



## Multidimensional Factors Influencing Academic Performance: A Cross-Sectional Study among Nursing Students at Majmaah University

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**Abstract Background:** Academic performance among undergraduate nursing students is a vital measure of educational quality and student retention. Therefore, this study investigated the multidimensional factors influencing academic performance as perceived by nursing students at Majmaah University. **Methods:** A descriptive cross-sectional study was conducted using a purposive sample of 314 undergraduate nursing students from the College of Nursing at Majmaah University. A structured, self-administered questionnaire covering 11 dimensions was used to collect data regarding factors affecting academic performance, including personal, academic, environmental and institutional factors. Data were analysed using descriptive statistics, Pearson correlation and one-way ANOVA. **Results:** Over half of the students (55.0%) reported a moderate level of perception of the factors influencing academic performance, while (22.3%) demonstrated a high perception level. Among the studied dimensions, the learning environment showed the highest mean percentage score (62.7%), followed by faculty activities and services (55.7%) and hospital-related aspects (55.1%). Strong positive correlations were identified between the overall perception scores and faculty activities ( $r = 0.86$ ,  $p < 0.001$ ), hospital-related aspects ( $r = 0.81$ ,  $p < 0.001$ ) and the student-staff relationship ( $r = 0.81$ ,  $p < 0.001$ ). A statistically significant difference was observed in relation to having family members in the nursing profession ( $p < 0.001$ ). **Conclusion:** In nursing education, factors related to the institution, clinical experiences and faculty have a greater impact on students' academic success and retention than personal attributes alone. **Recommendation:** Enhancing the educational environment, increasing faculty involvement and improving clinical training conditions are critical factors in achieving better academic outcome.

**Key Words** Factors Affecting, Academic Performance, Nursing, University Students, Learning Environment, Student-Staff Relationships

### INTRODUCTION

Academic performance is a valuable indicator of success among higher education students, particularly nursing students. It shapes their professional and academic development, increases their job opportunities and helps them meet the challenges of the modern job market [1]. Additionally, they impact the quality of services provided to the community [2]. Therefore, understanding the factors that affect the academic performance of nursing students is a priority for institutions and universities to enhance student achievement [3].

Academic performance refers to the extent of a student's progress in their studies, whether in a specific course or

throughout their academic years and this progress is assessed through formative and summative evaluations [4,5]. Poor academic performance at the university level may lead to many negative consequences. Anxiety, frustration, depression, discouragement and absenteeism are examples of these and may result in dropping out of university, low job performance, burnout, poor role transition, decreased clinical competence, greater likelihood of medical errors and poor quality of patient care. It can also adversely affect students' careers and professional development [6,7].

Previous studies have shown that academic performance is influenced by multiple factors, including students' attitudes,

supportive peer relationships, effective pedagogical strategies, family involvement, access to resources, institutional environment and career selection [8,9]. In nursing, other factors related to practical experience are added, such as hospitals and students' relationships with other staff members [10]. According to Al Husaini and Shukor [11], the key factors affecting students' academic success include their engagement in e-learning, initial low grades, support from family, living arrangements, gender, internal evaluations, grade point average (GPA) and previous assessment results. While international research has extensively examined the factors influencing students' academic success, evidence remains limited in specific educational and cultural contexts. In Saudi Arabia, especially in nursing education, few studies have explored students' perceptions of the factors affecting their academic achievements. Variations in educational systems, cultural norms and institutional frameworks highlight the need for context - specific research to guide effective educational strategies. The present study sought to assess the factors that affect students' academic performance to provide valuable guidelines for colleges of nursing to design future programs that can resolve obstacles, support and develop students' performance and educational excellence, improve teaching procedures, enhance the quality of the educational process and provide a stimulating academic environment to achieve the best possible results for university students. Therefore, this study aimed to assess the multidimensional factors influencing academic performance among nursing students at Majmaah University, with the potential to identify key areas for improvement and pave the way for a more effective nursing educational system.

## Objectives

- To assess the multidimensional factors influencing academic performance among nursing students at Majmaah University
- To examine the correlations between the multidimensional factors affecting academic performance and the personal and academic characteristics of students

## METHODS

### Study Design and Setting

This study utilized a descriptive cross-sectional research design to assess the multidimensional factors influencing the academic performance of nursing students at Majmaah University. This study was conducted at the College of Nursing, Majmaah University, Saudi Arabia.

### Study Sample

A purposive sampling technique was used to recruit participants. A total of 628 nursing students enrolled at the College of Nursing, Majmaah University, during the academic year 2023-2024 (from the third to seventh levels) were considered eligible for participation. Of these, 350 students

were approached and invited to participate in this study. A total of 314 students agreed to participate and completed the questionnaire, yielding a response rate of 89%. The final sample represented 50 % of the total student population.

### Inclusion and Exclusion Criteria

Nursing students from the third to seventh level, both female and male, were included in the study, while those in the preparatory levels (first and second levels) were excluded.

### Data Collection Tools

A structured questionnaire consisting of two parts was administered. The first part comprised a personal characteristics data sheet developed by the researchers. Data were collected on age, residence, marital status, number of family members, work during the study, faculty enrolment (personal desire), whether family members work in the nursing profession, community vision about the nursing profession and practice activities while studying. The second part contained a self-reported questionnaire that assessed the multidimensional factors influencing academic performance among nursing students at Majmaah University. This was adopted from Mohamed [12]. The questionnaire consisted of 99 items grouped under the following 11 domains: personal condition (five items), study habits (nine items), home-related aspect (six items), learning environment-related aspect (nine items), lecturer-related aspect (eight items), educational curricula-related aspect (eight items), hospital-related aspect (nine items), student evaluation-related aspect (seven items), student-staff relationship-related aspect (15 items), student-colleague relationship-related aspect (six items) and activity- and service-related aspect (17 items).

### Scoring System

Responses to the adopted tool were measured using a three-point Likert scale ranging from 3 (*always*) to 0 (*never*). Perception was considered low if the percentage score was below 50, moderate if the percentage score was 50-65 and high if the percentage score was 65 or above [13].

### Validity and Reliability

The tool was valid and reliable and was adopted from a previously published study after obtaining the author's permission [12]. A pilot study was conducted with 10% of the total study sample, comprising approximately 31 nursing students, before the main data collection. This study aimed to evaluate the clarity, reliability and feasibility of the questionnaire. No modifications were deemed necessary and the original instrument was used in its initial form. Furthermore, the participants from the pilot study were included in the final data analyses. The reliability of the instrument was assessed using Cronbach's alpha, yielding a value of 0.70, which indicates an acceptable internal consistency.

### Data Collection Procedures

following ethical approval from the IRB, the researchers obtained a list of students from the fifth to seventh levels

from the Department of Education and Student Affairs, following an explanation of the study’s purpose and data collection methods to secure permission to conduct the research. Data were collected using paper and electronic questionnaires. The electronic version, hosted on Google Forms, was distributed to students via their course instructors, with the researchers providing a short link that students could access using their Android devices. Additionally, paper questionnaires were collected in person after the students’ classes. The researchers explained the study objectives and potential impact on students. Those who agreed to participate provided informed consent and completed the questionnaire. It was emphasized that participation was entirely voluntary and that students had the freedom to choose whether to complete the form. Completing the questionnaires took approximately 15-20 minutes. The confidentiality of all information provided was strictly maintained. Data collection was conducted from February to May 2024 and incomplete responses were excluded from the final analysis.

### Statistical Analysis

Data were collected, scored, tabulated and analysed using the Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics, such as frequencies, percentages, means and standard deviations, were used to present the data. Inferential statistical tests, including one-way analysis of variance (ANOVA) and independent t-tests, were used to assess the differences in the students' perceived factors according to their personal and academic characteristics. All data were tested for the assumptions of normality and homogeneity of variance before analysis. Statistical significance was set at  $p < 0.05$ .

### RESULTS

The study included 314 nursing students. Most participants were aged  $19 \leq 22$  years (93.6%), female (64.3%) and lived with their parents (83.4%). The majority of the participants were single (97.5%), not working during the study period (89.2%) and from large families (>4 members, 85.4%). Over half of the participants did not enrol by personal desire (59.6%), while 65.3% had relatives in nursing. Most students had appositive perception of nursing (76.8%) and did not participate in extracurricular activities (69.3%) (Table 1).

Regarding the factors influencing academic performance. Less than half (45%) of the nursing students had low perceptions of study habits, while more than one-third (39.9%) had a high perception of the learning environment. Approximately (22.7%) of the nursing students had low overall perception scores, while (22.3%) demonstrated high overall perception (Table 2). The students' overall perception of the multidimensional factors affecting academic performance was moderate, with a mean percentage score (52.52 %) (Table 3).

The findings of Pearson's correlation analysis demonstrated that the overall score of the multidimensional factors of academic performance was highly correlated with

Table 1: Personal and Academic Characteristics of the nursing students (N=314).

Variable	Category	n (%)
Age (years)	19 ≤22	294 (93.6%)
	>22	20 (6.4%)
Residence	With parents	262 (83.4%)
	Far from parents	52 (16.6%)
Gender	Male	112 (35.7%)
	Female	202 (64.3%)
Level	3	94 (29.9%)
	4	63 (18.2%)
	5	79 (25.2%)
	6	31 (9.9%)
	7	47 (15%)
Number of family members	1-2	7 (2.2%)
	3-4	39 (12.4%)
	>4	268 (85.4%)
Marital status	Single	306 (97.5%)
	Married	8 (2.5%)
Work during study	Yes	34 (10.8%)
	No	280 (89.2%)
Enrollment (personal desire)	Yes	127 (40.4%)
	No	187 (59.6%)
Family members in nursing	Yes	205 (65.3%)
	No	109 (34.7%)
Community perception of nursing	Positive	241 (76.8%)
	Negative	73 (23.2%)
Practice activities during study	Yes	96 (30.6%)
	No	218 (69.4%)

Table 2: Factors Affecting Academic Performance Dimensions (N=314).

Dimension	Low n (%)	Moderate n (%)	High n (%)
Personal condition	140 (44.5)	141 (44.8)	34 (10.7)
Study habits	141 (45.0)	143 (45.5)	30 (9.5)
Home-related aspect	118 (37.4)	87 (27.6)	110 (35.0)
Learning environment	45 (14.4)	143 (45.7)	125 (39.9)
Teacher-related aspect	90 (28.7)	166 (53.0)	58 (18.4)
Educational curricula	49 (15.7)	192 (61.3)	72 (23.0)
Hospital-related aspect	43 (13.7)	196 (62.3)	75 (24.0)
Student-staff relationship	46 (14.8)	201 (64.1)	66 (21.1)
Student-colleague relationship	34 (10.9)	213 (67.8)	67 (21.3)
Student evaluation	38 (12.2)	220 (70.1)	56 (17.7)
Faculty activities & services	40 (12.8)	198 (63.0)	76 (24.2)
Total	71 (22.7)	173 (55.0)	70 (22.3)

Table 3: Mean and Standard Deviation of Nursing Students` Total Perceptions regarding Factors Affecting Academic Performance.

Dimensions	Min	Max	Mean±SD	Mean %
Personal condition dimension	0	10	3.31 ±1.96	33.09
Study habits Dimension	0	14	5.81 ±2.95	41.47
Home-related Aspect	0	12	5.85 ±2.46	48.78
Learning environment-related Aspect	0	18	11.29±4.11	62.72
Teacher-related Aspect	0	14	7.18±2.21	51.25
Educational curricula-related Aspect	0	16	8.58±3.00	53.62
Hospital related Aspect	0	18	9.93±3.59	55.15
Relation between student and staff related-aspect	0	30	15.95±4.76	53.17
Relation between student and their colleagues related aspect dimension	0	12	6.62±2.29	55.20
Evaluation of students' aspects	0	14	7.38 ±2.32	52.73
Faculty's activities and services-related aspect	0	34	18.94±6.12	55.70
Total	0	192	100.84±35.76	52.52

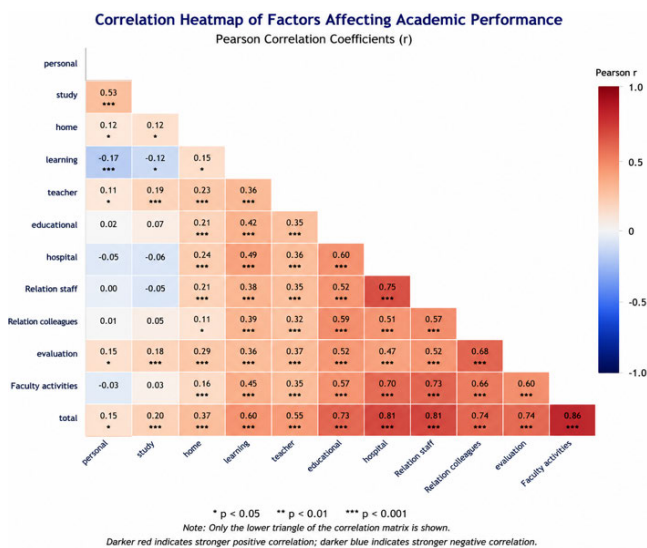


Figure 1: Correlation heatmap of multidimensional factors affecting academic performance

Table 4: Personal and academic characteristics and total perception of nursing students

Variable	Category	Total perception (Mean±SD)	F	P
Age	19 ≤22 years	101.23±23.70	1.32	0.25
	>22 years	95.10±8.44		
Residence	With parents	101.93±23.72	3.56	0.06
	Far from parents	95.35±18.75		
Gender	Male	99.29±22.96	0.78	0.38
	Female	101.69±23.15		
Level	3	106.88±20.90	2.47	0.05
	4	100.00±20.78		
	5	100.71±23.45		
	6	94.45±25.25		
	7	100.00±24.70		
Number of family members	1–2	90.29±35.78	2.89	0.06
	3–4	94.00±27.53		
	>4	102.11±21.82		
Marital status	Single	100.92±23.04	0.02	0.88
	Married	99.57±27.37		
Work during study	Yes	94.76±32.49	2.66	0.10
	No	101.58±21.62		
Enrolment by personal desire	Yes	102.37±17.00	0.94	0.33
	No	99.80±26.41		
Family members in the nursing profession	Yes	104.42±20.02	14.90	0.00*
	No	94.09±26.75		
Community vision of the nursing profession	Positive	99.90±24.00	1.71	0.19
	Negative	103.93±19.56		
Practice activities while studying	Yes	103.09±23.75	1.32	0.25
	No	99.84±22.76		

\*Significant at p-value <0.05

all factors, especially with faculty activities (r = 0.86, p = 0.00), hospital factors (r = 0.81, p = 0.00) and staff relation variables (r = 0.81, p = 0.00), indicating that these factors seem to have the most substantial impact on academic performance. In contrast, a weak negative correlation arose between learning-related factors and personal factors (r = 0.17, p <0.01) and study factors (r = 0.12, p <0.05), indicating an inverse relationship. Additionally, a weak positive correlation was observed between personal factors

and both home (r = 0.12, p = 0.04) and teacher-related factors (r = 0.11, p = 0.04), indicating that personal and home factors have less direct implications than other factors (Figure 1). the results also revealed a significant difference in perception scores based on having family members in the nursing profession (F = 14.90, p = .00). This finding suggests that having relatives in the nursing field dramatically impacts perception scores (Table 4).

## DISCUSSION

The study showed that most nursing students were female, in early adulthood, living with their parents, from relatively large families and single. These demographic traits align with earlier reports on undergraduate nursing students and represent the typical profile of those enrolled in nursing programs. According to other researchers [14], nursing education is female-dominated. Including students from various age groups enhanced the sample representativeness. In the present study, many nursing students did not choose their faculty based on personal interests. A significant number mentioned having family members in the nursing field and noted positive societal perceptions of nursing as a profession. Additionally, involvement in college activities is generally limited. These findings contrast with those of Mohamed [12], who reported that most students joined nursing programs out of personal interest and had fewer family members working in the profession. Mohamed [12] also highlighted unfavourable community perceptions of nursing, suggesting that societal attitudes continue to influence students' motivations and engagement.

The current research revealed strong correlations between academic performance and institutional factors, specifically, faculty activities, hospital-related factors and student-staff relationships. Study and home environments were also moderately correlated with academic performance. These results are consistent with those of Mohamed [12] highlighting the importance of institutional support services and positive student's relationships in enhancing academic performance. These findings highlight the pivotal influence of the learning environment on students' learning process.

Sirsat [15] reported that personal, teacher-related and teaching-learning factors significantly influence students' academic performance, while study habits and home-related factors have a more moderate effect. In contrast, Ramasaco [14] emphasized the strong role of home-related factors and their influence on both student outcomes and teachers' performance and practices. These discrepancies may be attributed to differences in institutional contexts, culture and educational systems. Similarly, a recent study [16] classified determinants of academic performance into teacher-, institutional-, student- and home-related factors, noting that teacher-related factors had the greatest impact, whereas family-related factors had the least. These findings partially align with the current study, which highlights the importance of faculty-related and institutional influences on academic performance.

The substantial correlation between academic performance and the learning environment observed in the

current research is justified by a recent study [17], which discovered that students viewed institution-related factors as the key to their academic performance. Learners appreciated a silent and well-structured university atmosphere and teachers who used various effective instructional approaches. Similarly, Fooladi [18] reported that a supportive educational experience and an interactive curriculum improved academic and clinical performance, as well as readiness to practice.

Conversely, Idmilao [19] found that lecturer-related factors, study habits and technological challenges had no significant influence on the academic performance of students in online learning situations. This disparity can be attributed to differences in learning styles, institutional support and adaptability to online learning.

Lastly, although recent research [20] observed a notable gender-specific gap in the academic achievement of nursing scholars, the same trend could not be observed in the present study. This discrepancy can be explained by differences in settings or cultures and emphasizes the necessity to conduct more research to investigate gender-related effects on academic achievement in various educational environments.

## CONCLUSIONS

The study concluded that the academic success of nursing students at Majmaah University is shaped by a complex combination of factors. Institutional and environmental elements, such as the learning environment, faculty activities, hospital-related factors and student-staff relationships, have a stronger association with overall perception.

## Recommendation and Implication for Practice

Faculty members should implement teaching methods that focus on students, offer meaningful feedback and maintain open communication with learners. Additionally, strengthening partnerships between colleges and affiliated hospitals is crucial to ensure that students receive respectful treatment, proper supervision and ample hands-on experience. Introducing academic advising and stress management workshops can help students develop coping strategies and enhance their academic resilience. Awareness initiatives should also be organized to enhance students' professional identity and drive. Lastly, conducting more longitudinal and experimental research is advised to investigate causal links and assess the effectiveness of programs designed to boost academic achievement.

## Limitations

Using a cross-sectional design, this study reflects the multidimensional factors influencing academic performance as perceived by nursing students; however, it does not establish a causal relationship between the studied factors and academic performance. In addition, the use of self-reported data may introduce bias, as participants might provide socially desirable responses rather than accurately reflecting their actual behaviours and perceptions.

Furthermore, because this study employed a cross-sectional design and the sample was drawn from a single institution, the generalizability of the findings is limited. Consequently, the findings may reflect the specific characteristics of the sample studied and may not be applicable to nursing students from diverse educational and cultural backgrounds in other countries.

## Ethical Statement

Ethical clearance was obtained from the Institutional Review Board (IRB) of Majmaah University (MUREC-Jan.15/COM-2024/I-1). All participants received information about the study, including the risks and benefits of the research and the type of information required. Each participant provided voluntary informed consent before participating in the study. All participants had the right to withdraw from the study without penalties. Privacy and confidentiality were assured and all data were securely stored.

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