

## PREVALENCE OF DEPRESSION, ANXIETY AND STRESS: A CROSS-SECTIONAL SURVEY AMONG 2<sup>ND</sup> YEAR MEDICAL STUDENTS IN A RURAL TERTIARY CARE CENTRE

Manu Gangadhar<sup>1</sup>, Padmanabha Thiruganahalli Shivaraju<sup>2</sup>, Chandrakantha Thippeswamy<sup>3</sup>, Neha Krishnegowda<sup>4</sup>, Narasimhamurthy Kalenahally Muthahanumaiah<sup>5</sup>

<sup>1</sup>Assistant Professor, Department of Pharmacology, Adichunchanagiri Institute of Medical Sciences, B. G. Nagar.

<sup>2</sup>Assistant Professor, Department of Pharmacology, Adichunchanagiri Institute of Medical Sciences, B. G. Nagar.

<sup>3</sup>Post Graduate, Department of Pharmacology, Adichunchanagiri Institute of Medical Sciences, B. G. Nagar.

<sup>4</sup>Post Graduate, Department of Pharmacology, Adichunchanagiri Institute of Medical Sciences, B. G. Nagar.

<sup>5</sup>Post Graduate, Department of Pharmacology, Adichunchanagiri Institute of Medical Sciences, B. G. Nagar.

---

### ABSTRACT

---

#### BACKGROUND

Medical education is highly stressful and higher stress has been documented in medical students. Stepping entirely into a new environment, huge medical course syllabus which has to be mastered in a short period of time, continuous internal assessments, examinations, being far from family and other social and personal issues are more prone to develop negative emotional symptoms to a newly joined student.

#### OBJECTIVE

To determine the prevalence of depression, anxiety and stress among 2<sup>nd</sup> year medical students at AIMS, B G Nagar.

#### METHODS

A cross-sectional questionnaire-based study was conducted among 2<sup>nd</sup> year medical students of AIMS, B G Nagar.

#### RESULTS

Among 185 students 160 students had completed the questionnaire, the response rate was 86.46%; 118 were female students (73.75%) and 42 were male students (26.25%) and were within the age group of 19 to 21 years. In our study 41.87% of students showed depression, 68.12% of students showed anxiety and 63.12% of students showed stress of different grades (Mild, moderate, severe and very severe). The incidence of depression was almost similar in both the gender and the incidence of anxiety and stress were more among females.

#### CONCLUSION

In our study, the prevalence of anxiety and stress is more in medical students. Females are more anxious and stressful than males. Early interventions and timely monitoring should be done to address these negative emotional symptoms. Counselling of students, workshops on stress management, daily physical activities could help them to come out of these health issues.

#### KEYWORDS

DASS-42, Depression, Anxiety, Stress, Medical Students.

---

**HOW TO CITE THIS ARTICLE:** Gangadhar M, Shivaraju PT, Thippeswamy C, et al. Prevalence of depression, anxiety and stress: a cross-sectional survey among 2<sup>nd</sup> year medical students in a rural tertiary care centre. J. Evolution Med. Dent. Sci. 2016;5(30): 1511-1514, DOI: 10.14260/jemds/2016/356

---

#### INTRODUCTION

Medical education can impose significant psychological stress on undergraduates.<sup>1</sup> Medical education is perceived as stressful. In various studies, high levels of stress have been documented in medical students.<sup>2-4</sup>

Major depression is a mood disorder that is defined by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders –Text Revision (DSM-IV-TR) as a disorder that is characterized by either a depressed mood or markedly diminished interest in pleasure

activity in addition to at least four other symptoms within a duration of at least two weeks. These symptoms include impaired appetite, disturbed sleep, poor concentration, loss of energy, psychomotor agitation or retardation, feeling of worthlessness or inappropriate guilt, thoughts of death or recurrent suicidal ideation.<sup>5</sup>

The American Psychological Association also characterizes anxiety and stress by feelings of tension, worried thoughts and physical changes. Autonomic arousal, skeletal muscle tension and situational aspects are more related to anxiety.<sup>6</sup> irritability, impatience and difficulty in relaxing are more related to stress.<sup>7</sup>

The reasons for stress among medical students were reported to be due to academic demands, inability to cope, exams, increased psychological pressure, helplessness, too much work load and mental tension.<sup>8</sup> resulting in decreased life satisfaction among them and later can lead to problems in professional life compromising patient care. The transition from pre-clinical to clinical training has been identified as a crucial stage of medical school regarding student stress.<sup>9</sup> resulting in decreased life satisfaction among students.

---

*Financial or Other, Competing Interest: None.*

*Submission 24-02-2016, Peer Review 19-03-2016,*

*Acceptance 25-03-2016, Published 12-04-2016.*

*Corresponding Author:*

*Dr. Manu Gangadhar,*

*#254, Dr. Rajkumar Road,*

*RMS & HPO Layout,*

*Near Triveni Circle, Shakthi Nagar,*

*Mysore-570029.*

*E-mail: drmanugigu@gmail.com*

*DOI: 10.14260/jemds/2016/356*

---

Many studies have reported that medical students suffer from depression, anxiety and stress.<sup>10-12</sup> Healthy students develop depression and stress after commencing their medical education. Post graduate training competition and job opportunities could be an additional trigger for psychological illness.<sup>13</sup> Physicians tend to have higher suicidal rate than the general population.<sup>14</sup>

To appraise mental health, there are several tools. Among them Depression, Anxiety and Stress Scale – 42 (DASS-42) is of particular importance. It is a short, reliable and validated questionnaire.<sup>15</sup> which can identify traits of depression, anxiety and stress rather than actual diagnosis.<sup>16</sup> DASS-42 questionnaire categorizes each condition into 5 subcategories namely normal, mild, moderate, severe and extremely severe.<sup>17</sup> as given in Table – 1.

2<sup>nd</sup> year medical students are in crucial stage of medical course to cope with both the clinical and para-clinical subjects together which is very stressful affecting their academic performance. Henceforth, here we have made an attempt to know the prevalence of depression, anxiety and stress among these medical students. Though we have different studies done among medical students in different setups, we wanted to know the prevalence rate of these negative emotions in a rural tertiary care teaching hospital like us.

## METHODOLOGY

### Study Design

Cross sectional study.

### Study Area

Adichunchanagiri Institute of Medical Sciences, B G Nagar.

### Study Population

All 2<sup>nd</sup> year medical students, both 3<sup>rd</sup> term and 4<sup>th</sup> term students.

### Sample Size

160.

### Inclusion Criteria

- All 2<sup>nd</sup> year medical students voluntarily willing to participate in the study and who is sound in mind with no associated history of psychiatric comorbidities.

### Exclusion Criteria

- Medical students who are not willing to participate.
- Medical students having any psychiatric diseases.

### Data Collection Procedures

A cross-sectional questionnaire based study was conducted in AIMS, B G Nagar, with an aim to determine the prevalence of depression, anxiety and stress among medical students studying in 2<sup>nd</sup> year. The study was conducted after obtaining the permission from the Institutional Ethical Committee.

Objectives and procedure of the study was explained to the participants. The inclusion of the participants was anonymous and voluntary. All participants were included after a written informed consent. A feedback questionnaire of DASS-42 was distributed among the participants. The investigators were present in case the respondents required assistance.

For the purpose of the study, certain medical terms were explained to the participants if they cannot understand. Participants were asked to use the severity scales to rate the extent to which they have experienced over the past week. The

filled questionnaire feedbacks were retrieved from the participants. Scores were calculated by summing the scores for relevant items. The score was evaluated as per the severity-rating index of DASS scoring (Table – 1).

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

**Table 1: The Categorization scores of the DASS-42 Questionnaire**

**Quality Control:** Was maintained as per the standard protocol.

**Confidentiality:** Was maintained.

### Statistical Analysis

Statistical results were tabulated and calculated in Microsoft excel and the prevalence of depression, anxiety and stress were expressed in numbers and percentages.

Overall DASS Score					
	Normal	Mild	Moderate	Severe	Extreme Severe
Depression	93	27	30	9	1
Anxiety	51	22	56	19	12
Stress	59	43	51	4	3

Depression Score					
	Normal	Mild	Moderate	Severe	Extreme Severe
Male (n=42)	24	7	9	2	0
Female (n=118)	69	20	21	7	1

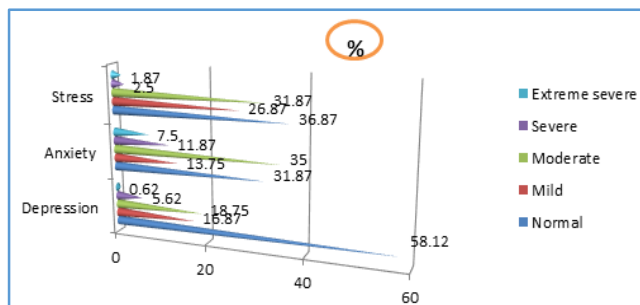
Anxiety Score					
	Normal	Mild	Moderate	Severe	Extreme Severe
Male (n=42)	14	10	11	6	1
Female (n=118)	37	12	45	13	11

Stress Score					
	Normal	Mild	Moderate	Severe	Extreme Severe
Male (n=42)	16	11	14	1	0
Female (n=118)	43	32	37	3	3

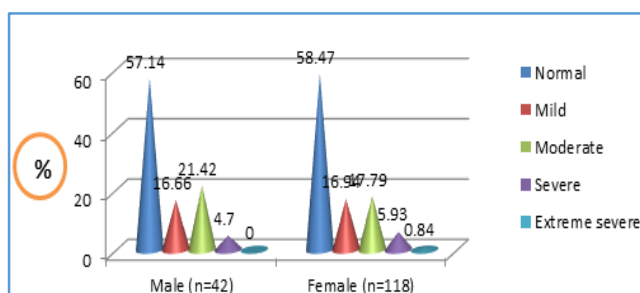
## RESULTS

In our study, total respondents were 160 out of 185

participants (86.46%). Among them 118 are female (73.75%) respondents and 42 are male (26.25%) respondents. All were in the age group of 19–21 years

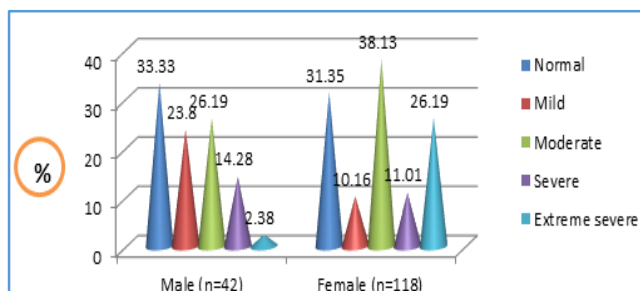


**Fig. 1: Overall DASS Score**



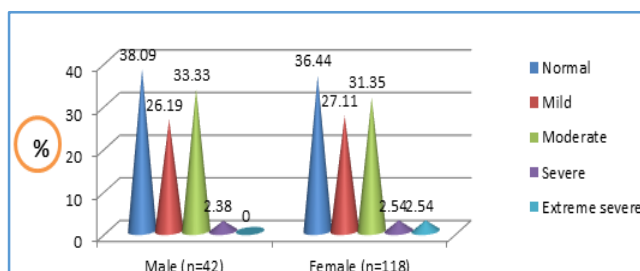
**Fig. 2: Depression Scale**

In depression scale, out of 160 participants 93 (58.12%) showed no evidence of depression, 27 (16.87%) showed mild depression, 30 (18.75%) had moderate, 9 (5.62%) had severe and one (0.62%) had very severe depression.



**Fig. 3: Anxiety Scale**

In anxiety scale 51 (31.87%) were normal, 22 (13.75%) had mild, 56 (35%) had moderate, 19 (11.87%) had severe and 12 (7.5%) had very severe anxiety.



**Fig. 4: Stress Scale**

In stress scale 59 (36.87%) were normal, 43 (26.87%) had mild, 51 (31.87%) had moderate, 4 (2.5%) had severe and 3 (1.87%) suffered from very severe stress.

## DISCUSSION

In our study an attempt was made to assess the level of depression, anxiety and stress among 2<sup>nd</sup> year medical students. Here, we have selected 2<sup>nd</sup> year medical students as they have been upgraded from preclinical to clinical settings.

They will be new to the hospital exposure and many new things to be learned, which they are entirely unaware of. This would be very stressful for them to cope with both clinical exposure in hospitals and also regular 4 subjects of phase II MBBS.

Medical education is perceived as stressful. In various studies, high levels of stress have been documented in medical students.<sup>2-4</sup> The transition from pre-clinical to clinical training has been identified as a crucial stage of medical school regarding student stress.<sup>9</sup> resulting in decreased life satisfaction among students. In our study 41.87% of students showed depression, 68.12% of students showed anxiety and 63.12% of students showed stress of different grades (Mild, moderate, severe and very severe).

The incidence of depression was almost similar in both the genders; about 42.85% of male participants and 41.52% of female participants are depressed. In other studies,<sup>18,19</sup> the prevalence of depressive symptoms was high among newly entered students (1<sup>st</sup> and 2<sup>nd</sup> year) as compared to the senior students, which was due to stress of new study environment and greater degree of work load with obligations to succeed, financial indebtedness, change in their sleeping and eating habits, homesickness as most of them might live far from home for the first time, lack of leisure time.

The incidence of anxiety and stress was more among females than males; 68.64% of females and 66.66% of males are anxious; 63.55% females and 61.9% males are stressful. Similar results were seen in previous studies.<sup>20, 21</sup> The cause of anxiety and stress in females may be due to females articulate depressive symptoms, even minor ones, more easily.<sup>22</sup> and others could be competitiveness, huge medical syllabus, lack of physical exercise and enthusiasm for academic excellence, high expectations of parents, peer pressure.

Our limitation was that our study is restricted to only our medical college and that too only 2<sup>nd</sup> year medical students. The sample size was small and unequal. The prevalence of depression, anxiety and stress in the general population is not available. Reporting bias could not be eliminated as it was a questionnaire study, which is self-reported. Future studies to be done over large proportionate sample size to minimize the bias and to compare the prevalence with similar studies among general population.

## CONCLUSION

Our study shows high prevalence of anxiety and stress among 2<sup>nd</sup> year medical students. Females are more anxious and stressed in comparison to males. Early interventions and timely monitoring should be done to address these negative emotional symptoms. We recommend interventions like educational methods, relaxation techniques, counselling of students, workshops on stress management, encouraging medical students to do physical exercises like yoga regularly to come out of the negative consequences of depression, anxiety and stress.

**ACKNOWLEDGEMENT**

We would like to express our gratitude to all the medical students for spending time to answer our questionnaire that helped us to complete our study successfully and we are also thankful to the Institutional Ethical Committee of AIMS, B G Nagar, that permitted to conduct such a survey study.

**REFERENCES**

1. Mosley TH Jr, Perrin SG, Neral SM, et al. Stress, coping, and well-being among third year medical students. *Acad Med* 1994;69(9):765-7.
2. Aktekin M, Karaman T, Senol YY, et al. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. *Med Educ* 2001;35(1):12-7.
3. Azhar MZ. Psychological stress and treatment-research issues. *Med J Malaysia* 2004;59(2):143-5.
4. Firth-Cozens J. Medical student stress. *Med Educ* 2001;35(1):6-7.
5. American Psychiatric Association. Mood disorders. diagnostic and statistical manual of mental disorders, text revision. American psychiatric association. Washington, DC. 2000;4<sup>th</sup> edn:345-429.
6. Anxiety [webpage on the Internet]. American psychological association. Available from: <http://www.apa.org/topics/anxiety/index.aspx>.
7. Stress [webpage on the Internet]. American psychological association. Available from: <http://www.apa.org/topics/stress/>.
8. Shaikh BT, Kahloon A, Kazim M, et al. Students, stress and coping strategies: a case of Pakistani medical school. *Educ Health (Abingdon)* 2004;17(3):346-53.
9. Helmers KF, Danoff D, Steinert Y, et al. Stress and depressed mood in medical students, law students and graduate students at McGill University. *Acad Med* 1997;72(8):708-14.
10. Henning K, Ey S, Shaw D. Perfectionism, the imposter phenomenon and psychological adjustment in medical, dental, nursing and pharmacy students. *Med Educ* 1998;32(5):456-464.
11. Roberts LW, Warner TD, Lyketsos C, et al. Perceptions of academic vulnerability associated with personal illness: a study of 1,027 students at nine medical schools. collaborative research group on medical student health. *Compr Psychiatry* 2001;42(1):1-15.
12. Dyrbye LN, Thomas MR, Eacker A, et al. Race, ethnicity, and medical student well-being in the united states. *Arch Intern Med* 2007;167(19):2103-2109.
13. Yusoff MS, Abdul Rahim AF, Baba AA, et al. The impact of medical education on psychological health of students: a cohort study. *Psychol Health Med* 2013;18(4):420-430.
14. Schernhammer ES, Colditz GA. Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). *Am J Psychiatry* 2004;161(12):2295-2302.
15. Henry JD, Crawford JR. The short-form version of the depression anxiety stress scales (DASS-42): construct validity and normative data in a large non-clinical sample. *Br J Clin Psychol* 2003;42:111-131.
16. Gloster AT, Rhoades HM, Novy D, et al. Psychometric properties of the depression anxiety and stress scale-21 in older primary care patients. *J Affect Disord* 2008;110(3):248-259.
17. Lovibond SH, Lovibond PF, editors. Manual for the depression anxiety stress scales. Sydney: Psychology Foundation, 1995;2<sup>nd</sup> edn.
18. Khan MS, Mahmood S, Badshah A, et al. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. *J Pak Med Assoc* 2006;56(12):583-586.
19. Goebert D, Thompson D, Takeshita J, et al. Depressive symptoms in medical students and residents: a multi school study. *Acad Med* 2009;84(2):236-241.
20. Farwa Rizvi, Ayisha Qureshi, Abdul Majid Rajput, et al. Prevalence of depression, anxiety and stress (by DASS Scoring System) among medical students in Islamabad, Pakistan. *British Journal of Medicine & Medical Research* 2015;8(1):69-75.
21. Inam SN, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. *J Pak Med Asso* 2003;53(2):44-7.
22. Noble RE. Depression in women. *Metabolism* 2005;54(5):49-52.