

Determinants of Academic Performance among BSc Nursing Students: A Mixed Method Research

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Abstract

Academic performance is a crucial component in success of nursing students. Academically sound nurses are in position to provide quality care to patients and communities. A range of factors including time management skills, self-confidence, and demographic characteristics are shown to contribute to the academic performance of nursing students; they also shed light on the complex interplay of personal, academic, and environmental factors. This study, adopting a mixed method approach, and conducted in Amala College of Nursing, Thrissur (Kerala) sought to identify, and explore the determinants of academic performance among BSc nursing students. The data was collected through google form, analysed and interpreted according to the objectives of the study using SPSS version 23. It is concluded that college-related factors have significant impact of on the academic performance of BSc nursing students. By fostering a supportive learning environment, colleges can play a vital role in shaping the future of nursing professionals and ultimately, the quality of healthcare.

Key words: Academic performance, Mixed research approach

Academic performance is a critical factor in the success of nursing students, as it directly impacts their ability to provide quality care to patients, families, and communities (Gripshi et al, 2022). Numerous studies have explored various factors that contribute to the academic performance of nursing students, shedding light on the complex interplay of personal, academic, and environmental factors. Research has shown that academic performance in nursing programmes is influenced by a range of factors, including time management skills, self-confidence, and demographic characteristics (Abu Bakar et al, 2023; Amir et al, 2021).

The Bachelor of Science in Nursing (BSc Nursing) programme in particular, plays a vital role in preparing future nurses to meet these dynamic demands. This necessitates periodic curriculum changes to ensure that nursing graduates are equipped with the most current knowledge, skills, and competencies required for effective practice. Once changes are implemented, educators are faced with determining whether the curricular innovations have indeed lived up to their promise; are student learning outcomes any different from those of the previous curricula? This paper describes an initial systematic evaluation of the academic performance of students based on selected parameters by comparing learning outcomes

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following a curricular renewal, and highlights their significance in fostering a competent, adaptable, and innovative nursing workforce.

Hypothesis

H1-There will be significant difference in the influence of selected determinants on academic performance among BSc nursing students.

Objectives

The study was set out with following objectives:

1. To (a) identify, and (b) explore the determinants of academic performance among BSc nursing students.
2. To determine the impact of selected determinants on academic performance of BSc nursing students.

Operational definitions

BSc Nursing students - It refers to individuals who are currently enrolled in BSc Nursing degree at a nursing college following the 2016 scheme and revised 2021 scheme of curriculum as per KUHS.

Determinants - It refers to a specific factor that affect the outcome of academic performance such as socio-demographic factors and others that include student-related factors, teacher-related factors, college-related factors and home-related factors.

Academic performance - It refers to the extent to which students have achieved their educational

goals in terms of marks secured in selected nursing subjects.

Review of Literature

A cross-sectional study was conducted by Alshammari Farhan, Saguban Reynita et al using quantitative-correlational design on 201 student nurses from the College of Nursing at University of Hail selected using convenience sampling. A modified survey questionnaire was utilised to gather data. Four types of factors such as teacher-related (with a mean 4.16), student-related (3.85), school-related (3.85), and home-related factors (3.54) were observed to have varying extent of effect on the academic performance of student nurses. Likewise, age, gender, year level, marital status, socio-economic status and previous school attended by the student nurses showed varying extent of influence on their academic performance.

A descriptive cross-sectional study was conducted by Fajar Shaheen Hussain M et al on students of Lahore School of Nursing, University of Lahore. Convenient sampling technique was used for data collection. This study concluded that most of the common contributing factors that affect academic performance of nursing students were related to teacher factor, student factor, home factor, school factors, significantly affect the academic performance of the nursing students.

Methodology

The mixed research approach with Mixed Method Concurrent Embedded Research design was used in the study. The study was set in Amala College of Nursing, Thrissur. BSc Nursing students of this college constituted the study population. The sample consisted of students who voluntarily

Table 1: Tools and technique

SI No.	Name (structured/standardised)	Method of data collection	No. of items	Validity	Reliability	Scoring
1.	Tool 1-Section A Socio-demographic variables	Self reporting	18	Validated by experts	-	-
2.	Tool 1-Section B factors that affect the academic performance of the student-nurses	Self reporting	40	Established	0.940	Likert scale
3.	Tool 2--Qualitative tool	-	5	Validated by experts	-	-

consenting to be part of this study. A single-population proportion formula based on previous study was used to estimate the minimum sample size (N) required. A 95 percent confidence interval ($Z_{\alpha/2} = 1.96$), a 5 percent margin of error (d), and a 10 percent non-response rate was assumed. Calculated sample size was estimated as 206. There were a total of 228 responses.

$$n = \frac{Z^2 \cdot 1-\alpha/2 \cdot pq}{d^2}$$

For quantitative data collection, convenience sampling technique, and for qualitative data collection, purposive sampling technique was used. Study period was, two weeks after IRC approval.

Inclusion criteria: (a) Nursing students studying in nursing educational institution following 2016 scheme (annual system) and 2021 scheme (semester system) of curriculum, and (b) Students willing to participate in the study were included.

Exclusion criteria: Students who were absent on the days of data collection were not included.

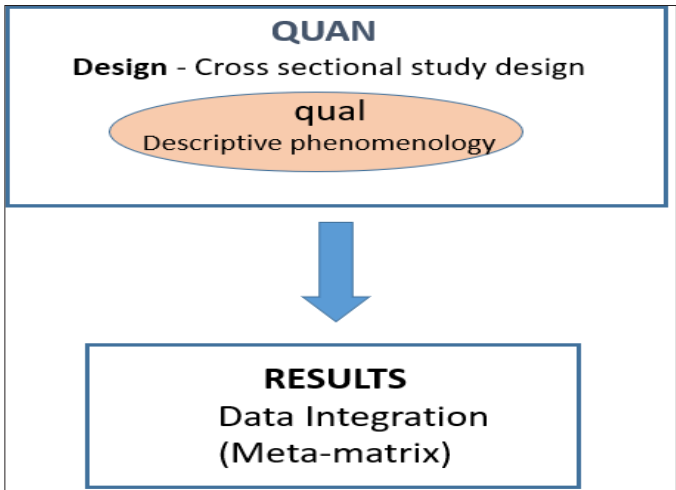
Qualitative data collection included (a) students competent in conversation, leadership skills, club activities, and (b) students representing different academic performance level.

Table 2: Interpretation of tool 1- Section B

Likert scale	Weighted mean	Interpretation
Never	1.00 – 1.50	Very low extent
Rarely	1.51 – 2.50	Low extent
Sometimes	2.51-3.50	Moderate extent
Often	3.51 – 4.50	Extensive
Always	4.51 – 5.00	Very extensive

Pilot study: After the finalisation of research proposal, institutional approval was obtained. Pilot study was conducted among 20 BSc Nursing students to assess the feasibility of items.

Data collection started on 29 June 2024. Tools were administered to the samples through a google form; 228 responses were received within 2 days.



Data analysis and interpretation: The data was collected through google form, analysed and interpreted according to the objectives of the study using SPSS version 23 (Tables 1-9).

Results

Table 3: Distribution of Sociodemographic variables (n=228)

Variables		Frequency	Percent
Age in years	18	7	3.1
	19	12	31.6
	20	40	17.5
	21	68	29.8
	22	35	15.4
	23	6	2.6
Gender	Male	21	9.2
	Female	207	90.8
Socio-economic status	Upper class family	3	1.3
	Middle class family	223	97.8
	Lower class family	2	0.9
Educational status of father	Illiterate	2	0.9
	High school	126	55.3
	Diploma	58	25.4
	Graduate	42	18.4
Educational status of mother	Illiterate	4	0.17
	High school	76	33.33
	Diploma	68	29.8
	Graduate	80	35.1
Habits of substance abuse	Yes	1	0.4
	No	227	99.6
Total screen time in a day as per setting in your phone, in hours	<2	13	5.7
	2-4	76	33.3
	4-6	81	35.5
	>6	58	25.4
How many hours of sleep do you get per day?	<6	128	56.1
	>6	100	43.9
Do you struggle with any health issues that affect your academics	Yes	62	27.2
	No	166	72.8
Curriculum followed in present BSc Nursing program	2016 scheme	45	19.7
	2021 scheme	183	80.3
Percentage of attendance in previous year	<80	9	3.9
	80-85	24	10.5
	86-90	82	36.0
	>90	113	49.6

Variables		Frequency	Percent
Teaching Learning methods used	Self-learning	25	11.0
	Self-learning, discussion	20	8.8
	Self-learning, discussion, simulation	12	5.3
	Self-learning, discussion, simulation, OSCE	154	68
	Self-learning, simulation	1	0.4
	Lecture cum discussion	15	6.6
Hours spend on studying per day	Lecture cum discussion, simulation	1	0.4
	<2	109	47.8
	2-4	96	42.1
	>4	23	10.1

Table 3 shows that 61.4 percent of the participants were between 19-21 years; 90.8 percent of the participants were females. Majority of the parents had an education up to high school, 68.8 percent participants had a total screen time of 2-6 hours a day, 56.1 percent participants of the participants slept for less than 6 hours a day, 67.6 percent participants mentioned that the teaching methodologies used were simulation, OSCE, Discussion and Self learning, 48 percent of the participants spent less than 2 hours on studies per day.

Table 4: Association between socio-demographic factors and academic performance

Factors	Test value (ANOVA)	Significance (p<0.05)
Age (in years)	0.38	Statistically significant
Socio-economic status	3.894	Statistically significant
Educational status of father	0.765	Statistically not significant
Educational status of mother	2.993	Statistically not significant
Total screen time per day	1.71	Statistically significant
Health issues	0.308	Statistically not significant
Percentage of attendance	1.637	Statistically not significant
Teaching learning methods used	3.73	Statistically significant
Hours spent on studies per day	4.290	Statistically significant

Table 4 shows that there is a statistical significant association between socio demographic variables such as age (in years), total screen time per day, hours of studying per day, percentage of attendance and teaching learning methods used with the academic performance of the students.

Table 5: Association between marks secured in selected subjects and academic performance

Marks	Mean	SD	p value
Marks secured in MSN University	71.19	5	0.51
Average sessional marks of MSN	71.28	9.84	0.498
Marks secured in FON University	77.89	7.58	0.409
Average sessional marks of FON	68.54	8.57	0.013

Mean academic performance of students was higher for FON university examination (Table 5). Significant correlation was observed on average sessional marks scored in FON and determinants. Table 6 reveals that mean of the four-given factors were comparable with a higher mean observed for college-related factors, followed by teacher-related factors and student-related factors.

Qualitative data analysis: After analysing the in-depth interview and focus group discussion, the meaning units were identified and categorised under the following headings.

Curriculum related factors

Table 8 shows curriculum-related factors of both semester and annual system. Table 9 outlines opinion for and against semester system.

Verbatim of students collected through data collection are given below.

Annual students: *“For difficult subject I will provide more time and for easy subject my time will be reduced; and group study is a very essential part of my study schedule”*

Table 6: Comparison of weighted means of Factors affecting academic performance

Determinants	Annual mean (SD)	Semester mean (SD)	F	p value
Student factors	3.92	3.77	2.76	0.10
College factors	4.25	4.07	1.80	0.18
Home factors	3.02	3.02	0.13	0.71
Teacher factors	4.04	3.86	1.76	0.19

Table 7: Determinants of academic performance

Factors	Annual Mean (SD)
Student - related	Physical, psychological and academic factors
Teacher - related	Knowledge, attitude and teaching method
College - related	Physical infrastructure, resources and teaching learning methods
Home related	Family, siblings and economics

“If teaching method includes more varieties of method like role-play, then it is simple to understand.”

“Good classroom, library facilities, whiteboard and wi fi facilities can help to improve academic performances of students.”

“I feel my sister is always comparing her grades with my own grades. So, for meeting that it may become over burden or it may add an extra stress to my studies.”

“We all are the nurses who loves to migrate, we have to go through the OSCE sessions. So, the OSCE is not provided enough in our curriculum, but the same advantage is given to them. Hence, they will be more competitive than us when compared in the global context.”

Semester students

“When It comes to student-life balance, in semester system there is limited time and there are so much requirements and my student-life balance is mostly impaired.”

Table 8 : Modalities of curriculum-related factors in two systems

Semester system		Annual system	
Curriculum implementation	Curriculum feedback	Curriculum implementation	Curriculum feedback
Tight curriculum (4)	Students are confident as they are more competent (1)	Curriculum content adequate (3)	Adequate personal and professional growth
Less exposure to clinics (3)	Increased skill (2)	Strict curriculum	
Difficulty to cover theory (2)		Good clinical exposure (3)	
New curriculum changes with new subjects		Adequate time (1)	
Additions in curriculum		Lack of OSCE	
● With modules			
● With add-on courses		Previous reference	
Increased number of expense			

“If the teacher is just doing the lecture methods, it may bore some to an extent, but if the teacher doing some interactive sessions like role play, will be more interesting.”

“During this tight schedule of studying some extracurricular activities, such as arts and sports is so much helpful for us to relieve from the stressful situations that we face.”

“My family is providing me with support emotionally, economically and physically to improve my academic performance. When I’m in a stressful situation, my family has provided me a great support and they are my backbones.”

“My curriculum is tightly packed. The time that is getting to cover all those portions are also very limited and also there was increased number of exams within a limited duration of time which caused an extremely stressful situation.”

A coin has two sides, opinion of students is for and against semester system. Tool 1, containing instructions, factors affecting academic performance of nursing students (Table 10), qualitative tool used and in-depth interview guide are given here.

ANNEXURE

Tool-1: Socio demographic Variables Instructions

- Read questions carefully. Put tick mark (√) in respective columns.
- The data given by you will be confidential.
- Fill up the blanks wherever needed.

1. Age in years . . .
2. Gender
☐ Male
☐ Female
3. Socio economic status
☐ Upper class family
☐ Middle class family
☐ Lower class family
4. Educational status of father
☐ Illiterate
☐ High school
☐ Diploma
☐ Graduate
5. Educational status of mother
☐ Illiterate
☐ High school

Table 9 : Opinion of students for and against semester system

Curriculum related factors	
Semester system	Annual System
Annual system is more effective, however semester system is effective with modifications	Lack of OSCE compared to semester system
Advanced semester system with OSCE, and innovative teaching strategies	Annual system is better as mentioned by:- • Lack of stress • More clinical exposure
Currently, clinical exposure is less but hoping to get more exposure during 8 th semester	Annual system student's view regarding semester students is that, they have more stress, less clinical exposure and are benefitted to OSCE
Supplementary exams has to be written with juniors	-
Difficult to participate in extracurricular activities as curriculum is rigid	-
Annual system has a light schedule	-

- ☐ Diploma
☐ Graduate
6. Habits of substance abuse (alcoholism, smoking, tobacco use)
☐ Yes
☐ No
 7. Total screen time in a day as per setting in your phone in hours _____
 8. How many hours of sleep do you get per day _____
 9. Do you struggle with any health issues that affect your academics
☐ Yes
☐ No
 If yes, specify _____
 10. University Register Number of the participant
 11. Curriculum followed in the present BSc Nursing programme 2016 scheme (Annual System) 2021 scheme (Semester System)
 12. Percentage of attendance in previous year
 <80%
 80-85%
 85-90%
 >90%
 13. Average score secured in sessional exam of Foundation of Nursing _____
 14. Score secured in university examination of Foundation of Nursing _____
 15. Average score secured in sessional exam of Adult Health Nursing _____
 16. Score secured in university examination of Adult Health Nursing _____
 17. Teaching Learning Methods used
☐ Self-learning
☐ Lecture cum discussion
☐ Simulation
☐ OSCE
 18. Hours spend on studying per day _____

Table 10: Factors that affect the academic performance of student-nurses

Sl. No.	Items	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Student-related factors						
1	How well do you listen to your teacher.					
2	How well do you actively participate in the discussion, answering exercises and clarifying things you did not understand?					
3	How well do you want to get good grades on test, quizzes, assignments and projects?					
4	How well do you make yourself prepared for the subject?					
5*	How well do you get frustrated when the discussion is interrupted or the teacher is absent?					
6	How well do you exert more effort when you do difficult assignment?					
7	How well do you study the lesson you missed if you were absent from the class?					
8	How well do you study and prepare for quiz and test?					
9	How well do you see to it that extracurricular activities do not hamper your studies?					
10	How well do you have a specific place to study at home which you keep clean and orderly?					
11	How well do you do your assignment regularly?					
12	How well do you spend your vacant time doing assignment or studying your lesson?					
13	How well do you study harder to improve your performance when you get low grades?					
14	How well do you spend less time with your friends during school days to concentrate more on your studies?					
15	How well do you prefer finishing your studying and your assignments first before watching any television programme?					
College-related factors						
1	How well do you use the learning facilities in provided by the college?(library, computer lab, blackboard)					
2	How well do you use the learning facilities in performing our course work?					
3	How well do you think the facilities provided by the university meet the standards for physical requirement (classroom size, lighting, air conditioning, tables and chairs)?					
4	How well do you can easily access the internet in the library?					
5	How well do you adhere to the rules and regulations of university?					
Home-related factors						
1	Are you motivated by your parents to improve your studies?					
2	Do you use your learning materials (books, dictionary, and laptop) suitable for my learning?					
3	Do you have tutorial session after class?					
4	Do your parents help you in your homework?					
5	Do you ask guidance from your elders and/or family?					
6	Do you easily get distracted by your friends?					
7	Do you do too many household chores?					
8	Do you get disturbed by your siblings?					
9	Do your phone/Television/Radio/ gadgets distract you while studying your lesson?					
10	Does your family experience financial problem?					
Teacher-related factors						
1	Do your teachers have a good relationship with the student and co-teacher?					
2	Do your teachers impose proper discipline and are not lenient in following the prescribed rules.					
3	Do your teachers open to suggestion and opinion and is worthy of praise?					
4	Do your teachers show smartness, confidence and firmness in making decision?					
5	Do your teachers have an appealing personality with good sense of humour?					
6	Do your teachers explain the objectives of the lesson clearly at the start of each period?					
7	Do your teachers have mastery of subject matter?					
8	Do your teachers have organised in presenting subject matter by systematically following course routine?					
9	Do your teachers have updated with present trends relevant to the subject matter?					
10	Do your teachers show various strategies, teaching aids/devices and techniques in presenting the lesson?					

*Question No. 5 carries reverse scoring

Tool 2: Qualitative tool

Focus group Discussion (FGD) Guide is aimed at identifying the determinants of academic performance among BSc Nursing students:

1. In your view point what are the factors affecting academic performance?
- Student-related

- College-related
- Curriculum-related
- Teacher-related
- Home-related

2. How do these factors influence your daily study habits and overall academic success?
3. What are the main challenges or obstacles you

face that impact your academic performance? How do you overcome these challenges, and what support systems do you find most helpful?

4. How does the college environment, including classroom settings, teaching methods, and clinical placements, affect your academic performance? Can you provide specific examples of positive and negative experiences?
5. In what ways do personal and social factors, such as family support, peer relationships, and work-life balance, influence your academic performance. How do these factors interplay with your academic responsibilities.

In-depth Interview Guide

In-depth interview guide aimed at identifying the determinants of academic performance among BSc Nursing students.

1. In your view, point what are the factors affecting academic performance.
 - Student-related
 - College-related
 - Curriculum-related
 - Teacher-related
 - Home-related
2. How do these factors influence your daily study habits and overall academic success?
3. What are the main challenges or obstacles you face that impact your academic performance? How do you overcome these challenges, and what support systems do you find most helpful?
4. How does the college environment, including classroom settings, teaching methods, and clinical placements, affect your academic performance? Can you provide specific examples of positive and negative experiences?
5. In what ways do personal and social factors, such as family support, peer relationships, and work-life balance, influence your academic performance? How do these factors interplay with your academic responsibilities?

Discussion

This study shows that the determinants such as college-related factors followed by teachers-related and student-related factors have an extensive impact on academic performance.

Similar study conducted by Alshammari Farhan, Saguban Reynita, et al also showed that four types of factors viz teacher-related, student-related, college-related, and home-related factors were observed to have varying extent of effect on the academic performance of student nurses.

A mixed method study by Reem Al Alawi identified factors influencing nursing students' academic success such as pre-nursing academic experiences, educational environment, teaching approaches. This study opens a new avenue for future studies on identifying the determinants affecting academic performance of nursing students of various curriculum. **Limitations**

Data was collected from only one selected college of nursing

Recommendations

- Similar studies can be conducted by increasing the sample size so that findings can be generalised.
- Curriculum related factors can be quantified using a standardised tool.

Conclusion

Our study highlights the significant impact of college-related factors on the academic performance of BSc nursing students. By fostering a supportive learning environment, colleges can play a vital role in shaping the future of nursing professionals and ultimately, the quality of healthcare. Therefore, it is essential to recognise the importance of college-related factors in influencing academic performance and take proactive steps to create an environment that nurtures academic excellence and prepares students for success in their nursing careers.

References

1. Gripshi S, Rustami E, Pula A. Challenges of nursing students in relation to academic performance at the faculty of Technical Medical Sciences. *European Journal of Medicine and Natural Sciences* 2023; 5(1) : 71
2. Abu Bakar N, Yusop H, Ali MN, Abu Bakar NF. Determinants of students' academic performance in higher learning institutions in Malaysia. *International Jour. of Acad Res in Business Soc Sci* 2023, Feb 17; 13(2) : 1496-1508
3. Amir NF, Arumugam T, Karuppanan S. Intrapersonal Factors Affecting Academic Probation Students in Universiti Teknologi PETRONAS. SHS Web of Conferences [Internet]. 2021 [cited 2024 Jun 26];124:06002. Available from: https://www.shs-conferences.org/articles/shsconf/abs/2021/35/shsconf_icmesh2020_06002/shsconf_icmesh2020_06002.html
4. Dube MB, Mlotshwa PR. Factors influencing enrolled nursing students' academic performance at a selected private nursing education institution in KwaZulu-Natal. *Curationis* [Internet] 2018, 28 Aug [cited 2024, 26 Jun]; 41 (1). Available from: <https://pmc/articles/PMC6131719/>
5. ScienceDirect [Internet]. [cited 2024 Jun 26]. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0260691721000472>
6. Nunes C, Oliveira T, Castelli M, Cruz-Jesus F. Determinants of academic achievement: How parents and teachers influence high school students' performance. *Heliyon* [Internet] 2023, 1 Feb [cited 2024, 26 Jun]; 9 (2). Available from: <https://pmc/articles/PMC9950838/>