Original article:

Study of Psychological Depression and its associated factors among Medical Students in Pondicherry

K. Devi MD*, Rohan Patel MD **, Ashok M.Phil***

Associate Professor*, Department of Community Medicine

Melmaruvathur Adhi parasakthi Institute of Medical Sciences and research

Assistant Professor**, Department of Community Medicine

Statistician***, Melmaruvathur Adhi parasakthi Institute of Medical Sciences and research

Corresponding author: Dr K. Devi ; **E-mail ID:** devi.kittu@rediffmail.com

Abstract:

Introduction: Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological wellbeing of the student. Depression among medical students is an area of increasing concern worldwide. This study aimed to assess the prevalence of depression and its associated factors among medical students in Pondicherry.

Materials and Methods: A stratified random sample of 235 students was assessed using Beck Depression Inventory by investigators. Associations between depression and class of studying, age group, social factors like alcohol use, drug addiction, family problems, family history of depression, and staying away from home were analyzed.

Results: The overall prevalence of depression was found to be 71 %. Among those with depression, a majority (67%) had mild and moderate degree of depression. The study showed that only 54% (127) of the depressed were females and 46% (108) were males. According to cut-off scores, 68 students (29%) scored as normal, 99 (42%) as mild, 59 (25%) as moderate, 9 (3.8%) as severe. None of them had very severe depression (>40). The prevalence of depression was comparatively less among 1st medical students (61%) and the difference between the grade of depression and year of studying was found to be significant (χ^2 =5.28, *P*<0.001). The prevalence was significantly more among those with family problems and students put in hostel.

Conclusion: The prevalence of depression is high among medical students. Hence there is a need for early screening and psychiatric counseling of this vulnerable population.

Keywords: Depression, Beck Depression Inventory, Medical students,

Introduction :

Prevalence rates of depression are estimated to range from 15% to 70% in various studies. [1],[2],[3],[4],[5],[6][7],[8],[9],[10]. However, depression among medical students is a neglected public health problem in India. All these studies have been conducted in western countries as well as in other parts of the world. [2],[3],[4],[5],[6] Very few studies have been conducted at a worldwide to find out the prevalence of depression among medical students. 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. [6] Failure to detect these disorders unfortunately leads to increase psychological morbidity with unwanted effects throughout their careers and lives [11],[12]. 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. However, depression in medical students is of paramount importance as it requires early attention. The high rate of depression among medical students is associated with numerous factors. 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 depression among medical students. Studies of such nature will be a useful tool to take appropriate steps like counseling for the depressed medical students.

Hence, this study was undertaken to find out the prevalence of depression and its associated factors.

Materials and Methods :

A cross-sectional study was conducted during January – June 2012 on a representative sample of medical students at a Medical institution in Kirumampakkam, Pondicherry. The aim was to screen for depression using Beck Depression Inventory scale and to determine its associated factors of depression.

The sample size was estimated as 250. In order to increase the representation of each study year in the sample we first stratified the sample on medical students and the study years and then randomly selected the students according to proportional to the size of each stratum to get a total of 250 students. After obtaining permission from the Head of the institution, students were approached to collect data. The medical students were selected randomly from each class from 1st to pre-final year. The objectives of the study were explained to subjects before initiating the study. They were assured confidentiality and given option to refuse to participate in the study without any further questions or implications. After this, informed verbal consent was obtained from all selected participants in the study and they were asked to sign a list to confirm participation. Subjects who refused to participate in the study or if a student who was absent on the day of study and/or could not be contacted even after two visits were considered as non-respondents.

The Beck Depression Inventory Scale (BDI) has been used for screening of depression among study population which has been tested and validated. [13],[14] This is a subjective scale and used for screening purpose, which has to be further evaluated to confirm the diagnosis. We used this scale to screen for depression based on self-report. The questionnaire is self-administered and the results are relative and dependent on how the subject answers each question. It is a 21-item measure and has been one of the most widely used screening instruments for detecting symptoms of depression. It can be administered to assess normal adults, adolescents, and individuals with psychiatric disorders (13 years of age or older). [8] It was designed to document a variety of depressive symptoms the individual experienced over the preceding week. Responses to the 21 items are made on a 4-point scale, ranging from 0 to 3 (total scores can range from 0 to 63). A self-administrated questionnaire was used to collect information regarding year of study, age group, gender, social factors like alcohol use, drug addiction, family problems, family history of depression, and staying away from home.

Any subject with an alcohol intake at least once in the past 12 months was considered as alcohol user for the purpose of this study. The family problem was assessed by the question that whether the family members were currently having any problem that worries the subject or not. Drug addiction was defined as repeated use of any psychoactive substance including alcohol, to the extent that the user is periodically or chronically intoxicated, shows a compulsion to take the preferred substance, and has a great difficulty in voluntarily ceasing or modifying substance use.

Family history of depression was assessed based on earlier diagnosis among first or second degree relatives.

Data was entered and analyzed by using SPSS 16 for windows. Chi- square test was used to test for the association between depression and variables. Data was expressed in terms of proportion or percentages.

Results:

Of the 235 medical students who participated in the study, the overall prevalence of depression was 71% among medical students. Among those with depression, a majority (67.2%) had mild and moderate degree of depression. According to the cut off scores, 115 students (29%) scored as normal (0-9), 99 (42.1%) as mild (10-18), 59 (25.1%) as moderate (19-29), 9 (3.8%) as severe (30-40). [Table 1].

Among the medical students, 108 (46%) were males and 127 (54%) were females. The present study showed that 41.3% (97) of the depressed were females and 29.8% (70) were males; and the association between the grade of depression and gender was not statistically significant (χ^2 =3.25, *p*=0.07). [Table 2].

The prevalence of depression was less among 2nd year medical students (15.8%). During the 1 st year, totally 61.8% were depressed compared to 76.7% among the second and third year students. This difference is statistically significant. (χ^2 =5.28, p<0.001) [Table 3].

The prevalence of mild and moderate depression among medical students <20 yrs of age was found to be 29.4% and 15.7% respectively. Among the medical students of >20 years of age was the prevalence of mild and moderate depression was 12.8% and 9.4%. [Table 4].

In this study it was observed that the prevalence was high among those medical students with family problems and it was found to be significant (χ^2 =21.12, p=0.000). Similarly, those students staying in hostel had higher prevalence compared to those students not staying in hostel (χ^2 =5.51, p=0.018). There was no significant difference in the prevalence of depression among those with other associated factors for depression [Table 5].

Discussion:

Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological wellbeing of the student. Consistent with the economic changes and the needs of our country, the population of medical student population is increasing. This has enhanced the risk of developing various mental disorders like depression. Well-documented studies to determine the prevalence of depression and its associated factors among medical students are few at global level. [1],[2],[3],[4],[5],[6] Also there is a wide difference in prevalence rates in these studies. To the best of our knowledge, there are very few studies using Beck Depression Inventory to assess depression among

medical students in India. In the current study, the BDI has been utilized to detect the prevalence of depression among medical students. Although it is not designed for diagnostic purposes, its epidemiologic utility has been evaluated in several studies, which concluded that it is a reliable and valid instrument for detecting depressive disorders in non-clinical populations. Several studies support the BDI's usefulness in measuring and predicting depression in adolescent samples.[15],[16] Prevalence rates of depression are estimated to range from 15% to 70% in various studies. [1],[2],[3],[4],[5],[6][7],[8],[9],[10] Chan among Chinese medical students in Hong Kong found that around half of the medical students are depressed. [4] In contrast, a study done in Pakistan found that the prevalence rate varied from 49% to 66% among medical students. [7] Another study has shown that 39.4% of the medical students are depressed by using the instrument Depression Anxiety Stress Scale. [8] The present study has shown that the prevalence of depression is higher among medical students compared to the above studies. This is mainly because of inclusion of mild degree of depression by lower cut off for BDI score in our study. About 3/4 of the depressed students belonged to mild to moderate degree of depression in our study.

As the class of studying increases, the prevalence increased significantly. Our study is consistent with the findings of other studies. [1],[2],[3] In contrast to this, another study showed that prevalence is significantly higher among 1st and 2 nd year medical students, [7] Although there is marginally higher prevalence among females compared to males, it was not found to be significant in comparison [1] [2] and contrast to other studies. [10] It has been demonstrated that mood disorders occur more commonly among the relatives of depressed persons than in the general population. [5] It is seen that alcohol use, drug addiction, and staying away from home did not affect the prevalence of depression in our study. In this study, variables that might be related to depression, such as physical activity, duration of sleep, personal efficacy, existence of social support, conflict between career life and private life, work place phobia, were not analyzed. Also, personality characteristics that may be predictive of depression were not analyzed. Positive subjects were counseled and a psychologist and counselor took group sessions for the participants after the study. The students were also offered to consult a psychiatrist and seek help and confidentiality was assured. They were also offered services of a counselor beyond the study at their convenient time. The helpline number was informed to all the participants. The subjects with severe depression were referred to department of psychiatry for further analysis and counseling. Socio-demographic factors like education, occupation, and income of the family were not assessed due to feasibility constraints. This study gives an idea of magnitude of depression among medical students and some of its associated factors, which can be evaluated by further studies in depth by qualitative and quantitative methods. Since it is a cross-sectional study, it is hard to assess direction of influence and it precludes us from making causal inferences from our study findings. However, the sufficient sample size and using a valid scale to classify depressive symptoms of the students increases the validity of the study. Depression is highly prevalent among medical students. The fact that 7.5% and 6.7% respect of the medical students had depression of severe and very severe grade suggests the need of group counseling facilities within the medical college. Our findings

point to the importance of screening of this vulnerable population and taking appropriate interventional measures to prevent the complications of depression.

Table 1: Grades of depression

S.NO	GRADING	NO	PERCENTAGE
1.	Denial	14	6
2.	Normal	54	23
3.	Mild	99	42.1
4.	Moderate	59	25.1
5.	Severe	9	3.8
	Total	235	100

Table 2: Grades of depression according to sex

Grades (score)	Male (%)	Female (%)	Total (%)
Denial	10(4.3%)	4(1.7)	14(6)
Normal	28(11.9%)	26(11.1)	54(23)
Mild	41(17.4%)	58(24.7)	99(42.1)
Moderate	26(11.1)	33(14)	59(25.1)
Severe	3(1.3)	6(2.6)	9(3.8)
Total	108(46)	127(54)	235(100)

Table 3: Grades of depression according to classes

Grades (score)	1st year (%)	2nd year (%)	3rd year (%)	Total (%)
Denial	9(3.8)	1(0.4)	4(1.7)	14(6)
Normal	25(10.6)	10(4.3)	19(8.1)	54(23)
Mild	35(14.9)	22(9.4)	42(17.9)	99(42.1)
Moderate	15(6.4)	13(5.5)	31(13.2)	59(25.1)
Severe	5(2.1)	2(0.9)	2(0.9)	9(3.8)
Total	89(37.9)	48(20.4)	98(41.7)	235(100)

Table 4: Grades of depression according to age group

Grades (score)	<20 years (%)	>20 years (%)	Total (%)
Denial	11(4.7)	3(1.3)	14(6)
Normal	40(17)	14(6)	54(23)
Mild	69(29.4)	30(12.8)	99(42.1)
Moderate	37(15.7)	22(9.4)	59(25.1)
Severe	8(3.4)	1(0.4)	9(3.8)
Total	165(70.2)	70(29.8)	235(100)

Table 5: Prevalence of depression according to its associated factors:

Determinants	No of students	No of students with depression	Prevalence (%)	X^2,p
Sex				
Male	108	70	64.8%	3.25, 0.07
Female	127	97	76.4%	
Age group				
<20 years	165	114	69%	0.75, 0.39
>20 years	70	53	75.7%	
Year of studying				
1st	89	55	61.8%	5.28, 0.021*
2nd and 3rd year	146	112	76.7%	

Cont….

Alcohol use				
Present	78	56	71.8%	0.00, 0.98
Absent	157	111	70.7%	
Drug addiction				
Present	42	26	61.9%	1.58, 0.208
Absent	193	141	73%	
Family problems				
Present	105	91	86.7%	21.12, 0.000*
Absent	130	76	58.5%	
Staying in hostel				
Yes	140	108	77%	5.51, 0.018*
No	95	59	62%	
Staying in apartments or rented house				
Yes	75	51	68%	0.31, 0.57
No	160	116	72.5%	
Family history of depression				
Present	57	44	77%	1.01, 0.315
Absent	178	123	69%	

***p value of <0.05 is considered as significant.**

REFERENCES:

1. Kumar GS, Jain A, Hegde S. Prevalence of depression and its associated factors using Becks Depression Inventory among students using Beck Depression Inventory among students of a medical college in Karnataka. Indian J Psychiatry 2012;54:223-6
2. Clark DC, Zedlow PB. Vicissitude of depressed mood during four years of medical school. J Am Med Assoc 1988;260:2521-8.
3. Levine RE, Litwins SD, Frye AW. An Evaluation of Depressed Mood in Two Classes of Medical Students. Acad Psychiatry 2006;30:235-7.
4. Chan DW. Depressive symptoms and depressed mood among Chinese medical students in Hong Kong. Compr Psychiatry 1991;32:170-80.
5. Zoccolillo M, Murphy GE, Wetzel RD. Depression among medical students. J Affect Disord 1986;11:91-6. [PUBMED]
6. Birmaher B, Ryan ND, Williamson DE, Brent DA. Childhood and adolescent depression: A review of the past 10 years, Part I. J Am Acad Child Adolesc Psychiatry 1996;35:1427-39.
7. Inam SNB, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. J Pak Med Assoc 2003;53:44-7.

8. Vaidya PM, Mulgaonker KP. Prevalence of depression, anxiety and stress in undergraduate medical students and its correlation with their academic performance. Indian J Occup Ther 2007;39:1-10.
9. Aniebue PN, Onyema GO. Prevalence of depressive symptoms among Nigerian medical undergraduates. Trop Doct2008;38:157-8.
10. Marie D, Joneborg N, Runeson B. Stress and depression among medical students: A cross sectional study. Med Educ 2005;39:594-604.
11. Ko SM, Kua EH, Fones CSL. Stress and the Undergraduates. Singapore MedJ 1999; 40(10): 627-30.
12. Tyssen R, Vaglum P, Gronvold NT, Ekeberg O. Suicidal ideation among medical students and young physicians: a nationwide and prospective study of prevalence and predictors. Journal of Affective Disorders 2001; 64(1): 6979
13. Basker M, Moses PD, Russell S, Russell PS. The psychometric properties of Beck Depression Inventory for adolescent depression in a primary-care paediatric setting in India. Child Adolesc Psychiatry Ment Health 2007;1:8.
14. Beck A, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Arch Gen Psychiatry 1961;4:561-71.
15. Barrera M Jr, Garrison-Jones CV. Properties of the Beck Depression Inventory as a screening instrument for adolescent depression. J Abnorm Child Psychol 1988;16:263-73.
[PUBMED]
16. Teri L. The use of the Beck Depression Inventory with adolescents. J Abnorm Child Psychol 1982;10:277-84.

Date of submission: 19 June 2013	Date of Provisional acceptance: 25 June 2013
Date of Final acceptance: 27 July 2013	Date of Publication: 04 September 2013
Source of support: Nil	Conflict of Interest: Nil