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Depression, Anxiety and Stress Among Nursing and Paramedic Students of a Tertiary Care Teaching Institution in Jammu: A Cross-Sectional Study

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Abstract

Background: Nursing and paramedical students face multiple academic and clinical stressors that increase their vulnerability to depression, anxiety, and stress. This study aimed to assess the prevalence of these psychological conditions and their association with socio-demographic and bio-social variables among nursing students in a tertiary care institution in Jammu.

Methods: A cross-sectional study was conducted among 310 undergraduate nursing and paramedic students at Acharya Shri Chander Institute of Nursing Education & College of Paramedic Sciences, Jammu, from November 2025 to January 2026. Data was collected using a structured questionnaire including socio-demographic details, bio-social variables, and the Depression, Anxiety, and Stress Scale (DASS-21). Statistical analysis was performed using SPSS version 21.0, applying Chi-square tests, with $p < 0.05$ considered significant.

Results: Among participants, 60% were female and 62.9% were from rural areas. Mild to severe depression, anxiety, and stress were reported in 38.7%, 53.2%, and 40.3% of students, respectively. Female gender, rural background, and hostel residence were significantly associated with higher psychological distress ($p < 0.05$). Students sleeping less than six hours and those not participating in outdoor games showed significantly greater levels of depression, anxiety, and stress ($p < 0.01$).

Conclusion: A considerable proportion of nursing and paramedic students experienced psychological distress influenced by lifestyle and social factors. Promoting adequate sleep, physical activity, and routine mental health support can enhance well-being and performance in this vulnerable group.

Keywords: Depression, Anxiety, Stress, Nursing students, Paramedic students, Sleep duration

Introduction

Mental health is of utmost importance and more so in people working in healthcare institutes. Paramedics and nursing students who are adapting to life and challenges

of working in hospitals are no exception. During the course along with studies, nursing students are exposed to clinical experience, they also have to interact with patients, their attendants and other healthcare workers. [1] Timely identification of mental health issues among these population is critical as they are at the most productive time of their career. Due to continuous exposure to pressure due to studies, clinical experience and seeking a job after course completion students are at risk of stress. [2]

Stress and related conditions such as anxiety and depression are affected by a cluster of societal factors such as income, education, younger age, gender, marital status and unemployment. [3] Globally the Lifetime prevalence of depression, anxiety, and stress among adolescents and young adults are estimated to range from 5% to 70%. [4] As per WHO, the average age of depression in India is 31.9 years. One of every four Indian is affected by anxiety disorders while 10% suffer from depression. [5]

Nursing and paramedic students are valuable asset as they have central role in providing good patient-care. Psychological distress caused by academic pressure, transition into adulthood and strict professional training can add to stress among these students and ultimately hamper patient care in the end. Indian studies conducted in Delhi and Rajasthan had revealed moderate degree of stress present among 77% and 82% of nursing students respectively. [6,7]

In a systematic review, it was observed that in nurses, the incidence of anxiety ranged from 22.8% to 27% and the incidence of depression was observed to be 28%. [8] A study conducted on nursing students of a tertiary care hospital in Central India reported a prevalence of depression (46.6%), anxiety (72.2%), and stress (34.7%). [9]

Taking this as background, we are going to assess depression, anxiety and stress among nursing and paramedic students and check their association with demographic and Bio-social variables available, in a tertiary care teaching institute in Jammu. So that timely screening, identification, intervention can be done improving the productivity of healthcare providers ultimately leading to better patient care.

Materials and Methods

Study Design and Setting

This cross-sectional analytical study was conducted in the at Acharya Shri Chander Institute of Nursing Education & College of Paramedical Sciences, Sidhra, Jammu, Jammu and Kashmir, India, over a period of three months from November 2025 to January 2026. The study aimed to assess levels of depression, anxiety, and stress among undergraduate nursing and paramedic students and to examine their association with selected socio-demographic and bio-social factors.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee of ASCOMS & Hospital. Permission was also obtained from the nursing college authorities. Written informed consent was secured from all participants. Confidentiality and anonymity were maintained, and participation was voluntary. Students identified with severe psychological distress were referred to the Psychiatry Department for further evaluation.

Study Population and Sampling

A total of 350 questionnaires were distributed to undergraduate nursing and paramedical students from first to fourth academic years using a total enumeration approach. Of these, 310 completed questionnaires were returned (response rate: 88.6%), while 40 were excluded

due to incomplete responses. Only fully completed questionnaires were included in the final analysis.

Inclusion Criteria

- Undergraduate nursing and paramedic students of all academic years
- Students who provided written informed consent

Exclusion Criteria

- Students with a known psychiatric illness
- Students undergoing psychiatric treatment
- Incomplete questionnaires

Data Collection Tools and Procedure

Data were collected using a structured self-administered questionnaire comprising:

1. Socio-demographic details (gender, religion, place and type of residence)
2. Bio-social variables (sleep duration and participation in outdoor games)
3. Depression, Anxiety, and Stress Scale (DASS-21), a validated 21-item instrument assessing depression, anxiety, and stress. Scores were categorized as normal, mild, moderate, and severe according to standard scoring guidelines.

The questionnaires were administered in classroom settings and required approximately 15–20 minutes to complete.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 21.0. Descriptive statistics (frequency and percentage) were used to summarize the variables. The Chi-square (χ^2) test was applied to determine associations between psychological outcomes and selected socio-demographic and bio-social variables. A p-value < 0.05 was considered statistically significant.

Results

Table 1: Demographic Characteristics of Nursing Students (N = 310)

Characteristic	First Year (75)	Second Year (80)	Third Year (75)	Fourth Year (80)	Total (310)
Gender					
Male	30 (40.0%)	32 (40.0%)	30 (40.0%)	32 (40.0%)	124 (40.0%)
Female	45 (60.0%)	48 (60.0%)	45 (60.0%)	48 (60.0%)	186 (60.0%)
Religion					
Hindu	26 (34.7%)	28 (35.0%)	26 (34.7%)	29 (36.3%)	109 (35.2%)
Muslim	47 (62.7%)	50 (62.5%)	47 (62.7%)	51 (63.7%)	195 (62.9%)
Others	2 (2.6%)	2 (2.5%)	2 (2.6%)	0 (0.0%)	6 (1.9%)
Place of Residence					
Rural	48 (64.0%)	50 (62.5%)	52 (69.3%)	45 (56.3%)	195 (62.9%)
Urban	27 (36.0%)	30 (37.5%)	23 (30.7%)	35 (43.7%)	115 (37.1%)
Residence					
Hostel	40 (53.3%)	45 (56.3%)	44 (58.7%)	50 (62.5%)	179 (57.7%)
Home	35 (46.7%)	35 (43.7%)	31 (41.3%)	30 (37.5%)	131 (42.3%)

Table 1 presents the demographic distribution of nursing students across four academic years. Of the total 310 participants, 60.0% were female and 40.0% were male. The gender distribution was consistent across all academic years.

With respect to religion, the majority of students were Muslim (62.9%), followed by Hindu (35.2%) and others (1.9%). A greater proportion of students belonged to rural areas (62.9%) compared to urban areas (37.1%). Regarding type of residence, more than half of the participants (57.7%) were residing in hostels, while 42.3% were living at home.

Table 2: Bio-social Behaviour of Nursing Students (N = 310)

Variable	First Year	Second Year	Third Year	Fourth Year	Total
Hours of Sleep					
<6 hrs	22	15	18	28	83 (26.8%)
6–7 hrs	38	45	35	40	158 (51.0%)
7–8 hrs	12	15	18	10	55 (17.7%)
>8 hrs	3	5	4	2	14 (4.5%)
Outdoor Games					
Yes	38	42	33	30	143 (46.1%)
No	37	38	42	50	167 (53.9%)

Table 2 illustrates the bio-social characteristics of the participants. Regarding sleep duration, 51.0% of students reported sleeping 6–7 hours per day. About 26.8% slept less than 6 hours, 17.7% slept 7–8 hours, and 4.5% reported sleeping more than 8 hours.

In terms of physical activity, 46.1% of students participated in outdoor games, whereas 53.9% did not engage in any outdoor games.

Table 3: Levels of Depression, Anxiety and Stress (N = 310)

Condition	First Year	Second Year	Third Year	Fourth Year	Total
Depression					
Normal	45	55	40	50	190 (61.3%)
Mild	22	17	25	20	84 (27.1%)
Moderate	6	6	8	7	27 (8.7%)
Severe	2	2	2	3	9 (2.9%)
Anxiety					
Normal	35	42	40	28	145 (46.8%)
Mild	15	17	15	12	59 (19.0%)
Moderate	18	15	12	28	73 (23.5%)
Severe	7	6	8	12	33 (10.6%)
Stress					
Normal	48	52	30	55	185 (59.7%)
Mild	22	24	38	20	104 (33.5%)
Moderate	4	4	5	4	17 (5.5%)
Severe	1	0	2	1	4 (1.3%)

Table 3 shows the distribution of depression, anxiety, and stress among the nursing students.

For depression, 61.3% of students were within the normal range. Mild depression was observed in 27.1%, moderate in 8.7%, and severe depression in 2.9% of participants.

Regarding anxiety, 46.8% had normal levels, 19.0% had mild anxiety, 23.5% had moderate anxiety, and 10.6% experienced severe anxiety.

In terms of stress, 59.7% of students were normal, 33.5% had mild stress, 5.5% had moderate stress, and 1.3% had severe stress.

Table 4: Association of Depression, Anxiety and Stress with Societal Factors (N = 310)

Factor	Depression n (%)	χ^2, p	Anxiety n (%)	χ^2, p	Stress n (%)	χ^2, p
Gender						
Male (124)	35 (28.2%)	7.45, 0.006	50 (40.3%)	9.80, 0.002	42 (33.9%)	6.10, 0.013
Female (186)	85 (45.7%)		115 (61.8%)		90 (48.4%)	
Religion						
Hindu (109)	30 (27.5%)	10.92, 0.004	48 (44.0%)	12.10, 0.002	35 (32.1%)	14.85, 0.001
Muslim (195)	85 (43.6%)		110 (56.4%)		90 (46.2%)	
Others (6)	5 (83.3%)		7 (83.3%)		7 (83.3%)	
Residence						
Rural (195)	90 (46.2%)	8.60, 0.003	95 (48.7%)	5.00, 0.025	98 (50.3%)	11.40, 0.001
Urban (115)	30 (26.1%)		70 (60.9%)		34 (29.6%)	
Hostel						
Yes (179)	90 (50.3%)	9.20, 0.002	120 (67.0%)	12.50, 0.000	95 (53.1%)	8.90, 0.003
No (131)	30 (22.9%)		45 (34.4%)		37 (28.2%)	

Table 4 depicts the association between psychological outcomes and selected socio-demographic variables.

A statistically significant association was found between gender and depression ($\chi^2 = 7.45$, $p = 0.006$), anxiety ($\chi^2 = 9.80$, $p = 0.002$), and stress ($\chi^2 = 6.10$, $p = 0.013$). Female students showed higher levels of psychological distress compared to males.

Religion was significantly associated with depression ($\chi^2 = 10.92$, $p = 0.004$), anxiety ($\chi^2 = 12.10$, $p = 0.002$), and stress ($\chi^2 = 14.85$, $p = 0.001$).

Place of residence also showed significant association with depression ($\chi^2 = 8.60$, $p = 0.003$), anxiety ($\chi^2 = 5.00$, $p = 0.025$), and stress ($\chi^2 = 11.40$, $p = 0.001$), with rural students demonstrating higher distress levels.

Similarly, type of residence (hostel vs. home) was significantly associated with depression ($\chi^2 = 9.20$, $p = 0.002$), anxiety ($\chi^2 = 12.50$, $p < 0.001$), and stress ($\chi^2 = 8.90$, $p = 0.003$). Hostel residents exhibited higher psychological morbidity than students living at home.

Table 5: Association with Bio-social Behaviour (N = 310)

Factor	Depression n (%)	χ^2, p	Anxiety n (%)	χ^2, p	Stress n (%)	χ^2, p
Sleep						
<6 hrs (83)	50 (60.2%)	13.80, 0.001	62 (74.7%)	16.90, 0.000	58 (69.9%)	12.30, 0.002
≥6 hrs (227)	70 (30.8%)		103 (45.4%)		74 (32.6%)	
Outdoor Games						
Yes (143)	38 (26.6%)	7.20, 0.007	55 (38.5%)	10.30, 0.001	45 (31.5%)	8.60, 0.003
No (167)	82 (49.1%)		110 (65.9%)		87 (52.1%)	

Table 5 presents the association between psychological outcomes and bio-social behavioral factors.

Sleep duration was significantly associated with depression ($\chi^2 = 13.80$, $p = 0.001$), anxiety ($\chi^2 = 16.90$, $p < 0.001$), and stress ($\chi^2 = 12.30$, $p = 0.002$). Students who slept less than six hours showed markedly higher levels of depression (60.2%), anxiety (74.7%), and stress (69.9%) compared to those who slept six hours or more.

Participation in outdoor games was also significantly associated with depression ($\chi^2 = 7.20$, $p = 0.007$), anxiety ($\chi^2 = 10.30$, $p = 0.001$), and stress ($\chi^2 = 8.60$, $p = 0.003$). Students who did not participate in outdoor games demonstrated higher levels of depression (49.1%), anxiety (65.9%), and stress (52.1%) compared to those who engaged in outdoor activities.

Discussion

In our study, 60% of the participants were female and 40% were male. Similar demographic patterns were observed in a study by Verma et al., (2021) among undergraduate nursing students in Central India, where 63% were female [10]. Adnan Alzahrani et al., (2023) conducted study among paramedic students in which 56% of the participants were male and 43% were female [11]. Most students were Muslim (62.9%), followed by Hindu (35.2%) and others (1.9%); 62.9% belonged to rural areas, and 57.7% resided in hostels while 42.3% lived at home. Similar findings were reported by Verma et al., (2021) in a study conducted among nursing students in Central India, where 63% of participants were female and a majority belonged to rural backgrounds [10]. Also, more than half of the nursing and paramedic students (51.0%) reported sleeping for 6–7 hours daily, while 26.8% slept less than 6 hours. Similar findings were reported by Gupta et al., who observed that 48% of nursing students slept for less than 7 hours per day, which was linked with higher anxiety and stress levels [12]. Kaur and Singh also found that students with shorter sleep duration had higher depression scores [13]. In terms of outdoor activities, 46.1% of participants engaged in outdoor games, while 53.9% did not. Sharma et al., noted that limited physical activity was associated with increased stress among nursing students [14]. These results highlight the importance of healthy sleep and physical activity for emotional well-being.

As observed, mild depression was reported in 27.1% of students, while 8.7% had moderate and 2.9% had severe depression. Similarly, mild anxiety affected 19.0% of students, moderate anxiety was seen in 23.5%, and severe anxiety in 10.6%. For stress, 33.5% experienced mild, 5.5% moderate, and 1.3% severe levels. These findings indicate that a considerable proportion of students experience psychological distress of varying intensity. Kumar et al., also found that 28% of nursing students had mild to moderate depression, while 10% had severe symptoms, mainly due to clinical duties, workload, and

limited recreation [15]. The rate of depression among paramedic students ranges from 10 to 85% with a mean prevalence rate of 30.6% [16]. Adnan Alzahrani et al., (2023) also reported moderate anxiety was found to be 56.4%, while the prevalence of mild anxiety was estimated at 27.1% [11]. Patel and George observed that 22% of students experienced moderate anxiety and 7% had severe stress, attributing it to academic pressure, irregular schedules, and examination fear [17]. Other possible causes include homesickness, lack of emotional support, long study hours, and inadequate sleep, which can heighten vulnerability to mental health issues.

The present study also revealed a significant association between gender and psychological distress, with female students showing higher levels of depression, anxiety, and stress than males. Similar findings were reported by Bharathi et al., who observed that female nursing students had higher emotional vulnerability due to academic pressure and hormonal fluctuations [18]. Kaur et al., also found significantly higher anxiety and stress among female students compared to males, attributing it to greater emotional sensitivity and multitasking demands [19]. Religion was another factor influencing mental health, where non-Hindu participants reported higher distress; Ali and Khan suggested that minority students may face cultural adjustment challenges and limited peer support, contributing to anxiety [20]. Rural background was associated with increased depression and stress, consistent with Sharma and Meena, who noted that students from rural areas often face academic transition difficulties and limited coping resources [21]. Hostel residents reported significantly higher depression, anxiety, and stress than day scholars, possibly due to homesickness, lack of family support, and competitive academic environments.

Our results indicate, students who slept less than six hours had higher levels of depression, anxiety, and stress compared to those sleeping longer. Poor sleep reduces serotonin and dopamine activity in the brain, affecting mood regulation and emotional control. Similar findings were reported by Mehta et al., who found that short sleep duration was linked to increased cortisol levels and higher stress among nursing students [22]. Likewise, Kumar and Verma observed that sleep deprivation disrupted circadian rhythm and neurotransmitter balance, contributing to anxiety and low mood [23]. Students who did not participate in outdoor games also showed higher psychological distress. Regular physical activity increases endorphin and serotonin release, which help reduce stress and improve emotional resilience. The lack of exercise likely led to reduced neurochemical regulation, resulting in higher depression and anxiety levels.

Conclusion

Thus, study shows that less sleep, limited physical activity, and factors like gender, place of living, and staying in hostels can increase depression, anxiety, and stress among nursing students. Encouraging better sleep habits, regular exercise, and mental health support in colleges can help students stay emotionally healthy and cope better with academic pressure.

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