their quantitative-correlational study design with n=201, and 38.3% of male participants. [10,11]However, this study found a comparatively higher number of male nursing students. In addition, a correlational study conducted by Elmalky et al. (2019) found a greater number of female participants (82%) [12]. Therefore, it is evident that the proportion of women in the nursing profession is greater than male. However, it also depends on the organizational policy that 80% of seats are for female students and only 20% for male students. Less than 10% of male nurses are in the workforce of developing countries; hence, male students should be given more academic support to increase the number of registered male nurses in the nursing profession (Alshammari et al., 2017) [10]. Recruitment of more men in nursing is also important to address the shortage and attain a better balance and diversity in the nursing profession, as research indicates a patient demand for male nurses [13]. This also highlights that female students are more likely to be enrolled in nursing education than male students. Therefore, the data should be carefully inferred for sex comparisons.

The age at which the initial analysis showed was significantly associated with academic performance; however, further analysis at the level of multiple linear regression showed that age was not significant. This was in agreement with the existing studies conducted by Alshammari et al. (2017) and Kaliyaperumal et al. (2020), who also revealed that age has no significant effect on the academic achievement of learners. [10,14] This may be because there was a very small difference (20–24 years) in the ages of the participants. It is possible that the students shared similar age group characteristics because of the small variation in their age. However, Thomas et al. (2018) disagree with this claim that age is significantly related to students' academic achievement [15]. Notably, academic competence was positively linked to the academic performance of nursing students in this study. Cognitive level, understanding of nursing concepts, and appropriate use of learning resources could affect the academic performance of nursing students.

In the context of gender, the findings from the current study revealed that male students' CGPA was significantly higher than that of female students. This finding is also supported by the findings of Alshammari et al. (2017) [10]. Being a minority in nursing, male nursing students may put more effort into performing better, become visible, and prove their worth in the nursing profession. However, the current findings contradict those of Khatun et al. (2020), who revealed that female students' academic achievement was significantly higher than that of male students [9]. This may be because both males and females have different educational and economic backgrounds, with varied educational resources at home and at institutions. Elmalky et al. (2019) reported that sex was not significantly associated with the academic performance of nursing students. This result may be due to the small number of male participants in the current study (22.5 %).

Moreover, in the current study, parents' monthly income ranged from Rs 35000-50000 and Rs 50000-60000 was significantly correlated with the academic performance of nursing students. These findings are supported by various studies showing that high monthly income has a positive correlation with learners' academic achievements [1,9]. The reason for these findings may be that families with a good income may provide their children with facilities for studies. To fulfil educational needs can lead to emotional wellbeing of learner however, financial issues in the family cause distress in learners which effect cognitive abilities and physical health as well [16]. The resources needed for

educational achievement are important to obtain good grades, and a lack of resources can have a negative impact on learners' achievement. Elmalky et al. (2019) found no significant relationship between family income and the psychological well-being of nursing students. The study conducted by Alshammari et al. (2017) also reported that the socioeconomic status of learners does not affect their academic achievement. Perhaps, students who receive financial aid and scholarships do not feel stress regarding economic issues. Consequently, they can focus on academic performance. The National Endowment Scholarship for Talent (NEST) is a recent initiative and an example of such financial support programs to support nursing students (Nursing Scholarship Program, 2021).

Similarly, fathers' occupations had a significant effect on students' academic performance. Perhaps fathers' employment leads to good income and the availability of educational resources needed at home. The current study also revealed the higher grades of students who lived near college compared to those who lived far from college. Ease of access to college and learning resources plays an important role in positively impacting academic performance. In addition, it saves time and the cost of travel. Accessibility of students who live far away from the college may be affected by heavy traffic, long distance, and time to political situations and/or protests [3,1,8].

This study found a significant correlation between the CGPA of students and that of their friends. Generally, friends' CGPA scores were higher. This finding is consistent with a number of studies reporting that peer attachment and peer support significantly affect academic performance [17,18]. pointed out that peers can negatively influence academic performance. Therefore, the characteristics and roles of peers are important factors in student performance [1]. Current research found that the CGPA of students who had male friends was higher, and the CGPA of male nursing students was generally high. Perhaps sociocultural dynamics in Pakistan allow ease of interaction, communication, and friendliness with the same gender. Furthermore, males being a minority in nursing could have developed a sense of support for their male colleagues. A systematic review of qualitative studies highlighted that peer learning and support enhance cognitive skills, acquire technical skills, enhance confidence, increase communication skills, obtain emotional support, and gain socialisation which in turn contribute to personal and professional development ([19]. Additionally, Liu et al. reported in their research that male nursing students presented greater critical thinking than their counterparts. Perhaps due to the above-mentioned factors, the academic performance of male students and their peers was high [20].

Strengths and Limitation of the Study

The current study has some strengths in that there were limited published studies in Pakistan which assessed the factors affecting academic performance of nursing students with a generic bachelor's degree. Therefore, the findings from the current study could help students, parents, teachers, and nursing institution administrators analyse various factors that minimise students' learning. Moreover, the stratified sampling technique was another positive aspect of this study, which prevented selection bias in participant recruitment.

This study had certain limitations. First, the current study was limited to only one setting; therefore, the findings should be generalised with caution. In addition, the study questionnaire was self-administered; therefore, chances of response bias were present. Moreover, the study was conducted at a private nursing college with sufficient resources; therefore, its generalisability is limited to underprivileged colleges of nursing in the public sector.

Conclusion:

The findings of this study provide valuable insights into the factors that influence the academic performance of nursing students. Male students demonstrated significantly higher CGPA than did female students, highlighting a potential gender disparity in academic achievement. Socioeconomic factors, particularly family income and fathers' occupation, emerged as significant predictors of academic success.

Additionally, the influence of peer relationships, as indicated by friends' gender and progression through semesters, were found to impact academic outcomes. These results underscore the complex interplay between demographic, social, and economic factors in shaping students' academic performance. Further research is warranted to explore the underlying mechanisms of these relationships and develop targeted interventions that can support all nursing students in achieving their full academic potential.

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Authors declare no conflict of interest.

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