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Original Research Article

Descriptive Study to Assess Depression, Anxiety and Stress among College Students of Uttar Pradesh: Cross Sectional Study

Aman Kumar[1], Rashmi Yadav[2], Awadhesh Kumar[3]

[1]Associate Professor, Department of Community Medicine, ASMC, Auraiya, Uttar Pradesh, India
[2]Associate Professor, Department of Community Medicine, ASMC, Pratapgarh, Uttar Pradesh, India
[3]Associate Professor, Department of Community Medicine, RDASMC, Ayodhya, Uttar Pradesh, India

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Corresponding author: Dr. Aman Kumar
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Abstract

Background: Many people perceive health as being physically well and free of any diseases, and thus they have neglected the importance of mental health. Therefore, mental health is an irreplaceable aspect of health. Poor mental health will lead to many life threatening diseases such as cardiovascular disease deaths, deaths from external causes or even cancer deaths, which was only associated with psychological distress at higher levels.

Aim & Objective: To Assess the Depression, Anxiety and Stress among college students of Kanpur district and to determine the association of Depression, Anxiety and Stress with Socio-demographic profile.

Material & Methods: A descriptive cross-sectional study was conducted by the department of Community Medicine among college students of age 18-30 years from May 2024 to July 2024.

Results: The majority of the participants were in between 18 and 21 years old (67.5% of the total), next 22 to 25 years old (30.4% of the total), and finally over 25 years old (2.1% of the total). The proportion of male participants in the study was 44.5%. Regarding Co-morbid condition, majority (29.1%) had Hair fall problem followed by 6.3% had Anxiety disorder, 6% had depression, 4.5% had allergy disorder, 3.9% had PCOD and 2.1% had bronchial asthma.

Conclusion: In our study assessment of depression anxiety and stress among college student were 51.4%, 53.7%, 34.8% respectively.

Keywords: Depression, Anxiety, Sress, College students, DASS Scale.

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Introduction

According to WHO definition, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"[1]. Many people perceive health as being physically well and free of any diseases, and thus they have neglected the importance of mental health. Therefore, mental health is an irreplaceable aspect of health. Poor mental health will lead to many life threatening diseases such as cardiovascular disease deaths, deaths from external causes or even cancer deaths, which was only associated with psychological distress at higher levels [2]. Depression, anxiety and stress levels in the community are considered as important indicators for mental health. Failure to detect and address to these emotional disorders will unfortunately lead to increased psychological morbidity with undesirable impacts all through their professions and lives [3]. Furthermore, mental health issues in this population are associated with higher incidence of physical and emotional problems in the mid to long term, labor market marginalization, worse quality of sleep and dysfunctional relationships among others [4]. College students are at risk of experiencing stress, anxiety and depression, which cause psychological distress and may impact on their academic performance [5]. Worldwide, it is estimated that 12–50% of college students present at least one diagnostic criterion for one or more mental disorders [6]. Causes of stress during college life include academic pressure stemming from factors such as exams and workload, lack of leisure time, competition, concerns about not meeting parents' expectations, establishing new personal relationships and moving to a strange location [7]; biological factors such as age and gender, specifically being female [8]; and financial burden [9]. Globally, studies conducted on different samples of undergraduate students have identified a moderate to high prevalence of depression, anxiety and stress in this population [10–15]. Early

diagnosis and management of psychological distress lead to better management and patient outcomes [16]. Thus, it is necessary to identify those students who are at a higher risk of developing mental health problems during college life. Therefore, we conducted a descriptive cross-sectional study to assess the prevalence of depression, anxiety and stress among college students of Uttar Pradesh.

Objectives of the study:

- To assess the depression, anxiety and stress among college students of Uttar Pradesh.
- To determine the association of depression, anxiety and stress with Socio-demographic profile among college students of Uttar Pradesh.

Materials & Methods

Study design: A descriptive cross-sectional study was conducted by the department of Community Medicine at Rama Medical College Hospital & Research Centre, Kanpur, and Uttar Pradesh.

Study Population: All undergraduate students of age 18-30 years of Dentistry, Nursing, Pharmacy, Law, engineering and MSc courses were included into the study after obtaining consent.

Sample size calculation: Using the formula (N) = $(Z_{\alpha/2})^2$ p x q / L^2 (where Z=1.96 at 95% confidence; p= prevalence; q=1-p; and d=absolute allowable error. Since the prevalence depression was 44.1% with p=0.5; q=0.5; d=5% in a study Gupta S, Epari V, Pradhan S. Association of Internet Addiction with Insomnia, Depression, Anxiety and Stress among college Students [17].

After sample size calculation 382 students at Rama University, Kanpur between the ages of 18-30 years. Study Population: Undergraduate students of, Dentistry, Nursing, Pharmacy, Law, engineering and MSc were included into the study after it was cleared by the Institutional Ethical Committee. The nature of the study was explained to the students and consent was taken from all of them. After giving consent, each participant completed a set of questionnaires comprising of: demographic data and academic performance, difficulty in peer, and health problems and factors associated with depression, anxiety and stress.

Inclusion Criteria:

- College going students Kanpur district are included in the study
- Male and Female Students who were willing to participate in the study.
- Those who will be present on the day of survey.

Exclusion Criteria:

- Those students who did not wish to participate in the study.
- Students who were having physical or mental problem.
- Those who had any medical problems, which could influence the nature of the study.

Data collection tools: Appropriate literature review was done before the conduction of the study. Questionnaire was constructed taking reference of various research papers. Pretesting and Modifications of questionnaire were done in every aspect of the study as per expert's opinion. Pilot study was conducted on 20 College going students who were included in the main study. Approval was taken from institutional ethical committee of Rama Medical College Hospital & Research Centre.

All the respondents were well informed about the objectives and purpose of the study. Informed consent was obtained from the individual participants. Confidentiality was maintained and the results were used for the research purpose only. Data analysis was done by software Jamovi 2.3.18.

Descriptive and inferential statistics were performed for data analysis. Quantitative variables were first assessed for normality distribution, if normally distributed Quantitative variables have been presented as Mean+ SD otherwise quantitative variables have been presented as median and inter-quartile range. Appropriate parametric statistical tests (Independent sample T test, ANOVA) and non-parametric statistical test (Mann whitey test, Kruskal-wallis test) have been used for inferential statistics. P value of <0.05 has been considered as statistically significant.

Assessment tools: Consenting respondents were surveyed using a pre-tested questionnaire that contained a variety of socio-demographic factors. The consent form and evaluation tools were translated into Hindi for the aim of ensuring the translation's accuracy. The DASS-21 (Crawford and Henry 2003) measures stress, anxiety and depression levels [18]. The validity and reliability of this scale among students were measured as follows (McDowell 2006). The reliability of the DASS-21 scale was measured with a range from 0.81 to 0.97. The DASS 21 subscale for stress is categorized as extremely severe (34 and above), moderate (26–33), moderate (19–25), mild (15–18) and normal (0–14). Anxiety levels are categorized as normal (0 -7), mild (8–9), moderate (10–14), severe (15–19) and extremely severe (20 and above). Depression levels of respondents are categorized as normal (0–9), mild (10–13), moderate (14–20), severe (21–27) and extremely severe (28 and above). In this study, DASS-21 is

used because it is a reliable and valid scale, and existing studies show that it is more consistent than and superior to the full-scale DASS-42 (McDowell 2006).

Result

Socio-demographic profile of college students: Sample size of 382 study participants were taken for the study. The majority of the participants were in between 18 and 21 years old (67.5% of the total), next 22 to 25 years old (30.4% of the total), and finally over 25 years old (2.1% of the total). The proportion of male participants in the study was 44.5%, and the proportion of female participants was 55.5%. Among participants, majority (81.9%) were from BPT course followed by Pharmacy (21.2%), Nursing (20.4%), BDS (14.9%), LLB (10.5%), Engineer (5.2%), MSc (3.4%). Regarding Last academic year performance, majority (40.6%) got >75% marks followed by (35.6%) got 67-74% marks, (17.3%) got 59-66% marks, (6.5%) got 50-58% marks. Regarding current academic year attendance, majority (29.6%) were in >90% followed by (28%) were in 81-90%, (23.63%) got 71-80%, (18.8%) were in <70% attendance.

Study revealed that 11% of the respondents had got recent road traffic accident in past 6 months. History of tobacco, 2.6% were in regular habit while 5.8% were having occasionally. History of alcohol, 2.6% were in regular while 7.1% were having occasionally. Regarding Co-morbid condition, majority (29.1%) had Hair fall problem followed by 6.3% had Anxiety disorder, 6% had depression, 4.5% had allergy disorder, 3.9% had PCOD and 2.1% had bronchial asthma. [Table 2]

Assessment of DASS scale showing prevalence of depression, anxiety and stress among college students. [Table 3]

Association of Sub-variable with depression, anxiety and stress among college Students: College students pursuing BDS, BPT, Engineer, LLB, MSc, Nursing and Pharmacy had a statistically significant association with depression (<0.001), anxiety (<0.001) and stress (<0.001). Gender of the students had a statistically significant association with depression (0.008), anxiety (0.007) and stress (0.008).

History of tobacco is significantly associated with stress of the college going students (0.004). History of alcohol is significantly associated with depression (<0.001), anxiety (<0.001) and stress (0.002). [Table 4] Correlation between depression, anxiety and stress scores: Correlation was assessed between depression, anxiety and stress scores. High positive statistically significant correlation was found among each of the 3 scores. [Table 5]

Table 1: DASS Scale Assessment:

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

Table 2: Socio-demographic profile of student's:

Variable	Sub-variable	Frequency (N)	Percentage (%)
Age group	18-21 Years	258	67.5
	22-25 Years	116	30.4
	>25 Years	8	2.1
Sex	Male	170	44.5
	Female	212	55.5
Courses Pursuing	BDS	57	14.9
	BPT	93	24.3
	Engineer	20	5.2
	LLB	40	10.5
	MSc	13	3.4
	Nursing	78	20.4
	Pharmacy	81	21.2
Last academic year performance	50-58%	25	6.5
	59-66%	66	17.3
	67-74%	136	35.6
	>75%	135	40.6
Current academic year attendance	<70%	72	18.8
	71-80%	90	23.6

	81-90%	107	28.0
	>90%	113	29.6
Recent accident (Past 6 months)	yes	42	11
	No	340	89
History of Tobacco	Never	350	91.6
	Occasionally	22	5.8
	Regularly	10	2.6
History of Alcohol	Never	345	90.3
	Occasionally	27	7.1
	Regularly	10	2.6
Co-morbid condition	Allergy disorder	17	4.5
	Anxiety disorder	24	6.3
	Bronchial Asthma	8	2.1
	Depression	23	6
	Hair fall	111	29.1
	PCOD	15	3.9
	None	184	48.2

Table 3: Prevalence of Depression, anxiety and stress among students

	Depression	**Anxiety**	**Stress**
Normal	187(49.6%)	177(46.3%)	249(65.2%)
Mild	61 (16%)	26(6.8%)	45(11.8%)
Moderate	65(17%)	70(18.3%)	43(11.3%)
Severe	32(8.4%)	32(8.4%)	31(8.1%)
Extreme severe	37(9.7%)	77(20.2%)	14(3.7%)

Table 4: Association of Sub-variable with depression, anxiety and stress among Students:

Variable	**Sub-variable**	**Dep. median (IQR)**	**P**	**Anxiety Median (IQR)**	**P**	**Stress median (IQR)**	**P**
Age group	18-21 Years	10(14)	0.352	6(12)	0.076	12(16)	0.750
	22-25 Years	8(12)		10(16)		10(12)	
	>25 Years	9(13.5)		1(11.5)		9(12.5)	
Gender	Male	10(16)	0.008	12(16)	0.007	12(16)	0.008
	Female	8(12)		6(12)		8(14.5)	
Courses Pursuing	BDS	6(12)	<0.001	6(10)	<0.001	6(10)	<0.001
	BPT	6(8)		4(12)		9(27)	
	Engineer	6(29.5)		5(22)		10(14)	
	LLB	10(18.5)		11(20)		14(17)	
	MSc	12(20)		8(22)		22(12)	
	Nursing	12(12)		8(12)		10(14)	
	Pharmacy	14(14)		12(12)		16(12)	
Last academic year performance	50-58%	12(10)	0.336	14(14)	0.170	12(8)	0.597
	59-66%	8(15.5)		6(15)		11(15.5)	
	67-74%	10(14)		8(14)		11(14)	
	>75%	8(15)		8(14)		10(16)	
Current academic year attendance	<70%	8(16)	0.770	9(18)	0.538	12(20.5)	0.612
	71-80%	8(14)		8(14)		12(14)	
	81-90%	10(14)		6(12)		8(14)	
	>90%	10(16)		9(12)		11(16)	
Recent accident (Past 6 months)	yes	12(19.5)	0.302	7(17)	0.959	12(16)	0.838
	No	10(14.5)		8(14)		10(14)	
History of Tobacco	Never	8(16)	0.155	8(14)	0.071	10(15.5)	0.004
	Occasionally	13(13.5)		14(11.5)		19(9.5)	
	Regularly	11(15)		7(17.5)		14(11)	

History of Alcohol	Never	8(16)	<0.001	8(14)	<0.001	10(16)	0.002
	Occasionally	12(10)		12(14)		12(11)	
	Regularly	25(19.5)		22(9.5)		26(19.5)	
Co-morbid condition	Allergy	14(16)	0.228	6(8)	0.225	10(14)	0.151
	Anxiety	6(10)		5(8.5)		7(15)	
	Bronchial Asthma	19(28.5)		16(20.5)		26(16.5)	
	Depression	8(12)		12(14)		12(10)	
	Hair fall	8(14)		8(13)		10(16)	
	PCOD	14(16)		16(19)		16(12)	
	None	10(14)		8(16)		12(14)	

Table 5: Correlation between depression, anxiety and stress scores

	Depression Score	**Anxiety score**	**Stress score**
Depression Score	1		
Spearman correlation			
P			
Anxiety score		1	
Spearman correlation	0.611		
P	0.000		
Stress score			
Spearman correlation	0.641	0.746	1
P	0.000	0.000	

Discussion

This, to our knowledge, is the first report of the prevalence of symptoms of anxiety, depression and stress, and their associated factors, in a sample of Spanish college students. Although the DASS-21 questionnaire cannot be considered as a tool for the diagnosis of psychological pathology, it is useful to identify the prevalence of symptoms of anxiety, depression and stress. We identified a significant prevalence of symptoms of stress (34.8%), anxiety (53.7%) and depression (50.4%) in our population. Previous studies carried out in Spain involving smaller samples have reported an even greater prevalence of psychological distress in our population [19, 20].

Specifically, Balanza et al. [19] reported a prevalence of anxiety and depression of 41.7% and 55.6% respectively using the Goldberg Anxiety and Depression Scale. Fernández et al. [20] identified an even higher percentage of students with anxiety symptoms (44.7%) and a lower prevalence of depressive symptoms (23.5%) using the Hospital Anxiety and Depression Scale. Unfortunately, the use of different screening tools does limit the comparability of the findings.

In recent large sample survey in southern part of India reported an overall prevalence of depression of 15.9% among general population [21]. In a similar study from Brazil using DASS scale, 34.6%, 37.2%, and 47.1% of medical students suffered from depression, anxiety, and stress, respectively [22]. A study from Turkey found that 27.1% of students were depressed, 47.1% from anxiety, and 27% students were stressed. In a study from Nepal, depression was reported to be 29.9%, anxiety 41.1%, and stress 27% among medical students [23]. A study based in the United States found 24% of medical students to be depressed while another study from the US reported 12% of medical students to be diagnosed with probable major depression using DSM III criteria [24].

In a study from Egypt, 43.9% of students were suffering from anxiety [25]. Similar alarming statistics have been corroborated by our study also. Studies conducted in various regions of India reflect diverse situation depending on the use of study instruments. In a study from Bhubaneshwar, the prevalence of depression, anxiety, and stress among medical students was 51.3%, 66.9%, and 53%, respectively, using DASS scale [26]. Another study reported that 39.44% of students suffered from depression, 66.05% from anxiety, and 51.37% from stress [27]. A Jodhpur (Rajasthan)-based study found that 57.98% of students depressed and 47.41% suffered from anxiety [28]. Another Delhi-based study found the overall Prevalence of provisionally diagnosed depressive and major depressive disorders among medical students to be 21.5% and 7.6%, respectively [29]. On the contrary, some studies conducted two decades ago have found little or no evidence of stress among medical students [30, 31].

Conclusion

In our study assessment of depression anxiety and stress among college student were 51.4%, 53.7%, 34.8% respectively. This study also portrays significant association of depression, anxiety and stress with students pursuing BDS, BPT, Engineer,

LLB, MSc, Nursing and Pharmacy courses, gender and alcohol.

Recommendation: This type of depression, anxiety and stress among college students can be reduced by encouraging them to participate in the social activities by forming happiness center at college and university level. It requires continuous health monitoring of the students.

Limitation of the study: Due to time constraints, we have taken less number of study participants so there could have been more sample size in this particular study

Relevance of the study: Due to lack of information on depression, anxiety and stress among college students population, this study will help in overcoming the depression in rural area.

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