

## Original Article

# STUDY OF ASSOCIATION OF PSYCHOLOGICAL STRESS AND DEPRESSION AMONG UNDERGRADUATE MEDICAL STUDENTS IN PONDICHERRY

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**Financial Support:** None declared  
**Conflict of interest:** None declared

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**How to cite this article:**

Kittu D, Patil R. Study of Association of Psychological Stress and Depression among Undergraduate Medical Students in Pondicherry. Natl J Community Med 2013; 4(4): 555-8.

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**Date of Submission:** 22-08-13

**Date of Acceptance:** 21-10-13

**Date of Publication:** 31-12-13

## ABSTRACT

**Background:** Medical education across the globe is perceived as being inherently stressful. Studies on psychological problems such as stress, depression and anxiety among medical students have found that these disorders are under diagnosed and under treated. In this background the present study was undertaken with the objectives to assess the magnitude of depression and its association with stress among medical students.

**Methods:** A Cross sectional study was undertaken among 235 medical students in a private medical college, Pondicherry. Tools similar to General Health Questionnaire (GHQ-12) and Beck depression Inventory (BDI) was used to screen psychological stress and depression respectively.

**Results:** The prevalence of depression was 71% among medical students. Psychological stress was associated with depression.

**Conclusion:** Emphasize should be laid on the importance of screening for depression of medical students on a regular basis for early detection and rendering appropriate intervention like group counseling, stress management training etc. to protect the future professionals.

**Keywords:** Depression, Stress, Medical students, General health questionnaire, Becks depression inventory

## 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. Medical education across the globe is perceived as being inherently stressful.<sup>1, 2, 3, 4</sup> During medical training students are subjected to different kinds of stressors such as burden of academic pressure, an uncertain future, difficulties of integrating into the system along with emotional, social, physical and family problems. Psychological distress among students reduces their self-esteem, quality of life and quality of care to patients. They may engage in potentially harmful methods of coping with stress such as tobacco, alcohol and substance abuse.

According to WHO, it is estimated that 5.8% of men and 9.5% of women will experience a depressive episode in any given year.<sup>5</sup> The prevalence of depression among medical students in India was found to be 71.25%.<sup>6</sup>

Undergraduate medical students have been the most distressed group of students compared to undergraduates from any other course. This stress has serious

consequences which may lead to the development of depression and anxiety.<sup>7</sup> Studies on psychological problems among medical students found that these disorders are under-diagnosed and under-treated. Early detection of psychological problems shortens the duration of the episode and results in far less social impairment in long term.<sup>8</sup>

There are very few studies on stress among medical students in India. Therefore it becomes important to study the overall mental health status and prevent the ill effects of depression among medical students as these constitute neglected public health problem in India. In this background the present study was undertaken with the objectives to assess the magnitude of depression of medical students and to analyze the association between psychological stress and depression among medical students in one of the private medical college in Pondicherry.

## MATERIALS AND METHODS

A Cross sectional study was undertaken in a private medical college in Pondicherry for a period of six

months (January to June 2012) involving all 235 students studying in I (first term) and II year (third term) Bachelor of Medicine and Bachelor of Surgery (MBBS). These two terms were selected purposively for the reason that students in first term are those who had just now entered into new environment of medical college and medical curriculum. The other group consisting of second year MBBS would have already been accustomed to the college as well as curriculum. Prior to data collection permission was obtained from the concerned authorities of medical college to conduct the study. An informed consent was obtained from the participants. The purpose of the study and the contents of the form were explained to them. They were assured that all the information provided by them would be kept confidential.

A self-administered instrument similar to the General Health Questionnaire (GHQ -12) <sup>9</sup> was used to screen for symptoms of psychological stress. This instrument consists of 12 questions. 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. Another questionnaire similar to the Beck Depression Inventory (BDI) was also used to screen for depression among the respondents.<sup>10</sup> The validated questionnaire consisted of 21 questions. It is a subjective scale used for screening purpose which has to be further evaluated to confirm the diagnosis. In its current version the questionnaire is designed for individuals aged 13 and over, and is composed of items relating to symptoms of depression in last two weeks. Each question has a set of at least four possible answer choices, ranging in intensity on a scale value of 0 to 3 and total score being 63. Scores of 10 and above were considered to be positive for depression. Higher total score indicates more severe depressive symptoms.

**Data analysis:** Data was analyzed using the Statistical Package using Micro soft Excel and SPSS 15. Proportion, mean and standard deviation was determined.

Further analysis using logistic regression was done to determine the association of each symptom with depression using SPSS.

**RESULTS**

Out of 250 medical students, 235 students participated and completed the questionnaires giving a response rate of 94%. Out of the 235 respondents 127 (54%) were females and 108 (46%) males. The overall age ranged from 17 to 24 years (mean age was 18.85 years). Majority of the respondents were Indians (88%) followed by Malaysians (11.5%).

Table I shows the prevalence of depression among medical students according to their grade. The overall prevalence of depression among medical students was 71%. Among those students who were depressed, 42% had mild depression, 25% moderately depressed and the remaining 3.8% had severe depression.

**Table 1: Prevalence of Depression among medical students:**

Grading	Student (%)
Normal	68 (29)
Mild	99 (42.1)
Moderate	59 (25.1)
Severe	9 (3.8)
Total	235 (100)

Table 2 shows the 12 symptoms of psychological stress as experienced by the medical students. Majority of the students were feeling reasonably happy (81.7%), not able to face problems (80.9%), unable to enjoy normal activities (75.3%), not able to make decisions (62.6%), not able to play useful part (57.4%), unable to concentrate (54.5%), feeling constantly under strain (54%). Other common symptoms were unhappiness and depressed (44.7%), not able to overcome difficulties (41.7%), had problems in sleeping when worried (35.7%), losing self-confidence (26%) and thinking worthless in 19%.

**Table 2: Symptoms of Psychological stress**

Symptoms of psychological stress	Number (%)	Mean/SD
Unable to concentrate	128 (54.5)	1.54±0.49
Lost sleep over worry	84 (35.7)	1.36±0.48
Unable to play useful part in things	135 (57.4)	1.57±0.495
Not able to make decisions	147 (62.6)	1.63±0.48
Unable to overcome difficulties	98 (41.7)	1.42±0.49
Unable to enjoy normal activities	177 (75.3)	1.75±0.43
Unable to face problems	190 (80.9)	1.81±0.39
Feeling unhappy and depressed	105 (44.7)	1.45±0.49
Losing confidence in once self	61 (26)	1.26±0.43
Thinking of own self as worthless	45 (19.1)	1.19±0.39
Unable to feel reasonably happy	192 (81.7)	1.82±0.38
Constantly under strain	127 (54)	1.54±0.49

**Table: 3 Association of symptoms of Psychological stress with Depression**

Symptoms of Psychological stress	Depression present	Depression absent	Total	p-value	Odds ratio	Confidence interval
Unable to concentrate	91	37	128	0.73	0.88	0.43,1.81
Lost sleep over worry	67	17	84	0.80	0.90	0.42,1.94
Unable to play useful part in things	100	35	135	0.73	1.12	0.55,2.28
Not able to make decisions	107	40	147	0.47	1.31	0.61,2.82
Unable to overcome difficulties	87	11	98	0.032*	2.51	1.08,5.85
Unable to enjoy normal activities	126	51	177	0.79	0.87	0.31,2.42
Unable to face problems	138	52	190	0.62	1.35	0.40,4.52
Feeling unhappy and depressed	93	12	105	0.012*	2.65	1.28,5.69
Losing confidence in once self	55	6	61	0.31	1.72	0.60,4.96
Thinking of own self as worthless	43	2	45	0.041*	5.09	1.06,24.2
Unable to feel reasonably happy	138	54	192	0.28	0.51	0.15,1.75
Constantly under strain	109	18	127	0.013*	2.51	1.21,5.21

\*p value<0.05 = significant

There was significant association between psychological stress and depression among the respondents. Four (i.e., "constantly under strain", "unable to overcome difficulties", "feeling unhappy and depressed", "thinking of own self as worthlessness") out of the 12 symptoms of psychological stress were significantly associated with depression ( $p < 0.05$ ). (Table 3).

## 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. The personal and social sacrifice that the students have to make in order to maintain good academic results in a highly competitive environment puts them under a lot of stress which may end up in wide spectrum of psychological disorders like depression, anxiety, stress etc.<sup>3</sup>

Recent research in the UK indicates that mental health or psychological problems within student populations are as high as 40%, with most students suffering from depression or anxiety, or both. Many respondents expressed the opinion that the number of students with mental health problems was increasing and that the severity of their problems was also increasing.

This study found that the prevalence of psychological depression among medical students was high (71%), which corresponds to other studies.<sup>1,7,11,12,13,14,15,16</sup>

The most common symptoms the medical students complained of were, not able to face problems (80.9%), unable to enjoy normal activities (75.3%), not able to make decisions (62.6%), not able to play useful part (57.4%), unable to concentrate (54.5%), feeling constantly under strain (54%). The symptoms of psychological stress "constantly under strain", "unable to overcome difficulties", "feeling unhappy and depressed", "thinking of own self as worthlessness" were all significantly associated with depression. In fact the results found that students complaining of these symptoms had almost 2 to 5 times higher risk of having depression. Thus there is a significant association between symptoms of psychological stress and depression among medical students. A study among

Norwegian medical students by Tyssen et al found that suicidal ideation in medical school was significantly predicted by mental distress and depression'.<sup>17</sup>

The reason for the high percentage of symptoms being reported by medical students could be a result of the students' awareness of symptoms of stress. However, under reporting of these symptoms could be due to ignorance on the part of the students that these symptoms are related to depression, and can be treated. A larger study can be undertaken to confirm these findings. It is also important for academic staff especially lecturers to be aware of the presence of these symptoms in their students.

Greater emphasis should be placed on health programs including stress management to help students cope with the stress of tertiary education. These programs should in fact be implemented in all universities. The ultimate aim is to help medical students understand what is required of them and to adapt to the stressful environment as quickly as possible.

## CONCLUSION

The prevalence of depression among medical students was found to be high in this study. Symptoms of Psychological stress were associated with depression. Our findings emphasize the importance of screening for depression of medical students during training on a regular basis for early detection and taking appropriate intervention like group counseling, stress management training etc. to protect this valuable future human resource. By identifying its symptoms and association with depression, hopefully these conditions among medical students can be identified at an early stage to prevent psychological morbidity among the medical students and young doctors.

## Limitations:

This study is a cross-sectional study, so cause and effect relationship of psychological morbidity with other factors could not be established. The scale we screened for depression was a self reporting subjective scale; therefore the scores can be easily exaggerated or mi-

nimized by the person completing them. Therefore, it can be evaluated by further studies in depth by qualitative methods.

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