

Original Article

A Cross-Sectional Comparative Study of Academic, Clinical, and Social Stress Among Undergraduate Nursing Students in Public and Private Institutions in Swat

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"Cite this Article" | Received: 21 January 2026; Accepted: 12 June 2026; Published: 30 June 2026.

ABSTRACT

Background: Undergraduate nursing students encounter academic, clinical, and social demands that may affect their well-being and educational performance, but evidence comparing stress across public and private institutions in Swat is limited. **Objective:** To determine academic, clinical, and social stress among undergraduate nursing students and compare stress-level distributions according to institutional sector, gender, and year of study. **Methods:** A multicentre comparative cross-sectional study included 237 second-, third-, and fourth-year nursing students from two public and two private institutions in Swat, Pakistan. Participants were recruited through convenience sampling and completed the 43-item Stress in Nursing Students questionnaire. Stress was classified as low, moderate, or severe. Data were analysed using descriptive statistics, Pearson's chi-square tests, Cramér's V, and unadjusted odds ratios with 95% confidence intervals. **Results:** Moderate academic, clinical, and social stress was reported by 62.0%, 59.9%, and 49.4% of participants, respectively. Severe stress was most frequent in the clinical domain (7.2%). Clinical stress differed by institutional sector ($p=0.043$), and public-sector students had higher odds of moderate or severe clinical stress than private-sector students (OR=1.83, 95% CI 1.06–3.17). Academic and social stress did not differ significantly by sector. Clinical stress varied by year of study ($p=0.033$), while academic and social stress were associated with gender ($p=0.042$ and $p<0.001$, respectively). **Conclusion:** Moderate stress was common across all domains, with the clearest institutional difference observed for clinical stress. Structured clinical preparation and student-support strategies are warranted, although adjusted and longitudinal studies are needed. **Keywords:** Nursing Students; Psychological Stress; Clinical Education; Academic Stress; Social Stress; Public Institutions; Private Institutions; Pakistan.

EDITORIAL INFORMATION

Author Contributions: Concept: ZI; Design: HA; Data Collection: MK, SK; Analysis: NK, SK; Drafting: SK, IA**Ethical Approval:** Rabbani Institute of Health Sciences, Kanju, Swat, Pakistan**Informed Consent:** Written informed consent was obtained from all participants**Conflict of Interest:** The authors declare no conflict of interest; **Funding:** No external funding; **Data Availability:** Available from the corresponding author on reasonable request; **Acknowledgments:** N/A.

INTRODUCTION

Stress is a multidimensional psychological and physiological response that develops when perceived demands exceed an individual's available coping resources. Although some degree of stress may promote adaptation and performance, persistent or excessive stress can adversely affect emotional well-being, cognitive functioning, concentration, memory, sleep, and academic performance (1–5). University students are particularly vulnerable because they must adapt to new academic expectations, social environments, financial responsibilities, and increasing personal independence. Within health-professions education, nursing students may experience an additional burden because their education combines demanding theoretical coursework with practical training in complex clinical environments (2,6,7).

Stress among nursing students may begin early in professional education and continue throughout academic and clinical training. Nursing programmes require students to acquire extensive theoretical knowledge, develop psychomotor and communication skills, complete frequent examinations and

assignments, and provide supervised care to patients with diverse and sometimes critical health conditions (8–10). Students may also experience separation from their families, financial difficulties, changing clinical placements, uncertainty about professional competence, and limited opportunities for leisure and recovery (11). Prolonged exposure to these demands may contribute to anxiety, depressive symptoms, sleep disturbance, reduced concentration, impaired learning, dissatisfaction with training, and diminished academic or clinical performance (4,12–16).

The principal sources of stress in nursing education can broadly be classified as academic, clinical, and social. Academic stress may arise from extensive course content, long theoretical and clinical hours, frequent assessments, fear of failure, competition for grades, and pressure to meet personal or family expectations (4,20–25). Students who perceive that their academic performance is below their expectations may experience reduced self-confidence and greater psychological distress, particularly when examinations and assignments coincide with clinical responsibilities (20,22,23).

Clinical education represents another important source of stress because it requires students to apply theoretical knowledge in unfamiliar healthcare environments. Nursing students may fear making errors, causing harm to patients, communicating with physicians and senior nursing staff, using unfamiliar equipment, or being evaluated while performing clinical procedures (2,4,8,13–16,26–29). The theory–practice gap, insufficient preparation for clinical responsibilities, exposure to illness and death, difficult interactions with patients or staff, and uncertainty regarding professional expectations may further intensify clinical stress (28,29). These concerns may be particularly pronounced when students begin clinical placements or progress to more technically demanding areas of practice.

Social stress may arise from financial pressures, family responsibilities, interpersonal difficulties, health concerns, inadequate sleep, limited recreation, and the challenge of balancing education with employment or domestic commitments (2,4,13,14,26,30,31). Nursing programmes frequently require substantial time commitments, which may restrict students' participation in family, social, and leisure activities. Financial stress may be especially relevant for students who must meet tuition and transportation expenses or undertake part-time work while completing their studies (14,31).

The intensity and distribution of these stressors may differ across educational settings. Public and private nursing institutions may vary in tuition costs, academic workload, faculty availability, student support, clinical supervision, laboratory resources, and access to clinical placements. Differences in these institutional conditions may influence how students perceive and respond to academic, clinical, and social demands. However, evidence directly comparing these stress domains among students enrolled in public and private nursing institutions in Swat remains limited. Understanding these patterns may help educational administrators identify priority areas for student support and develop contextually appropriate strategies to improve students' academic and clinical experiences.

Therefore, this study aimed to determine academic, clinical, and social stress among undergraduate nursing students and to compare the distribution of stress levels between selected public and private nursing institutions in Swat, Pakistan. The study also examined variations in stress levels according to gender and year of study.

MATERIALS AND METHODS

A multicentre comparative cross-sectional study was conducted among undergraduate nursing students enrolled in four nursing institutions in Swat, Pakistan. The participating public-sector institutions were the Khyber Medical University Institute of Health Sciences, Swat, and the Government College of Nursing, Swat, operating under the Provincial Health Services Academy. The participating private-sector institutions were Pak Swiss College of Nursing and Swat College of Nursing, both affiliated with Khyber Medical University. The comparative cross-sectional design was selected to determine the distribution of academic, clinical, and social stress and to compare these outcomes between students attending public and private institutions at a single period of assessment.

The target population comprised approximately 612 students enrolled in the four participating institutions. Students currently enrolled in the second, third, or fourth year of the Generic Bachelor of Science in Nursing programme were eligible to participate. First-year students were excluded because they had not yet acquired the academic and clinical exposure required for assessment of the study domains. Students who declined participation or did not provide informed consent were also excluded.

The required sample size was estimated from the total student population of approximately 612 using a 95% confidence level and a 5% level of precision. The resulting minimum sample was 237 students. Participants were recruited through non-probability convenience sampling from the four institutions. The final sample included 237 eligible nursing students who consented to participate and returned complete questionnaires.

Data were collected using a structured self-administered questionnaire consisting of demographic and stress-assessment sections. The demographic section recorded participants' age, gender, marital status, year of study, institution, and institutional sector. Stress was assessed using the Stress in Nursing Students questionnaire, an established instrument previously used to evaluate sources of stress among undergraduate nursing students (4). Permission to use the questionnaire was obtained from a researcher who had previously applied the instrument in a study of Saudi Arabian nursing students. The previously reported internal consistency of the questionnaire was high, with a Cronbach's alpha coefficient of 0.922 (4).

The questionnaire contained 43 items assessing three principal domains: academic stress, clinical stress, and social stress. Each item was rated on a five-point Likert scale ranging from 1, indicating that the situation was not stressful, to 5, indicating that it was extremely stressful. Item scores within each domain were summed to obtain the corresponding domain score, with higher scores indicating greater perceived stress. For descriptive classification, each participant's domain score was expressed relative to the maximum possible score for that domain. Scores of up to 50% of the maximum possible score were classified as low stress, scores above 50% and up to 85% were classified as moderate stress, and scores above 85% were classified as severe stress.

Following administrative permission from the participating institutions, questionnaires were distributed to eligible students in their classrooms. Before distribution, the purpose and procedures of the study were explained, and students were informed that participation was voluntary. Written informed consent was obtained from each participant. Students completed the questionnaire independently and were allowed approximately 15 minutes to respond. Members of the research team remained available to clarify procedural questions without influencing participants' responses. Completed questionnaires were collected immediately and reviewed for completeness.

To promote consistency in data collection, the same questionnaire, instructions, response scale, and approximate completion time were used across all participating institutions. Questionnaires were handled confidentially and stored securely, with access restricted to the research team. Personally identifying information was not used in the analysis or presentation of findings. Completed forms were checked before data entry, and responses were coded using a predefined coding system to reduce transcription and classification errors.

Data were entered and analysed using IBM SPSS Statistics version 27.0. Participant characteristics were summarized using frequencies and percentages for categorical variables and means with standard deviations, medians, ranges, minimum values, and maximum values for continuous variables, as appropriate. Academic, clinical, and social stress scores were summarized separately. Stress levels were classified as low, moderate, or severe according to the prespecified percentage-based thresholds.

Cross-tabulations were used to examine the distribution of academic, clinical, and social stress levels according to institutional sector, gender, and year of study. Public and private institutions were treated as the principal comparison groups. All analyses were conducted using the 237 complete questionnaires included in the final sample, and no participant-level observations were reconstructed or imputed.

Ethical approval was obtained from the Ethical Review Committee of the Khyber Medical University Institute of Health Sciences, Swat. Administrative permission was also obtained from the heads of the four participating institutions. Each participant received information regarding the purpose and potential benefits of the study, confidentiality of responses, voluntary participation, and the right to decline or discontinue participation without academic penalty. Written informed consent was obtained before questionnaire administration, and all collected information was maintained securely and used solely for research purposes.

RESULTS

A total of 237 undergraduate nursing students were included in the analysis. Their mean age was 22.32 ± 1.37 years, with a range of 19–27 years. Most participants were male (64.1%) and unmarried (91.6%). The sample was relatively evenly distributed across the second, third, and fourth years of study and between public and private institutions. The four participating institutions contributed between 22.4% and 26.6% of the total sample.

Table 1. Characteristics of the Study Participants

Characteristic	Overall, N = 237
Age, years, mean $\pm$ SD	22.32 $\pm$ 1.37
Age range, years	19–27
Gender, n (%)	
Male	152 (64.1)
Female	85 (35.9)
Marital status, n (%)	
Single/never married	217 (91.6)
Married	18 (7.6)
Separated or widowed	2 (0.8)
Year of study, n (%)	
Second year	72 (30.4)
Third year	81 (34.2)
Fourth year	84 (35.4)
Institutional sector, n (%)	
Public	121 (51.1)
Private	116 (48.9)
Institution, n (%)	
Khyber Medical University Institute of Health Sciences, Swat	61 (25.7)
Government College of Nursing, Swat	60 (25.3)
Pak Swiss College of Nursing	63 (26.6)
Swat College of Nursing	53 (22.4)

SD: standard deviation.

The clinical, academic, and social stress domains had mean scores of 38.53 ± 10.02 , 34.08 ± 8.93 , and 32.60 ± 8.86 , respectively. These raw means were not directly ranked because the theoretical score range and number of items within each domain were not clearly reported. Moderate stress was the predominant category in all domains. Academic stress had the largest moderate-stress proportion (62.0%), while clinical stress had the largest severe-stress proportion (7.2%).

Table 2. Stress Scores and Severity Distributions

Stress domain	Mean $\pm$ SD	Median	Observed range	Low, n (%)	Moderate, n (%)	Severe, n (%)
Clinical stress	38.53 $\pm$ 10.02	37	17–65	78 (32.9)	142 (59.9)	17 (7.2)
Academic stress	34.08 $\pm$ 8.93	33	17–58	81 (34.2)	147 (62.0)	9 (3.8)
Social stress	32.60 $\pm$ 8.86	31	15–59	109 (46.0)	117 (49.4)	11 (4.6)

SD: standard deviation. Percentages were calculated using N = 237.

The consolidated subgroup analysis is presented in Table 3. Institutional sector was significantly associated with clinical stress level ($\chi^2 = 6.31$, $p = 0.043$), although the magnitude of association was small (Cramér's $V = 0.16$). Moderate or severe clinical stress occurred in 73.6% of public-sector students and 60.3% of private-sector students. Public-sector students had higher unadjusted odds of moderate or

severe clinical stress than private-sector students (OR = 1.83, 95% CI 1.06–3.17). Academic and social stress did not differ significantly between institutional sectors.

Gender was significantly associated with academic stress ($p = 0.042$) and social stress ($p < 0.001$), but not with clinical stress. Male students were more frequently classified as having moderate academic and social stress, while female students were more frequently classified in the low-stress categories. Severe stress remained relatively uncommon in both groups.

Year of study was significantly associated with clinical stress ($p = 0.033$). Moderate clinical stress increased from 47.2% among second-year students to 60.5% among third-year students and 70.2% among fourth-year students. Academic and social stress distributions did not vary significantly across the years of study.

Table 3. Consolidated Subgroup Comparisons of Stress Levels

Comparison	Stress domain	Group	Low, n (%)	Moderate, n (%)	Severe, n (%)	χ^2	p-value	Cramér's V
Institutional sector	Clinical	Public, n = 121	32 (26.4)	77 (63.6)	12 (9.9)	6.31	0.043	0.16
		Private, n = 116	46 (39.7)	65 (56.0)	5 (4.3)			
Institutional sector	Academic	Public, n = 121	46 (38.0)	70 (57.9)	5 (4.1)	1.83	0.400	0.09
		Private, n = 116	35 (30.2)	77 (66.4)	4 (3.4)			
Institutional sector	Social	Public, n = 121	60 (49.6)	55 (45.5)	6 (5.0)	1.51	0.469	0.08
		Private, n = 116	49 (42.2)	62 (53.4)	5 (4.3)			
Gender	Clinical	Male, n = 152	52 (34.2)	93 (61.2)	7 (4.6)	4.23	0.121	0.13
		Female, n = 85	26 (30.6)	49 (57.6)	10 (11.8)			
Gender	Academic	Male, n = 152	45 (29.6)	103 (67.8)	4 (2.6)	6.36	0.042	0.16
		Female, n = 85	36 (42.4)	44 (51.8)	5 (5.9)			
Gender	Social	Male, n = 152	57 (37.5)	89 (58.6)	6 (3.9)	14.33	<0.001	0.25
		Female, n = 85	52 (61.2)	28 (32.9)	5 (5.9)			
Year of study	Clinical	Second, n = 72	33 (45.8)	34 (47.2)	5 (6.9)	10.46	0.033	0.15
		Third, n = 81	24 (29.6)	49 (60.5)	8 (9.9)			
		Fourth, n = 84	21 (25.0)	59 (70.2)	4 (4.8)			
Year of study	Academic	Second, n = 72	30 (41.7)	40 (55.6)	2 (2.8)	6.51	0.164	0.12
		Third, n = 81	20 (24.7)	56 (69.1)	5 (6.2)			
		Fourth, n = 84	31 (36.9)	51 (60.7)	2 (2.4)			
Year of study	Social	Second, n = 72	38 (52.8)	30 (41.7)	4 (5.6)	2.95	0.566	0.08
		Third, n = 81	37 (45.7)	41 (50.6)	3 (3.7)			
		Fourth, n = 84	34 (40.5)	46 (54.8)	4 (4.8)			

Percentages were calculated within each subgroup. p-values were obtained using Pearson's chi-square test. Cramér's V represents the strength of association. Bold values indicate $p < 0.05$.

For the principal institutional comparison, moderate and severe stress categories were additionally combined to estimate the odds of elevated stress. Public-sector students had significantly higher odds of elevated clinical stress than private-sector students, while the corresponding estimates for academic and social stress were not statistically significant.

Table 4. Unadjusted Odds of Moderate or Severe Stress in Public Versus Private Institutions

Stress domain	Public, n/N (%)	Private, n/N (%)	OR	95% CI	p-value
Clinical stress	89/121 (73.6)	70/116 (60.3)	1.83	1.06–3.17	0.038
Academic stress	75/121 (62.0)	81/116 (69.8)	0.70	0.41–1.21	0.220
Social stress	61/121 (50.4)	67/116 (57.8)	0.74	0.45–1.24	0.297

Private institutions were the reference category. OR: odds ratio; CI: confidence interval.

Overall, moderate stress was common across the three domains. The clearest institutional difference involved clinical stress, for which public-sector students had higher unadjusted odds of moderate or severe stress. Gender-related differences were identified for academic and social stress, and clinical stress varied across years of study. Because these analyses were unadjusted and based on cross-sectional data, the observed associations should not be interpreted as causal or independent effects.

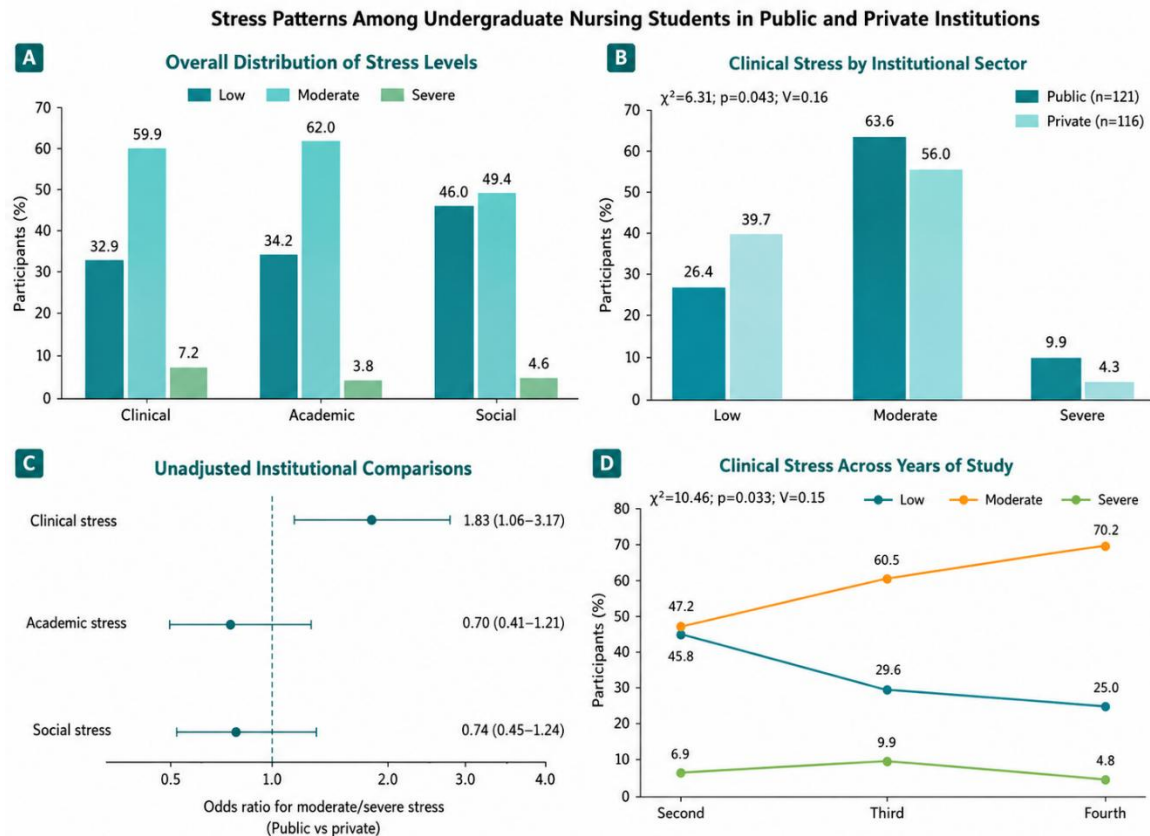


Figure 1. Academic, clinical, and social stress patterns among undergraduate nursing students. Panel A presents the overall distribution of low, moderate, and severe stress across the three domains. Moderate stress predominated for academic stress (62.0%), clinical stress (59.9%), and social stress (49.4%), whereas severe stress was most frequent in the clinical domain (7.2%). Panel B compares clinical stress categories between public and private institutions; public-sector students had lower prevalence of low clinical stress and higher prevalence of moderate and severe clinical stress than private-sector students ($\chi^2 = 6.31$, $p = 0.043$; Cramér's $V = 0.16$). Panel C presents unadjusted odds ratios for moderate or severe stress in public compared with private institutions. Public-sector students had higher odds of elevated clinical stress (OR = 1.83, 95% CI 1.06–3.17), while institutional differences in academic and social stress were not statistically significant. Panel D shows an increase in moderate clinical stress from the second year (47.2%) to the third year (60.5%) and fourth year (70.2%), with a significant overall association between clinical stress level and year of study ($\chi^2 = 10.46$, $p = 0.033$; Cramér's $V = 0.15$).

DISCUSSION

This multicentre comparative cross-sectional study found that moderate stress predominated across the academic, clinical, and social domains among undergraduate nursing students in selected public and private institutions in Swat. Academic stress had the largest proportion of students classified in the moderate category, whereas clinical stress had the largest proportion classified as severe. The institutional comparison showed a statistically significant, although small, association between institutional sector and clinical stress. Students attending public institutions had greater unadjusted odds of moderate or severe clinical stress than those attending private institutions. In contrast, academic and social stress distributions did not differ significantly between the two sectors. Gender was associated with academic and social stress categories, while year of study was associated with clinical stress.

The predominance of moderate stress across the three domains is consistent with evidence that nursing education exposes students to overlapping academic, clinical, and personal demands. Nursing students must manage theoretical coursework, examinations, assignments, clinical placements, patient-care responsibilities, and adaptation to the professional environment, often within the same academic period (2,4,6–8). Previous research has similarly shown that undergraduate nursing students experience considerable stress during their education and that stress may affect psychological well-being, concentration, academic performance, and adjustment to clinical practice (8,10–16). The present findings

therefore support the view that student stress should be considered a routine educational and institutional concern rather than an isolated problem affecting only a small subgroup.

Clinical stress had the greatest proportion of students in the severe category. Clinical placements may be particularly demanding because students are expected to transfer theoretical knowledge to patient care while working in unfamiliar environments and under direct observation. Fear of making mistakes, concern about patient safety, limited confidence in clinical skills, communication with healthcare personnel, exposure to suffering, and uncertainty about professional expectations have all been identified as important sources of clinical stress among nursing students (4,8,12,13,15,16). The first stages of clinical education may be stressful because of unfamiliarity, while later stages may introduce more complex responsibilities and greater expectations of independent performance.

Clinical stress was associated with institutional sector, and students in public institutions had 1.83 times the unadjusted odds of moderate or severe clinical stress compared with students in private institutions. The magnitude of association was small, indicating that institutional sector explained only a limited proportion of variation in clinical stress. Differences between sectors may reflect variation in clinical exposure, supervision, student-to-instructor ratios, placement organization, learning environments, or access to clinical skills preparation. These factors were not directly measured in the present study, and the observed relationship should consequently not be attributed to any specific institutional characteristic. Furthermore, the analysis was unadjusted, and differences in participant composition or other unmeasured factors may have contributed to the association.

Clinical stress also varied according to year of study. The proportion of students reporting moderate clinical stress increased from the second to the fourth year, while the proportion reporting low clinical stress declined. This pattern may reflect increasing clinical responsibilities, exposure to more complex patient-care situations, and higher expectations of professional competence as students progress through the programme. Earlier research has shown that stress during clinical education may vary by academic level and the nature of students' clinical experiences (4,12,13). Nevertheless, the cross-sectional design did not follow the same students over time; therefore, the observed differences cannot be interpreted as evidence that clinical stress necessarily increased within individual students as they advanced through the programme.

Academic stress was classified as moderate in nearly two-thirds of participants, making it the most frequent moderate stress category. Academic demands in nursing programmes may include extensive course content, frequent examinations, assignments, long academic and clinical hours, and pressure to achieve expected grades (18,20). Previous studies have linked academic stress among nursing students with workload, performance expectations, limited preparation time, and the need to balance classroom learning with clinical responsibilities (2,4,14,18,20). The findings indicate that academic stress was widely experienced in both sectors rather than being concentrated in one type of institution.

Although private-sector students had a descriptively larger proportion of moderate or severe academic stress, the institutional difference was not statistically significant. It would therefore be inappropriate to conclude that academic stress was more common in private institutions. The lack of a significant sectoral association suggests that academic pressure may arise from features shared across nursing programmes, including curriculum demands, assessments, progression requirements, and the integration of theoretical and clinical learning. Comparisons of continuous academic stress scores and adjusted analyses would be needed to determine whether more subtle institutional differences existed.

Gender was associated with academic stress categories. Male students were more frequently classified in the moderate category, whereas a larger proportion of female students were classified in the low category. Severe academic stress was uncommon in both groups. This distribution does not support a simple conclusion that one gender experienced universally greater academic stress. Previous studies have reported variable gender-related patterns, potentially reflecting differences in coping, social expectations, academic circumstances, or sample composition (14,17,18). Because the study used categorical rather

than adjusted continuous-score analysis, the observed association should be interpreted as a difference in distribution rather than evidence of a biologically or socially determined gender effect.

Social stress was generally less pronounced than the other domains, although approximately half of the participants experienced moderate social stress. Nursing students may experience social strain from family responsibilities, financial concerns, inadequate sleep, health problems, restricted leisure time, and difficulty balancing educational and personal commitments (2,14). The demanding structure of nursing education may limit students' participation in social and recreational activities, while some students may also undertake employment or family responsibilities during their studies (14).

Social stress did not differ significantly between public and private institutions. Consequently, the descriptive difference in moderate stress should not be interpreted as a meaningful sectoral effect. The study did not directly measure tuition expenses, family income, employment, accommodation, commuting, or financial dependence, and no conclusion can be drawn regarding the causes of social stress in either sector. Future investigations should incorporate these variables to determine which social and economic circumstances are most strongly associated with student stress.

A significant association was found between gender and social stress categories, with male students more frequently represented in the moderate category and female students more frequently represented in the low category. However, the proportion classified as severe was small in both groups. As with academic stress, these findings describe categorical distributions and do not establish that gender independently predicted social stress. Adjusted analysis would be needed to account for year of study, marital status, institutional sector, employment, financial circumstances, and other relevant variables.

The study has several practical implications. Nursing institutions should consider routine assessment of academic, clinical, and social stress and should develop support mechanisms that correspond to the sources identified by students. Clinical preparation may be strengthened through structured orientation, simulation, supervised skills practice, clear performance expectations, supportive feedback, and accessible clinical mentorship. Academic support may include coordinated assessment scheduling, study-skills guidance, academic counselling, and early identification of students experiencing persistent difficulty. Student-well-being initiatives should also address coping skills, peer support, time management, and access to confidential psychological or counselling services. These strategies should be evaluated prospectively rather than assumed to be effective.

The study's strengths included recruitment from four institutions, representation of both public and private sectors, assessment of three distinct stress domains, and use of an established nursing-stress questionnaire. The relatively balanced distribution between institutional sectors also supported direct descriptive comparison. The reconstructed analysis additionally distinguished statistically supported associations from purely descriptive differences.

Several limitations should be considered. The cross-sectional design precluded assessment of temporal relationships and causal inference. Convenience sampling may have introduced selection bias and limited representativeness. The study was conducted in four institutions within one geographical area, restricting generalizability to other nursing programmes or regions. Stress was self-reported and may have been affected by recall, interpretation, or social-desirability bias. First-year students were excluded, preventing assessment of stress during initial transition into nursing education. The percentage-based low, moderate, and severe cutoffs require stronger psychometric justification, and categorization may have reduced information contained in the continuous scores. The domain scores could not be standardized or directly compared because the manuscript did not report the number of items and theoretical score range for each domain. Reliability was cited from previous research rather than calculated for the current sample. The analyses were unadjusted and did not account for potential confounding or clustering of students within institutions. Important variables such as financial circumstances, employment, residence, prior clinical experience, coping strategies, mental-health history, and institutional learning conditions were not assessed. These limitations require cautious interpretation of the findings.

Future research should use probability-based sampling, clearly validated scoring thresholds, and prospective or longitudinal designs. Continuous stress scores should be analysed alongside clinically or psychometrically justified categories. Multivariable and multilevel analyses should account for individual characteristics and institutional clustering. Qualitative research may also help explain how students experience academic, clinical, and social stress and identify which institutional interventions are most acceptable and effective.

CONCLUSION

Moderate academic, clinical, and social stress was common among undergraduate nursing students in the selected institutions, while severe stress occurred most frequently in the clinical domain. Public-sector students had higher unadjusted odds of moderate or severe clinical stress than private-sector students, whereas academic and social stress did not differ significantly by institutional sector. Clinical stress varied by year of study, and academic and social stress distributions varied by gender. These findings support systematic assessment of student stress and targeted educational and well-being support, particularly in relation to clinical training, while longitudinal and adjusted analyses are required to clarify the determinants of the observed differences.

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