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Original Research Article

Study of association between psychological stress and depression among medical students in Mangalore

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ABSTRACT

Background: Depression is common mental disorder and most prevalent condition worldwide. Medical education carries great burden of stress that can result in depression and it is an area of concern worldwide. The present study was aimed to assess the magnitude of depression among medical students and its association with psychological stress.
Methods: Cross sectional study was conducted among medical students at an institution in Mangalore. Students from 1st to 4th years were included in the study, and the level of psychological stress and depression was assessed by using General Health Questionnaire (GHQ -12) and Beck Depression Inventory (BDI) scale respectively.
Results: The prevalence of psychological stress and depression was 83.7% and 72.9% respectively. Among depressed students, 24.2% had mild mood disturbances followed by 21.1% had moderate depression. There was a strong association between psychological stress and depression.
Conclusions: Depression is highly prevalent among medical students and most of them had symptoms of psychological stress, which was associated with depression.

Keywords: Depression, Beck depression inventory scale, GHQ-12, Medical students, Psychological stress

INTRODUCTION

Depression is a common mental disorder, characterized by persistent sadness and a loss of interest in activities that you normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks.[1] Depression is highly common and according to WHO, by 2020, it would the second most prevalent condition worldwide.[2] Globally its prevalence rate is 15-20% and recurrence rate is 60-70% whereas in India it is reported as 11.2%.[2]

WHO has also identified depressive disorder of adolescence as "priority mental health disorder".

A variety of factors which include their educational life, social factors like alcohol use, drug addiction, family problems, family history of depression, and staying away from home were associated with stress and depression among medical students. Among various factors, academic-pressure, social-pressure and financial-problems were most common.[3] These stressors often have a negative impact on the students' academic performance, physical health, and psychological well-being, making them more susceptible to depression.[4,5] Medical students are a valuable human resource for our future and depression in them leads to less productivity, reduced quality of life, learning difficulties and may negatively affect patient care.[6,7]

Early onset depression among medical students interferes with psychological, social, and academic functioning, placing him or her at greater risk for problems such as substance abuse and suicidal behavior.[8] Therefore, it is very important to prevent the ill effects of depression on one's educational attainment and career through early detection and proper interventional measures. Studies from other parts of world have shown a high prevalence of depression in medical students.[9,10] but studies on Indian medical students are lacking. This study was aimed to assess the magnitude of depression among medical students and its association with psychological stress.

METHODS

The present cross-sectional study was conducted among medical students at an institution in Mangalore, Karnataka for a period of 3 months (December 2016 to February 2017). Ethical approval was obtained from the institutional ethics committee. All the students who participated in this study were informed about the objectives of the study and the information regarding depression was delivered to all students in the form of lectures. Informed written consent was obtained from all the participants for this study. All students who were studying in MBBS phase I to phase IV were included in this study. Students who refused or not willing to participate in this study and absent on the day of study were excluded from this study. A total of 417 students from 1st year to 4th year were enrolled in the study. The data were collected by using a self-administered, standardized, semi-structured questionnaire, which includes socio-demographic characteristics, General Health Questionnaire (GHQ -12) and Beck Depression Inventory Scale (BDI).[11,12] General Health Questionnaire (GHQ -12) consists of 12 questions to screen for symptoms of psychological stress. It had four responses which was scored as 0,0,1 and 1 respectively. (eg., felt constantly under strain were scored as 0- No more than usual, 0- Not at all, 1- Rather more than usual, 1- Much more than usual). The total score ranges from 0-12. Total scores of 4 and above were considered to be positive for psychological stress.[11]

BDI was used to screen for depression among the students. The validated questionnaire consisted of 21 multiple choice questions and is composed of items relating to symptoms of depression in last two weeks. Each question has a set of four possible answer choices, ranging from 0 to 3 score and total score being 63. BDI scores were categorized into normal (1–10), mild mood disturbance (11–16), borderline clinical depression (17–20), moderate depression (21–30), severe depression (31–40) and extreme depression (more than 40).[12]

The data was entered into Microsoft Excel 16.0 and analyzed in SPSS trial version 18. Descriptive statistics such as mean, percentage, and tests of significance like Chi-square test were used and the statistical significance level was fixed at $p<0.05$.

RESULTS

Among 417 students, 300 (71.9%) were females and 117 (28.1%) were males. The student's age ranged from 17-25 years, with the mean age of 19.80±1.85 years. Maximum students (60.7%) were below 20 years of age.

Table 1: Sociodemographic characteristics of students.

Characteristics	Frequency (%)
Age (in years)	
Less than 20	253 (60.7)
21 & above	164 (39.3)
Gender	
Male	117 (28.1)
Female	300 (71.9)
Religion	
Hindu	267 (64.0)
Muslim	47 (11.3)
Christian	103 (24.7)
Place of stay	
Hostel	303 (72.7)
Home	39 (9.3)
Outside (PG/Apartment)	75 (18.0)
Diet	
Mixed	377 (90.4)
Vegeterian	40 (9.6)
Medical study year	
Phase 1	201 (48.2)
Phase 2	34 (8.1)
Phase 3	112 (26.9)
Phase 4	70 (16.8)
Habit	
No	397 (95.2)
Tobacco	3 (0.7)
Alcohol	5 (1.2)
Tobacco and alcohol	12 (2.9)

Among symptoms of psychological stress, majority of students were unable to concentrate (87.5%), followed by not able to take decision (65.9%), feeling unhappy and depressed (63.3%), and unable to overcome difficulties (61.2%) (Table 2).

The prevalence of depression was 72.9% with 24.2% mild mood disturbance, 18.7% borderline depression, 21.1% moderate depression, 8.6% severe depression and 0.2% extreme depression (Table 3).

The prevalence of psychological stress was 83.7% (349) and it was higher among females (87.3%), age less than 20 (87.7%), students staying at hostel (88.1%), and among 1st year students (90.5%). Even the prevalence of depression was higher among females (76.3%), age less than 20 (76.7%), students staying at hostel (74.3%), and among 1st year students (79.6%) (Table 4).

Table 2: Prevalence of symptoms of psychological stress among students.

Symptoms of psychological stress	Frequency (%)
Unable to concentrate	365 (87.5)
Lost sleep over worry	234 (56.1)
Unable to play useful part in things	237 (56.8)
Not able to make decisions	275 (65.9)
Unable to overcome difficulties	255 (61.2)
Unable to enjoy normal activities	185 (44.4)
Unable to face problems	226 (54.2)
Feeling unhappy and depressed	264 (63.3)
Losing confidence in once self	239 (57.3)
Thinking of own self as worthless	190 (45.6)
Unable to feel reasonably happy	186 (44.6)
Constantly under strain	205 (49.2)

Table 3: Prevalence and level of depression among students.

Depression level	Frequency (%)
Normal	113 (27.1)
Mild mood disturbance	101 (24.2)
Borderline	78 (18.7)
Moderate	88 (21.1)
Severe	36 (8.6)
Extreme	1 (0.2)

Table 4: Prevalence of depression and psychological stress in relation to general characteristics of students.

Characteristics	Psychological stress N=349 (%)	Depression N=304 (%)
Age (in years)		
Less than 20	222 (87.7)	194 (76.7)
21 & above	127 (77.4)	110 (67.1)
Gender		
Male	87 (74.4)	75 (64.1)
Female	262 (87.3)	229 (76.3)
Religion		
Hindu	220 (82.4)	190 (71.2)
Muslim	38 (80.9)	34 (72.3)
Christian	91 (88.3)	80 (77.7)
Place of stay		
Hostel	267 (88.1)	225 (74.3)
Home	29 (74.4)	28 (71.8)
Outside (PG/Apartment)	53 (70.7)	51 (68.0)
MBBS academic phase		
1st year	182 (90.5)	160 (79.6)
2nd year	29 (85.3)	24 (70.6)
3rd year	78 (69.6)	69 (61.6)
4th year	60 (85.7)	51 (72.9)

Table 5: Association of symptoms of psychological stress with depression.

Symptoms of psychological stress	Depression present	Depression absent	Total	P value	Odds ratio (95% CI)
Unable to concentrate	273	92	365	0.021*	0.791 (0.383-1.635)
Lost sleep over worry	190	44	234	0.000**	1.816 (1.095-3.010)
Unable to play useful part in things	189	48	237	0.000**	1.400 (0.836-2.345)
Not able to make decisions	218	57	275	0.000**	1.631 (0.965-2.755)
Unable to overcome difficulties	202	53	255	0.000**	0.972 (0.559-1.691)
Unable to enjoy normal activities	151	34	185	0.000**	1.128 (0.644-1.973)
Unable to face problems	190	36	226	0.000**	1.940 (1.125-3.347)
Feeling unhappy and depressed	220	44	264	0.000**	2.302 (1.349-3.926)
Losing confidence in once self	193	46	239	0.000**	1.088 (0.636-1.863)
Thinking of own self as worthless	158	32	190	0.000**	1.417 (0.817-2.459)
Unable to feel reasonably happy	154	32	186	0.000**	0.949 (0.527-1.711)
Constantly under strain	172	33	205	0.000**	1.742 (1.009-3.007)

*p<0.05, **p<0.0001.

There was significant association between psychological stress symptoms and depression among study participants. The students complaining of 'lost sleep over worry', 'not able to make decision', 'unable to face problems', "feeling unhappy and depressed", "thinking of own self as worthless" and 'constantly under strain' had 1.8, 1.6, 1.9, 2.3, 1.4 and 1.7 times higher risk of having depression respectively.

DISCUSSION

Depression is a common mental disorder that effects the ability of individuals to perform their life activities. Medical college is recognized as very stressful environment and many studies all over the world have proved this fact consistently. Academic performance had a significant association with depression in medical students.

There are very few documented studies to establish association between psychological stress and depression among medical students.[13,14] In this study, BDI was used to assess the prevalence of depression among medical students and the prevalence of depression was 72.9%. In a study done by Kittu, the prevalence of depression among medical student in Pondicherry was 71%, which was similar to our finding.[13] Kumar et al done a study among medical students in Karnataka showed prevalence of depression was 71.25%.[15] Among those students who were depressed, 21.1% moderately depressed and 8.6% had severe depression. This finding was similar to a study done by Kittu and Kumar.[13,15] In this study, females have high prevalence of psychological stress (87.3%) and depression (76.3%) compared to males, which was also observed in a study by Marzo et al and Kumar et al.[14,15] In this study, depression was higher among 1st year of medical students compared to other years of study. However, Rawat et al also showed the prevalence of depression among 1st year student was 72.6%, which was similar to our study findings.[16] The symptoms of psychological stress like unable to concentrate, lost sleep over worry etc, all were significantly associated with depression. Similar result was found in Kittu study.[13] In this study, the students complaining of 'lost sleep over worry', 'not able to make decision', 'unable to face problems', and 'constantly under strain' had 1.8, 1.6, 1.9 and 1.7 times higher risk of having depression respectively. However, these finding are comparatively lower than Kittu study.[13]

This study provides an idea about the magnitude of depression among medical students and its association with psychological stress. The reason for the high prevalence of psychological stress symptoms and depression among medical students could be a result of the students' awareness and academic pressure. As it was a cross sectional study, it was difficult to assess the causal relationship of stress and depression. But, with the sufficient sample size and use of valid depression scale (BDI) for the assessment and classification of depression among medical students increases the validity of this study.

CONCLUSION

Depression is an important and significant hidden problem in India and it is highly prevalent among medical students. Most of the medical students had symptoms of psychological stress and it was associated with depression. The findings of this study accentuate the importance of screening among medical students and recommends appropriate interventional measures to prevent the complications of depression.

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