Study of Depression, Anxiety and Stress among the Medical Students in two Medical Colleges of Nepal

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ABSTRACT

Background

Medical education is intended to prepare graduates for a promoting health and caring for the sick. Medical students are confronted with significant academic, psychological and existential stressors. There is insufficient information regarding psychological morbidity among Nepalese medical students.

Objective

To determine the prevalence of depression, anxiety and stress, among the medical students in Nepal, and its association with sociodemographic characteristics.

Method

A cross-sectional questionnaire based study was conducted including all students from first to fifth year of student using convenience method of sampling from Kathmandu University Medical School (KUSMS), Dhulikhel and Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal. Depression, Anxiety and stress were assessed using Depression Anxiety and Stress Scale (DASS). Additional questions regarding demographic variables were also included in the survey. Data analysis was done on Statistical Package for the Social Sciences SPSS version 16.

Result

A total of 538 students participated in the study giving a response rate of 89.6%. Aamong them 56.5% were from age group 21-25 years, 42.2% were below 20 years and only 1.3% were above 25 years of age. Among them 52% were female and 48% were male. Our study found that the overall prevalence of depression was 29.9%, anxiety was 41.1% and stress was 27% among all participated medical students. Depression was significantly associated (OR 2.23, 95% CI 1.43-3.47, p<0.001) with living condition (living in hostel or rented house).

Conclusion

The higher level of psychiatric morbidity depression 29.9%, anxiety 41.1% and stress 27% among undergraduate medical students warrants needs for strategic plans to alleviate depression anxiety and the stressors right from the time they join medical school and has to be continued till they finish the course.

KEY WORDS

Anxiety, depressive disorder, medical students, Nepal

INTRODUCTION

Medical education is intended to prepare graduates for a personally rewarding and socially meaningful career promoting health and caring for the sick.[1] But they are confronted with significant stressors.[2-4]

In the studies that investigated mental health, medical students also tended to have greater overall psychological distress than is found in the general population.[5-9] In a study from the United Kingdom, 63(37%) of students had poor mental health general health questionnaire (GHQ-12 score greater than 3) by the middle of the first year, and 48(31%) and 34(22%) had poor mental health in the fourth year and fifth year, respectively.[2,10] In 2001, Aktekin et al. reported a similar worsening in global mental health, depression, and anxiety between the first-year orientation and the beginning of the second year among Turkish medical students.[4] Dahlin et al. reported 40(13%) Swedish medical students were depressed in comparison to 48 persons (7.8%) in an age and gender-matched population sample (p<0.05), with approximately one third of the students reporting thoughts of suicide during the course of training.[11] In 2010 Singh A et al. in India reported a total of 49.1% students reported depressive symptoms.[12] It was significantly higher in 1st year (59.3%) and 2nd year (65.6%), as compared to 3rd (34.4%) and 4th year (37.2%) students (p<0. 05). According to Basnet B et al. in Nepal the overall prevalence of depression among the students was 29.78 percent. The prevalence of depression in first and third year was 36.74 and 22.22 percent respectively.[13]

The objectives are: to determine the prevalence of depression, anxiety and stress, among the medical students of two medical colleges in Nepal, and their associations with sociodemographic characteristics.

METHODS

The study was initiated after receiving approval from the Institutional Review Committee (IRC), Kathmandu University School of Medical Sciences (KUSMS). Informed consent was obtained from all study participants.

This is a Descriptive cross-sectional Questionnaire based study conducted among the medical students and interns of KUSMS -Dhulikhel Hospital (Kathmandu University Hospital) and Manipal College of medical sciences (MCOMS) Pokhara.

The study population included all the medical students studying in different semesters of KUSMS and MCOMS at the time of the Study. Excluded were students who were unable to give informed consent. Hence, total subjects were 538 (using convenience method of sampling). Participants, who fulfilled the inclusion criteria for the study, were provided written informed consent.

We designed a questionnaire focusing on sociodemographics factors. The questions concerned: age, sex, religion, ethnicity/caste, Living conditions, socioeconomic status, past history of any medical conditions, past history of any psychiatric disorders, family history of any psychiatric disorders and personal history.

Depression Anxiety Stress Scale (DASS)

The DASS is a 42-item questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. Each of the three scales contains 14 items, divided into subscales of 2-5 items with similar content. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale (items) is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Respondents are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week.

The data was analyzed using the SPSS version 16.0 (SPSS Inc.,Chicago, IL). Descriptive Statistics (including means, standard deviations, frequencies and percentage) were calculated for the sociodemographic variables. For easier statistical analysis year of study of participant has been grouped into none clinical and clinical and living conditions has been grouped into hostel and outside hostel. Chi square test was applied for association of depression, anxiety and stress with different variables.

RESULTS

A total of 538 students participated in the study giving a response rate of 89.6%.among them 56.5% were from age group 21-25 years, 42.2% were below 20 years and only 1.3% were above 25 years of age. Among 52% were female and 48% were male.

Among total participants 53.7% belonged to Manipal Colleges of Medical Sciences, Pokhara and 46.3% were from Kathmandu University Medical School, Dhulikhel. Most of them 65.2% lived in the hostel and 17.5% in a rented house, 10% with friends and 7.2% with family. A total of 94.7% had middle, 3.3% had high and 2% had low socioeconomic condition. Participants were from different years of studies, 35.5% from first year, 9.5% from second year, 27.5% from third year, 21.2% from fourth year and 6.3% were from interns.

Prevalence of Depression Anxiety and Stress among entire medical students:

Our study found that the overall prevalence of depression was 29.9% Anxiety was 41.1% and stress was 27% among all participated medical students.

Table 1. Distribution of socio-demographic factors of participants. (n=538)

Variables		Frequency (%)
Age (years)	< 20	227 (42.2)
	21-25	304 (56.5)
	>25	7 (1.3)
Sex	Male	258 (48)
	Female	280 (52)
Medical Colleges	MCOMS	289 (53.7)
	KUSMS	249 (46.3)
Years of study	First	191 (35.5)
	Second	51 (9.5)
	Third	148 (27.5)
	Fourth	114 (21.2)
	Interns	34 (6.3)
Living conditions	Hostel	351 (65.2)
	Rented house	94 (17.5)
	With family	39 (7.2)
	With friends	54 (10)
Socioeconomic conditions	Low	11 (2)
	Middle	509 (94.7)
	High	18 (3.3)

When we compared the prevalence among medical students from Manipal College of Medical Sciences, Pokhara and Kathmandu University School of Medical Sciences, Dhulikhel. In MCOMS the prevalence of Depression Anxiety and Stress was 29.4%, 42.2% and 27.7% respectively where as in KUSMS 30.5%, 39.8% and 26.1% respectively. And there was no statistical difference between these two groups in any above mentioned three disorders which was summarized in table 2.

Table 2. Prevalence of depression anxiety and stress.

	(n=538) Frequency (%)	Medical colleges		P-value
		MCOMS, Pokhara (%)	KUSMS, Dhulikel (%)	
Depression	161(29.9)	29.4	30.5	0.079 0.779
Anxiety	221(41.1)	42.2	39.8	0.333 0.564
Stress	145(27.0)	27.7	26.1	0.169 0.681

Association of Depression Anxiety and Stress among different variables:

Table 3 depicted the association of depression anxiety and stress among different variables. There was a significant association of living condition (p<0.001) of participants with depression. Stress was associated with year of study (p<0.01) and living conditions (p<0.01). However, no association of anxiety was seen with any other variables.

Table 3. Distribution of socio-demographic factors and its association with Depression Anxiety and Stress.

Variables	Depression case (n=161)		Anxiety case (n=221)		Stress case (n=145)	
	%	¥ df p-value	%	¥ df p-value	%	¥ df p-value
Age						
<20	43.5	2.8102	44.8	1.0812	50.3	5.5152
21-25	54	0.245	53.8	0.582	48.3	0.063
>25	2.5		1.4		1.4	
Sex						
Male	46	0.3661	45.2	1.1011	41.4	3.4391
Female	54	0.545	54.8	0.294	58.6	0.064
Student						
Non-clinical	46	0.0891	48.9	2.2901	54.5	7.2411
Clinical	54	0.765	51.1	0.130	45.5	0.007
Residence						
Outside Hostel	23	14.0521	33	0.4931	25.5	7.4751
Hostel	77	0.000	67	0.483	74.5	0.006
Socioeconomic conditions						
Low	3.7	3.2461	2.7	0.8411	3.4	1.9531
Middle and High	96.3	0.072	97.3	0.359	96.6	0.162

Multivariate association:

In order to assess the multivariate association, we performed the logistic regression analysis as seen in table 4. Using age, sex, living condition, and year of study, as the independent variables, we measured their association independently with anxiety, depression, and stress. Depression was still associated with living conditions (OR 2.23, 95% CI 1.43-3.47, p<0.001) however stress was not associated with year of study and living conditions.

Table 4. Logistic regression analysis with depression anxiety and stress as a dependent variables.

Independent variables	Dependent variables		
	Depression OR 95% CI P-value	**Anxiety** OR 95% CI P-value	**Stress** OR 95% CI P-value
Age	1.09 095-1.24 0.22	1.06 0.94-1.20 0.35	1.05 0.92-1.21 0.43
Sex	1.13 0.78-1.67 0.52	1.24 0.87-1.76 0.24	1.45 0.97-2.15 0.06
Residence	2.23 1.43-3.47 <0.001	1.01 0.67-1.49 0.94	1.52 0.97-2.39 0.64
Year of study	0.91 0.51-1.61 0.75	0.64 0.38-1.09 0.10	0.56 0.31-1.01 0.05

Correlation among Depression Anxiety and Stress:

As we can see in table 5, we found significant correlations (p<0.001) between depression, anxiety and stress; correlation coefficients (r) of depression vs. anxiety, depression vs. stress, and anxiety vs. stress were 0.51, 0.59, and 0.54 respectively.

Table 2. Prevalence of depression anxiety and stress.

Variables	Depression	Anxiety	Stress
Depression	-	0.51 <0.001	0.59 <0.001
Anxiety	0.51 <0.001	-	0.54 <0.001
Stress	0.59 <0.001	0.54 <0.001	-

DISCUSSION

Our findings show the prevalence of depression anxiety and stress 29.9%, 41.1% and 27% respectively in our undergraduate medical students, which corresponds with prevalence rates found in other studies carried out in Nepal and other developing countries. It is quite interesting to find another study from Dharan Nepal found the prevalence of depression was 29.78% which is exactly the same figure from our study and another study from Nepal showed the prevalence of 20% which is slightly lesser than our finding.[13,14]

The prevalence of depression from our study is also in line with findings 35.1% in a Pakistani and 39.9% from Indian study.[1,15] Studies from western world report prevalence rates of depression in the range of 14–24%.[16,17]

Different studies show that the prevalence of anxiety or emotional disturbances among medical students is more as compared to other university students.[18-21]

Study from Pakistan shows the total of 46.1%, Malaysia medical university shows a total of 41.9%, a Singapore 57.0% has anxiety and depression. Patti et al. reported that 37.0% of the medical professional has the symptoms of anxiety and depression. These findings are consistent with our study in which the prevalence of anxiety is about 41.1%.[21-24]

Our study revealed 27.0% of the students are having stress which is exactly the same (27.0%) with study from turkey.[25] however other study from Nepal (73.0%) Brazil (40.2%), Iran (44.0%) and Malaysia (41.9%) of the students having stress during the medical school which is quite high compared to our study.[26,27]

Sociodemographic and educational characteristics looked for any existing association with depression anxiety and stress.

In many studies, the presence of depression anxiety and stress was higher in 2nd year medical students as compared to 3rd and 4th year medical students.[11,28-30] These findings cannot be supported by our multivariate analysis however, bivariate analysis showed significant association of stress and final year of study.

We found no significant difference between the prevalence of depression among male and female students. Some previous studies that investigated mental distress using other survey methods and rating scales found higher levels of depression among female students.[31,32,33]

However, there are also studies that found no differences according to gender in terms of depression or depressive mood.[34]

Depression was associated with living condition (living alone in a rented house or in the hostel) which was still significant when multivariate analysis was applied (OR 2.23, 95% CI 1.43-3.47, p <0.0010.) Living in the hostel was considered one of the most common sources of stress in another study from Nepal.[14]

Other sociodemographic variables such as age, socioeconomic conditions, and family support were also considered, but no association with depression anxiety and stress was established for them.

A limitation of this cross-sectional study is inability to draw cause-effect associations between the studied variables and also lack of baseline information concerning mental status of medical students at the time of entrance in the medical school and lack of population based data to support our results and compare our findings with the general population.

Depression anxiety and stress may be a significant problem in Nepalese medical students and mechanisms to identify and help students with these problems should be seriously considered.

CONCLUSION

The higher level of psychiatric morbidity depression 29.9%, anxiety 41.1% and stress 27% among undergraduate medical students warrants needs for strategic plans to alleviate depression anxiety and the stressors right from the time they join medical school and has to be continued till they finish the course.

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