DOI: 10.7860/JCDR/2023/63342.18589

Original Article

Public Health Section

Stress, Anxiety, and Depression among Nursing Students at a Tertiary Teaching Hospital in Karnataka, India: A Cross-sectional Study

RACHANA K NAIR[1], MANSOOR AHMED[2]

ABSTRACT

Introduction: Nursing students are valuable human resources in the health profession. During their student life, they face a great deal of stress, which can negatively affect their mental and physical health, as well as their academic performance. However, there is limited evidence regarding stress, anxiety, and depression among nursing students in Karnataka, India.

Aim: To estimate the prevalence of stress, anxiety, and depression among nursing students and determine the factors associated with these conditions amongst them.

Materials and Methods: A cross-sectional study was conducted at Department of Community Medicine, Mysore Medical College and Research Institute, Mysuru from March 2022 to August 2022, involving 200 undergraduate nursing students. The study included nursing students from the 1st year to the 4th year. Data was obtained using a predesigned and pretested questionnaire consisting of two parts: the first part collected details on socio-demographic and academic parameters, and the second part assessed psychological parameters using the Depression, Anxiety and Stress scale (DASS) 21 Scale. Data were entered into an excel spreadsheet and presented as frequencies and percentages using Statistical Package for Social Sciences (SPSS) software version 24.0. Factors associated with stress, anxiety, and depression were analysed using the Chi-square test, with a p-value <0.05 considered statistically significant.

Results: A total of 200 nursing students participated in the study. The mean age of the participants was 20.22 years, with a standard deviation of 1.42. A total of 39 students (19.5%) reported moderate stress, while 26 (13%) reported severe to extremely severe stress. Approximately 35 (25%) participants experienced moderate to severe depression. Among the participants, 63 (31.5%) reported moderate anxiety, while 78 (39%) reported severe to extremely severe levels of anxiety. Factors such as academic year, lack of time for leisure activities, financial crisis in the family, and addiction to internet use were significantly associated with stress (p<0.05).

Conclusion: The prevalence of depression, anxiety, and stress was high among nursing students in the study. These statistics can help nursing educators understand the challenges faced by nursing students and assist in promoting the quality of clinical practice.

Keywords: Academic year, Internet use, Junk food, Leisure activities

INTRODUCTION

Nursing involves the autonomous and collaborative care of individuals of all ages, families, groups, and communities, whether they are sick or healthy, in any context. It encompasses health promotion, sickness prevention, and care for the sick, disabled, and dying [1]. One of the major groups involved in this field is nursing students, who are valuable human resources in the healthcare profession. From the beginning, these prospective nurses are exposed to real-time and on-the-ground educational experiences. They have the potential to become leaders in recognising and addressing future health equity and social justice concerns amidst global health catastrophes [2].

Stress can be defined as any type of change that causes physical, emotional, or psychological strain [3]. Anxiety is an emotion characterised by feelings of tension, worried thoughts, and physical changes like increased blood pressure [4]. Depression is a common mental disorder characterised by sadness, loss of interest, feelings of guilt, low self-worth, disturbed sleep, and poor concentration [5].

According to the World Health Organisation, mental health disorders are a leading cause of disability globally, with approximately 970 million people experiencing common mental diseases such as anxiety and depression [6]. In India, in 2017, 197.3 million people had mental disorders, of which 45.7 million had depressive disorders and 44.9 million had anxiety disorders [7]. It is increasingly evident that mental, physiological, and social aspects of existence are profoundly interconnected for all individuals. Therefore, it becomes increasingly clear that mental health is critical to an individual, society, and a country's overall well-being [6].

Undoubtedly, nursing is a lucrative and satisfying career in healthcare. It offers certain advantages, but it also entails a demanding and rigorous schedule [8]. Throughout their studies, nursing students experience high levels of stress and anxiety [8]. Various stress-inducing events during their education, such as adjusting to a new university environment, academic workload, pressure to excel academically, uncertainty about the future, homesickness, and staying in hostels, can have negative impacts on their academic and clinical performance, as well as their physical and mental well-being [8]. Previous studies conducted among nursing students worldwide have indicated high rates of depression, anxiety, and stress [9-11].

Stress, anxiety, and depression can hinder learning, adversely affect academic performance, and ruin clinical practice. Therefore, raising awareness about the prevalence and factors associated with these mental health disorders in nursing students is important for a better understanding of the determinants of mental health among these future health professionals. This understanding can help formulate more effective strategies for prevention. Since data on prevalence and associated factors are limited in the Karnataka region, the present study was designed to estimate the prevalence of stress, anxiety, and depression among nursing students in the Mysuru district of Karnataka and to identify the factors associated with these conditions.

MATERIALS AND METHODS

A cross-sectional study was conducted at Department of Community Medicine, Mysore Medical College and Research Institute, Mysuru,

Karnataka, India from March 2022 to August 2022 among undergraduate nursing students at the Nursing College, Ethical clearance was obtained from the Institutional Ethical Committee, and informed consent was obtained from the Nursing College and the students before data collection.

Sample size calculation: The sample size was calculated to be 200 using the single proportion formula, Z^2pq/d^2, considering a prevalence of stress among nursing students to be 46.9% [12]. There were a total of 100 students in each year of the 4-year nursing course. To reach the sample size of 200, 50 students from each year were selected using simple random sampling technique with the help of Tippet's random number table. The ID numbers of the selected students were obtained from the administrative block.

Inclusion and Exclusion criteria: All undergraduate nursing students who were willing to participate were included in the study. Those who were not willing to participate, absent even after three visits, or taking any kind of antipsychotic medication were excluded.

Study Procedure

Data was collected through interviews using a predesigned and pretested questionnaire consisting of two parts. Part one collected socio-demographic details like age, gender, permanent residence, current place of stay, marital status, and presence of financial crisis in the family. Financial crisis was defined as students whose parents did not have a permanent source of income and/or who paid their fees by taking loans. Academic and lifestyle parameters like academic year, academic schedule, tendency to skip meals, internet use, time for leisure activities (indoor or outdoor games considered as leisure activities), smoking, alcohol, and junk food consumption were also included [12,13]. Part two included psychological parameters based on the DASS 21 scale [14]. The DASS 21 scale information was collected using a Likert scale of 0 to 3 (0-never applied, 1-applied sometimes, 2-applied often, 3-applied almost always). Scores equal to or greater than 8, 10, and 15 were considered indicative of anxiety, depression, and symptoms of stress, respectively. Stress, anxiety, and depression were categorised as normal, mild, moderate, severe, and extremely severe [Table/Fig-1].

Categories	Stress	Anxiety	Depression
Normal	0-14	0-7	0-9
Mild	15-18	8-9	10-13
Moderate	19-25	10-14	14-20
Severe	26-33	15-19	21-27
Extremely severe	≥34	≥20	≥28

[Table/Fig-1]: Categorisation of stress anxiety and depression based on DASS scale [14].

STATISTICAL ANALYSIS

Data was entered into MS excel and analysed using SPSS version 24.0. Descriptive analysis was done to assess socio-demographic and academic parameters, which were expressed as frequencies and percentages. The main outcome variables, like stress, anxiety, and depression, were analysed and presented as frequencies and percentages. Socio-demographic and academic factors associated with the outcome variables were analysed using the Chi-square test, and a p-value of less than 0.05 was considered statistically significant.

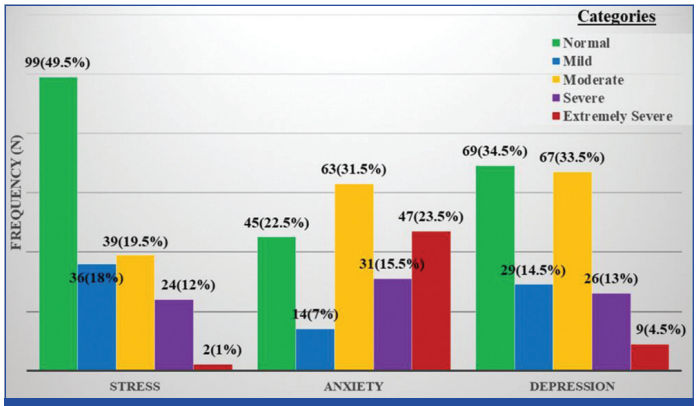
RESULTS

A total of 200 nursing students participated in the study, with a mean age of 20.22 years and a standard deviation of 1.425. Among the 200 students, 141 (70.5%) were females and 59 (29.5%) were males. Approximately 173 (58.5%) stayed in hostels, while 27 (13.5%) stayed at home. A total of 194 (97%) were single, and the remaining 6 (3%) were married. About 163 (81.5%) were experiencing a financial crisis in their families [Table/Fig-2]. Among the participants, 6 (3%) smoked cigarettes, while 10 (5%) consumed alcohol.

Characteristics	Frequency (n)	Percentage (%)
Age		
18-20 years	99	49.5
21-23 years	99	49.5
24-26 years	2	1
Gender		
Male	59	29.5
Female	141	70.5
Residence		
Urban	117	58.5
Rural	83	41.5
Current stay		
Hostel	173	86.5
Home	27	13.5
Marital status		
Single	194	97
Currently married	6	3
Financial crisis		
Yes	163	81.5
No	37	18.5

[Table/Fig-2]: Distribution of socio-demographic factors among study population N=200.

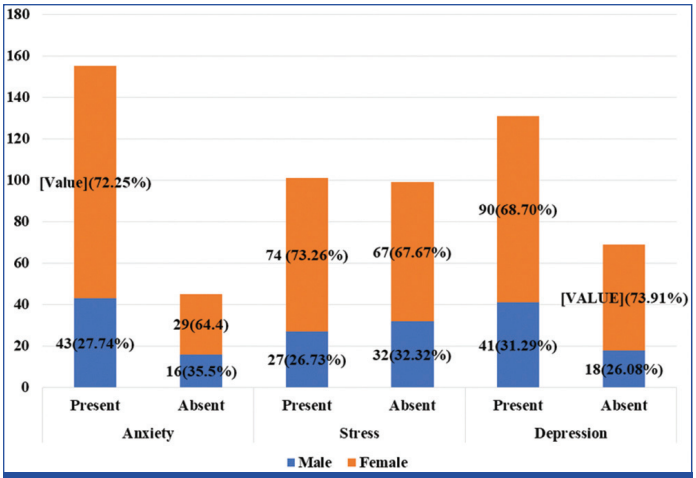
Among the 101 participants who were stressed, 39 (19.5%) had moderate stress, 24 (12%) had severe stress, and 2 (1%) were extremely stressed. Among the 155 participants who experienced anxiety, 63 (31.5%) had moderate anxiety, 31 (15.5%) had severe anxiety, and 47 (23.5%) were extremely anxious. Regarding depression, 29 (14.5%) were mildly depressed, 67 (33.5%) were moderately depressed, 26 (13%) were severely depressed, and 9 (4.5%) were extremely severely depressed. Overall, 131 (65.5%), 155 (77.5%), and 101 (50.5%) participants suffered from depression, anxiety, and stress, respectively [Table/Fig-3].



[Table/Fig-3]: Distribution of stress, anxiety and depression among study population.

Among the participants who were anxious, 112 (72.25%) were females, and 43 (27.74%) were males. From [Table/Fig-4], it is clear that 74 (73.26%) of females were stressed, while 27 (26.73%) of males were stressed. Among the depressed participants, 90 (68.70%) were females, and 41 (31.29%) were males [Table/Fig-4].

Among the 74 participants who did not have time for leisure activities, 49 (66.2%) were stressed ($p<0.05$). Students who skipped meals (58%) were found to be more stressed than those who did not skip meals (41%) ($p<0.05$). Out of the 163 students who had



[Table/Fig-4]: Gender-wise distribution of variable.

a financial crisis in their families, more than 50% (91) of them were stressed (p<0.05). Among those who used the internet for more than two hours, approximately 60% were found to be stressed, while only 37% of students who used the internet for less than two hours were found to be stressed (p<0.05). Participants who consumed junk food more than two times a day were found to be more stressed than others (p<0.05) [Table/Fig-5].

Factors	Stress		Total	p-value*
	Yes (%)	No (%)		
Academic year				
1st year	21 (42)	29 (58)	50	<0.05*
2nd year	19 (38)	31 (62)	50	
3rd year	33 (66)	17 (34)	50	
4th year	28 (56)	22 (44)	50	
Time for leisure activities				
Yes	52 (41.26)	74 (58.73)	126	0.019*
No	49 (66.21)	25 (33.78)	74	
Skip meals				
Yes	60 (58.82)	42 (41.170	102	<0.05*
No	41 (41.83)	57 (58.16)	98	
Financial crisis				
Yes	91 (55.8)	72 (45.82)	163	0.002*
No	10 (27.02)	27 (72.97)	37	
Academic schedule				
Easy	18 (30.51)	41 (69.49)	59	<0.01*
Difficult	83 (58.86)	58 (41.13)	141	
Internet use				
<30 minutes	3 (33.33)	6 (66.66)	9	0.010*
30 minutes-1 hour	12 (44.44)	15 (55.55)	27	
1 hour-2 hour	18 (34.61)	34 (65.38)	52	
>2 hour	68 (60.71)	44 (39.28)	112	
Junk food per day				
1-2 times	39 (35.45)	71 (64.54)	110	<0.01*
>2 times	62 (68.88)	28 (31.11)	90	

[Table/Fig-5]: Association of academic and lifestyle factors with stress among participants.
Test applied: Chi-square test. *p-value <0.05 is considered significant

Among the 50 students in the 4th academic year, 46 (92%) were found to be anxious, compared to 33 (66%) in the third academic year, and this difference was statistically significant (p=0.017). Students who used the internet for more than two hours were found to be more anxious compared to students who used the internet for less than 30 minutes, and this difference was also statistically significant (p=0.010) [Table/Fig-6].

Factors	Anxiety		Total	p-value*
	Yes	No		
Academic year				
1st year	39 (78)	11 (22)	50	0.017*
2nd year	37 (74)	13 (26)	50	
3rd year	33 (66)	17 (34)	50	
4th year	46 (92)	4 (8)	50	
Time for leisure activities				
Yes	93 (73.81)	33 (26.19)	126	0.103
No	62 (83.78)	12 (16.21)	74	
Skip meals				
Yes	75 (73.6)	27 (26.4)	102	0.170
No	80 (81.6)	18 (18.3)	98	
Financial crisis				
Yes	130 (79.7)	33 (20.2)	163	0.109
No	25 (67.5)	12 (32.4)	37	
Academic schedule				
Easy	38 (64.4)	21 (34.4)	59	0.004*
Difficult	117 (82.9)	24 (17.1)	141	
Internet use				
<30 minutes	5 (55.5)	4 (44.4)	9	0.010*
30 minutes-1 hour	20 (74.11)	7 (25.9)	27	
1 hour-2 hour	34 (65.3)	18 (34.6)	52	
>2 hour	96 (85.7)	16 (14.2)	112	
Junk food per day				
1-2 times	82 (74.5)	28 (25.4)	110	0.269
>2 times	73 (81.1)	17 (18.8)	90	

[Table/Fig-6]: Association of academic and lifestyle factors with anxiety among participants.
Test applied: Chi-square test. *p-value <0.05 is considered significant

Approximately 75% of the students who did not have leisure time were depressed, while 51 (40.4%) of the students who had leisure time were not depressed (p<0.05). Out of the 163 students who had a financial crisis, 118 (72%) participants were depressed, whereas among the 37 students who did not have a financial crisis, approximately 13 (35%) developed depression (p<0.05). Students who consumed junk food more than two times per day (75%) were found to be depressed compared to students who consumed less (57%) [Table/Fig-7].

Factors	Depression		Total	p-value*
	Yes	No		
Academic year				
1st year	32 (64)	18 (36)	50	0.646
2nd year	30 (60)	20 (40)	50	
3rd year	33 (66)	17 (34)	50	
4th year	36 (72)	14 (28)	50	
Time for leisure activities				
Yes	75 (59.5)	51 (40.5)	126	0.020*
No	56 (75.7)	18 (24.3)	74	
Skip meals				
Yes	69 (67.6)	33 (32.3)	102	0.515
No	62 (63.3)	36 (36.7)	98	
Financial crisis				
Yes	118 (72.4)	45 (27.6)	163	<0.01*
No	13 (35.1)	24 (64.9)	37	
Academic schedule				
Easy	35 (59.3)	24 (40.7)	59	0.234
Difficult	96 (68)	45 (32)	141	

Internet use				
<30 minutes	5 (55.5)	4 (44.4)	9	0.558
30 minutes-1 hour	16 (59.3)	11 (40.7)	27	
1 hour-2 hour	32 (61.5)	20 (38.5)	52	
>2 hour	78 (69.6)	34 (30.3)	112	
Junk food per day				
1-2 times	63 (57.3)	47 (42.7)	110	0.007*
>2 times	68 (75.5)	22 (24.5)	90	

[Table/Fig-7]: Association of academic and lifestyle factors with depression among participants.
Test applied: Chi-square test. *p-value <0.05 is considered significant

DISCUSSION

In the study, among 200 participants, 50.5% had stress, 77.5% had anxiety, and 65.5% suffered from depression. Furthermore, females were found to be more susceptible to stress, depression, and anxiety compared to males. Factors such as lack of leisure time, tendency to skip meals, financial crisis in the family, challenging academic schedules, excessive internet use (more than two hours), and high junk food consumption were significantly associated with stress among the participants ($p<0.05$). Similarly, lack of leisure time, financial crisis in the family, and high junk food consumption were significantly associated with depression among the study participants ($p<0.05$).

In the present study, more than half of the students (51%) were found to be stressed. This finding is consistent with other studies conducted by Das BN et al., Sachan N et al., and Kalkan Y et al., [12,13,15]. This could be attributed to the stressful routine faced by nursing students. Similarly, in the case of anxiety, more than half of the students (77.5%) were found to experience anxiety. This finding is in line with the studies done by Das BN et al., Sachan N et al., Kalkan Y et al., Verma P et al., and Baruah C et al., [12,13,15-17]. However, studies by Cheung T et al., and Ramón-Arbués E et al., reported that less than 50% of students experienced anxiety [18,19]. This discrepancy could be due to differences in the tools used to assess anxiety or variations in the strictness of discipline enforced during professional courses in India. In the present study, approximately 65.5% of students were found to be depressed. This finding is consistent with the studies conducted by Das BN et al., Sachan N et al., Kalkan Y et al., and Baruah C et al., [12,13,15,17].

The majority of students in the 4th year (56%) were found to be stressed compared to students in the other three years. This finding is consistent with the findings of Das BN et al., and Singh N and Kohli C [12,20]. This could be attributed to the burden of preparing for the final examination and self-doubt regarding passing it.

In the present study, difficult academic schedules and a lack of time for leisure activities were identified as major stressors. These findings align with the findings of studies by Dhar R et al., and Nicholl H and Timmins F [21,22]. The majority (92%) of 4th-year students and approximately 78% of 1st-year students were found to be experiencing anxiety. This may be due to the difficulty of preparing for the final examination or the challenges of transitioning to hostel life and being separated from their families.

Inadequate time for leisure activities, addiction to internet use, junk food consumption, financial crisis in the family, and difficult academic schedules were found to be associated with stress, anxiety, and depression among the participants. Similar associations were found in studies by Das BN et al., Verma P et al., and Baruah C et al., [12,16,17]. Additionally, Das BN et al., found that gender was associated with stress among nursing students [12]. Another study by Kalkan Y et al., found that the academic year of the students was significantly associated with stress, anxiety, and depression [Table/Fig-8] [12,13,15-19].

Author/Year	Place	Depression	Anxiety	Stress	Associated factors
Das BN et al., 2012 [12]	Odisha	-	-	79%	Academic schedule, gender
Cheung T et al., 2016 [18]	Hong Kong	35.8%	37.3%	41%	-
Sachan N et al., 2020 [13]	Lucknow	62.3%	71%	50.66%	-
Ramón-Arbués E et al., 2020 [19]	Spain	18.4%	23.6%	34.5%	Internet use addictions
Kalkan Y et al., 2020 [15]	Turkey	58.2%	53.8%	65.9%	Academic year, Body mass index
Das BN et al., 2021 [12]	Telangana	67.7%	85.3%	46.9%	Academic year, Leisure activities, academic schedule
Verma P et al., 2021 [16]	Bhopal	46.5%	72.15%	34.65%	Leisure activities, academic schedule
Baruah C et al., 2022 [17]	Assam	55.1%	63.1%	29.9%	Mother's occupation, leisure activities, academic schedule
Present study 2023	Mysuru	65.5%	77.5%	50.5%	Academic year, academic schedule, internet use, consumption of junk food, skipping meals, financial crisis and time for leisure activities

[Table/Fig-8]: Comparison of present study results with other studies [12,13,15-19].

Nursing educators should plan and implement stress management programs and relaxation/meditation strategies that incorporate feedback mechanisms to help students cope with the daily challenges of both their professional and personal lives. It would be highly beneficial to arrange leisure activities such as sports and hobbies to prevent stress and burnout among the students.

Limitation(s)

A longitudinal study design may be helpful in capturing the trend of stress, anxiety, and depression over the entire duration of the course. This type of study can be planned by future researchers to gain a deeper understanding of these mental health issues among nursing students.

CONCLUSION(S)

The majority of nursing students suffer from anxiety and stress, while one-third suffer from depression. Risk factors that contribute to both anxiety and stress include high internet use and the difficulties associated with academic teaching. It is crucial for nursing students to undergo mental disorder screening in order to identify those at risk and provide them with appropriate counselling and support.

REFERENCES

[1] Nursing and Midwifery [Internet]. [cited 2022 Aug 16]. Available from: https://www.who.int/health-topics/nursing#tab=tab_1.
[2] Nursing students report on experience at World Health Assembly | ICN- International Council of Nurses [Internet]. [cited 2022 Aug 16]. Available from: https://www.icn.ch/news/nursing-students-report-experience-world-health-assembly.
[3] Stress [Internet]. Available from: https://www.who.int/news-room/questions-and-answers/item/stress.
[4] Anxiety [Internet]. Available from: https://www.apa.org/topics/anxiety.
[5] Depression [Internet]. Available from: https://www.who.int/news-room/fact-sheets/detail/depression.
[6] Mental disorders [Internet]. [cited 2023 Jun 5]. Available from: https://www.who.int/news-room/fact-sheets/detail/mental-disorders.
[7] World Health Organization. Regional Office for South-East Asia. Addressing mental health in India (Country Report). 2022;20.

[8] Das S, Baby P. Perceived stress and its association with selected factors among nursing students in a baccalaureate programme. researchgate.net. 2012;2(4):215-17.
[9] Tapariya JH. Level of stress, anxiety and depression among nursing students. Int J Indian Psychology. 2020;8(2):01-06.
[10] Mohamed Abo-El yzeed S. Stress, anxiety, and depression among baccalaureate nursing students. Int J Nov Res Healthc Nurs. 2022;5:544-59.
[11] Telgote S, Jadhao A. Depression, anxiety and stress among government nursing college students in akola: A college based study. J Evol Med Dent Sci. 2017;6(90):6297-300.
[12] Das BN, Mohandas A, Syed S. Study of stress, anxiety, depression and coping strategies among nursing students in a tertiary care teaching hospital, South India. Int J Community Med Public Heal. 2021;8(7):3400-05.
[13] Sachan N, Yadav N, Masih P, Spencer P, Gautam R, Rawat R, et al. Depression, anxiety and stress among nursing students. Asian J Nurs Educ Res. 2022;12(1):70-74.
[14] Depression Anxiety Stress Scales-Short Form (DASS-21)-NovoPsych [Internet]. [cited 2023 Aug 14]. Available from: https://novopsych.com.au/assessments/depression/depression-anxiety-stress-scales-short-form-dass-21/.
[15] Kalkan Y, Mataraci D, Durgun H. The examination of the relationship between nursing students' depression, anxiety and stress levels and restrictive, emotional, and external eating behaviors in COVID-19 social isolation process. Perspect Psychiatr Care. 2020;57(2):507-16.
[16] Verma P, Verma M, Lahri B, Pakhare A, Das S. Study of depressive, anxiety, and stress symptoms and their associated risk factors among undergraduate nursing students in central India: A cross-sectional study. J Prim Care Spec. 2021;2(3):80.
[17] Baruah C, Saikia H, Gupta K, Ohri P. Prevalence and correlates of depression, anxiety and stress among nursing students. Indian J Community Heal. 2022;34:259-64.
[18] Cheung T, Wong SY, Wong KY, Law LY, Ng K, Tong MT, et al. Depression, anxiety and symptoms of stress among baccalaureate nursing students in Hong Kong: A cross-sectional study. Int J Environ Res Public Heal. 2016;13(8):779.
[19] Ramón-Arbués E, Gea-Caballero V, Granada-López JM, Juárez-Vela R, Pellicer-García B, Antón-Solanas I. The prevalence of depression, anxiety and stress and their associated factors in college students. Int J Environ Res Public Health. 2020;17(19):01-15.
[20] Singh N, Kohli C. Stress reaction and coping strategies among nursing students in Delhi. Asian J Nurs Educ Res. 2015;5:274-78.
[21] Dhar R, Walia I, Das K. A descriptive study to assess the causes of stress and coping strategies used by the newly admitted basic B.Sc. Nursing students. Nurs Midwifery Res Journal. 2009;5(1):31-37.
[22] Nicholl H, Timmins F. Programme-related stressors among part-time undergraduate nursing students. J Adv Nurs. 2005;50(1):93-100.

PARTICULARS OF CONTRIBUTORS:
1. Postgraduate Student, Department of Community Medicine, Mysore Medical College and Research Institute, Mysuru, Karnataka, India.
2. Professor, Department of Community Medicine, Mysore Medical College and Research Institute, Mysuru, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Mansoor Ahmed,
Professor, Department of Community Medicine, Mysore Medical College and Research Institute, Irwin Road, Near Mysuru Railway Station,
Mysuru-570001, Karnataka, India.
E-mail: docmansoor2000@yahoo.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Feb 08, 2023
- Manual Googling: May 17, 2023
- iThenticate Software: Aug 14, 2023 (11%)

ETYMOLOGY: Author Origin

EMENDATIONS: 8

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Feb 07, 2023**
Date of Peer Review: **Apr 18, 2023**
Date of Acceptance: **Aug 18, 2023**
Date of Publishing: **Oct 01, 2023**