



**A Study to assess levels of Depression, Anxiety and Stress between First and Final year Medical students of Selected Medical College Karimnagar District, Telangana**

<sup>1</sup>Rajamouli J, <sup>2</sup>Manoj P, <sup>3</sup>Sachin G

<sup>1</sup>Associate Professor & I/C Head of Department of Community Medicine, CAIMS, Karimnagar, India.  
CAIMS, Karimnagar, India.

<sup>2</sup>Post Graduate Student, Department of Community Medicine, CAIMS, Karimnagar, Telangana, India.  
CAIMS, Karimnagar, India.

<sup>3</sup>Statistician cum Lecturer, Department of Community Medicine, CAIMS, Karimnagar, Telangana, India  
CAIMS, Karimnagar, India.

Correspondence Author: **Dr. Manoj Patruni**, Post Graduate Student, Department of community medicine, Chalmeda Anand Rao Institute of Medical Sciences,  
Chalmeda Anand Rao Institute of Medical Sciences,  
Karimnagar-505001, Telangana, India.

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### **Abstract**

**Objective:** To assess and compare the prevalence of Stress, Anxiety and Depression (by DASS scale) in MBBS students of selected Medical College of Karimnagar District of Telangana state.

**Study Design:** Descriptive Cross sectional questionnaire based study (April- June 2017)

**Materials and Methods:** A cross-sectional study was conducted on medical students among the first and fourth year of medical college by using random sampling method. A pre-tested questionnaire consisting of socio-demographic variables. Depression Anxiety Stress Scale (DASS) was used to assess the level of depression, stress and anxiety. Data obtained were collected and analysed statistically by simple proportions, chi-square test and ANOVA.

**Results:** of the 1<sup>st</sup> year, 34.72% students suffering from depression, 63.18% students with anxiety among the 18.75% students suffering from stress. Of the Final year

students suffering from Depression are 46% students, 71% students with anxiety, and 34.5% students with stress.

**Conclusion:** The study reveals that final year medical students are having high levels of Anxiety 71%, depression 46% and stress 34.5% when compared with the first year study group where Anxiety 63.19%, depression 35% and Stress 18.75%. Out of this final year study group, females have considerable amount of depression.

**Keywords:** Depression, Anxiety, Stress Scale, Institutional Ethical Committee.

### **1. Introduction**

Medical college is recognized as a stressful environment that often has a negative effect on students' academic performance, physical health, and psychosocial well-being, as these medical students are quite susceptible to depression, anxiety and stress due to multiple factors like academic challenges, environmental changes, ultimate goal achievement plans and life challenges.[1-4]. The transition from preclinical to clinical training has been

identified as a crucial stage of medical school regarding student stress.[5] Mental Health problems are a major public health concern due to their high prevalence rates, difficulties related with identification, treatment and their tendencies to become chronic.[6]

Studies, related to anxiety and depression among students of such professional courses, have been reported from abroad, but such data from India is scarce [7]. The prevalence of depression among private medical students, however, has been estimated to be 19% in USA, 21.7% in Malaysia by Zaid ZA et al. 49.1% in India by Singh A et al. and 60% in Pakistan by Inam SN[8-10] Therefore, this study was taken to assess the level of perceived mental pressure among the students of the 1<sup>st</sup> and 4th years of the MBBS.

### **Objectives**

- To assess and compare the proportion of students with Stress, Anxiety and Depression studying in the First and Final Years of a Medical college, Karimnagar District.
- To describe the pattern of occurrence of Stress, Anxiety and Depression among medical students and their association with Socio-demographic variables.
- To compare the difference in stress level between first year and final year students of the cohorts mentioned above.

### **2. Material & Methods**

The study was initiated after receiving approval from the Institutional Ethics Committee (IEC), Chalmeda Ananda Rao Institute of Medical Sciences (CAIMS). Informed consent was obtained from all study participants. This is Descriptive cross sectional questionnaire based study conducted among the first and final year undergraduates of a medical college in Karimnagar during the months of April to June 2017.

The study was aimed at assessing the level of depression, stress and anxiety in First and Final year medical students.

### **Inclusion Criteria:**

1. Students of 1<sup>st</sup> year MBBS and Final Year MBBS
2. Students who gave consent for the study

### **Exclusion Criteria:**

1. Second and Third year Students and Post Graduates
2. Students not willing to participate and absent.
3. Students who were already diagnosed and treated for any psychological disorders excluded from the study.

#### **a). Sample Size**

Based on similar studies conducted by Modi K et al on medical students,[10] the sample size was calculated with 95% Confidence Level and 5% Precision = 260 students. Data was collected using a standard Questionnaire, which had 2 parts consisting of Socio-demographic information and the Depression Anxiety Stress scale developed by the Australian Psychology Foundation, Sydney and approved by WHO. [11]

The data was analysed with Microsoft Excel, SPSSv 16.0 ,the continuous data expressed in terms of Mean and Standard deviation (SD) other Data was compared using Chi square and ANOVA among the educational year.

### **3. Results**

The total strength of the students was 260 from the 1<sup>st</sup> and final year MBBS students. Among 260 students, 144 respondents are First Year students the ratio of Male and Female is 45 : 99 and their mean ages are  $18.71 \pm 0.92$  and  $18.40 \pm 0.69$  respectively and overall mean age for the students from First year is  $18.43 \pm 0.80$  years, likewise among 116 respondents from final year the ratio of male and female is 37 : 79 and their mean ages are  $21.86 \pm 0.85$  and  $21.50 \pm 0.69$  respectively and overall mean age of all the students from first year is  $21.68 \pm 0.90$ . The study subjects comprised of ages ranged from 18 to 22 years.

Of the 144 students from 1<sup>st</sup> year, 50 students suffered from varying levels of depression, 91 with varying levels of anxiety and 27 with varying levels of stress. In the final Year students out of 116 students, 53 students suffer with varying levels of depression, 82 with anxiety and 40 with stress. [Table 1]

Of the 1<sup>st</sup> year, 50(35%) students suffering from depression 24 were suffering from Mild Depression, 19 Moderate and 7 from severe depression. Of the 91 (63.19%) students with anxiety 34 were having Mild anxiety, 24 moderate and 33 were having severe anxiety and among the 27 (17%) students suffering from stress Mild are 12, moderate are 9 and severe are 6. Of the Final year students suffering from Depression from the 53 (46%) students, 19 suffering from mild depression, 21 moderate and severe are 13. In 82(72%) students with anxiety, 30 are suffering with mild anxiety, 20 moderate and 32 are with severe anxiety and among the 40(34.5%) students with stress, mild stress is seen in 22, moderate in 11 and severe stress is seen in 7.

**Table 1: Proportion of students with Stress, Anxiety and Depression.**

First Year					
		Normal	Mild	Moderate	Severe
DEPRESSION	Male	25(17.36)	7(4.86)	10(6.94)	3(2.08)
	Female	69(47.92)	17(11.81)	9(6.25)	4(2.78)
ANEXITY	Male	16(11.11)	9(6.25)	10(6.94)	10(6.94)
	Female	37(25.69)	25(17.36)	14(9.72)	23(15.97)
STRESS	Male	34(23.61)	7(4.86)	4(2.78)	0(0.00)
	Female	83(57.64)	5(3.47)	5(3.47)	6(4.17)
Final Year					
DEPRESSION	Male	21(18.10)	4(3.44)	4(3.44)	8(6.89)
	Female	42(36.20)	15(12.93)	17(14.65)	5(4.31)
ANEXITY	Male	12(10.34)	9(7.75)	8(6.89)	8(6.89)
	Female	22(18.96)	21(18.10)	12(10.34)	24(20.68)
STRESS	Male	24(20.69)	5(4.31)	3(2.59)	5(4.31)
	Female	52(44.83)	17(14.66)	8(6.90)	2(1.72)

Figures within parenthesis indicate Percentage

Of the 1<sup>st</sup> year, 50 students suffering from depression, 24(23.30%) were suffering from Mild Depression,

19(18.45%) Moderate and 7 (6.80%) from severe depression. Of the Final year students suffering from Depression from the 53 students, 19(18.45%) suffering from mild depression, 21(20.39%) moderate and severe are 13(12.62%) shown in Table 2.

**Table 2: Proportion of Study subjects with Depression.**

Depression (n =103)					Chi-square
Course	Mild	Moderate	Severe	Total	p-value
First year	24(23.30)	19(18.45)	7(6.80)	50(48.54)	0.15
Final year	19(18.45)	21(20.39)	13(12.62)	53(51.46)	
Total	43(41.75)	40(38.83)	20(19.41)	103(100)	

Figures within parenthesis indicate Percentage

Of the 91(52.60%) first year students with anxiety 34(19.65%) were having Mild anxiety, 24(13.87%) moderate and 33(19.08%) were having severe anxiety and among final year 82(47.40%) students with anxiety, 30(17.34%) are suffering with mild anxiety, 20(11.56%) moderate and 32 (18.50%) are with severe anxiety shown in Table 3.

**Table 3: Proportion of Study subjects with Anxiety.**

Anxiety (n =173)					Chi-square
Course	Mild	Moderate	Severe	Total	p-value
First year	34(19.65)	24(13.87)	33(19.08)	91(52.6)	0.23
Final year	30(17.34)	20(11.56)	32(18.50)	82(47.4)	
Total	64(36.99)	44(25.43)	65(37.57)	173(100)	

Figures within parenthesis indicate Percentage

Among the 27(40.30%) first year students suffering from stress Mild are 12(17.91%), moderate are 9(13.43%) and severe are 6 (8.96%) and among the final year students among 40 students with stress, mild stress is seen in 22(32.84%), moderate in 11(16.42%) and severe stress is seen in 7(10.45%).

**Table 4: Proportion of Study subjects with Stress.**

Stress (n = 67 )					Chi-square
Course	Mild	Moderate	Severe	Total	p-value
First year	12(17.91)	9(13.43)	6(8.96)	27(40.30)	0.34
Final year	22(32.84)	11(16.42)	7(10.45)	40(59.70)	
Total	34(50.7)	20(29.85)	13(19.4)	67(100)	

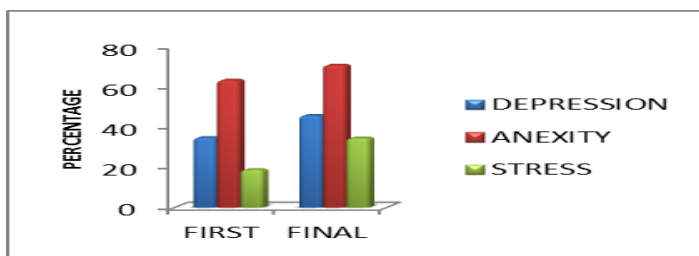
Figures within parenthesis indicate Percentage

It was also observed from the sociodemographic variables depression is higher in females than males of both the study groups, stress and anxiety has no significant impact with gender. Depression and stress among final year students is high in the subjects living with their family. Depression and stress was high in 1<sup>st</sup> year students and only stress is high among the final year students based on performance at school. Other variables like type of family and drug history not significant shown in Table No 5.

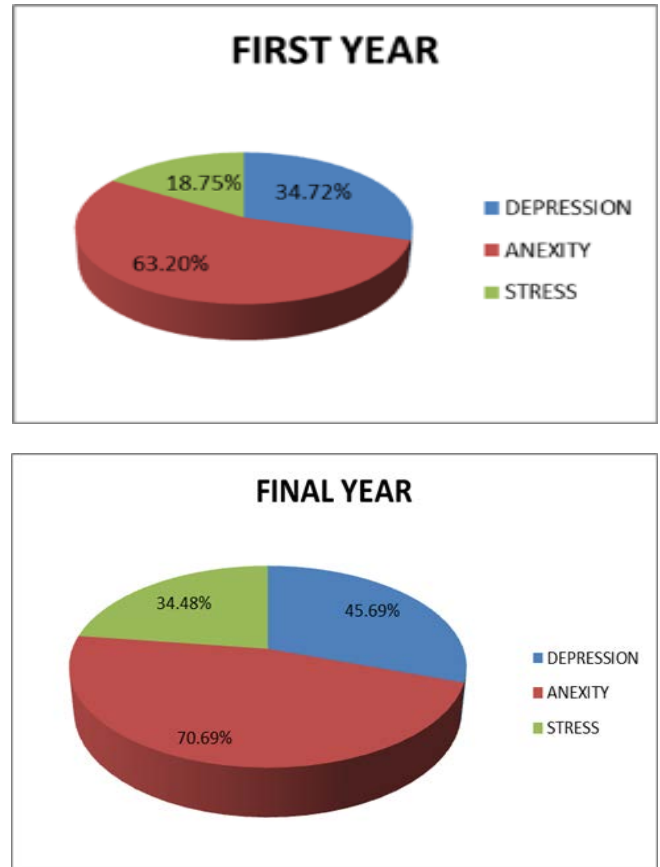
**Table 5: Socio Demographic factor Comparison between First year and Final Year using ANOVA.**

	DEPRESSION		ANXETY		STRESS	
	FIRST	FINAL	FIRST	FINAL	FIRST	FINAL
Gender	0.075	0.08	0.3	0.42	0.04	0.045
	P<0.1	P<0.1	NS	NS	P<0.05	P<0.05
Type Of Family	0.20	0.30	0.44	0.45	0.14	0.24
	NS	NS	NS	NS	NS	NS
Living with Family	0.27	0.0015	0.451	0.16	0.275	0.003
	NS	P<0.05	NS	NS	NS	P<0.05
Drug History	0.265	0.31	0.45	0.487	0.148	0.241
	NS	NS	NS	NS	NS	NS
School Performance	0.078	0.183	0.387	0.468	0.03	0.089
	P<0.1	NS	NS	NS	P<0.05	P<0.1

**Bar Diagram - Pattern of Stress, Anxiety and Depression with years of MBBS course**



**Pie Chart - Pattern of Stress, Anxiety and Depression in First and Final years of MBBS course.**



The study reveals that final year medical students are having high levels of Anxiety (71%), depression (46%), and stress (34.5%) when compared with the first year study group where Anxiety (63.19%), depression (35%) and Stress (16.6%).

Out of this final year study group, females have considerable amount of depression. This study is comparable to a study done by Modi K et al [10] and other studies from sub-continent [12, 13, 14]. As the study tools used were different in different studies, these rates are not necessarily comparable, but all point in the same direction. The proportion of depression, anxiety and stress among the 116 final year students was 45.6%, 71%, 34.5% respectively. These differ from the values obtained in the study done by Modi K et al among medical students of Gujarat [10]. The high rate of depression among the females of study group is may be due to social factors.

According to socio-demographic variables Depression was found high in the 1<sup>st</sup> year students and stress was high in final year students based on school performance.

#### **4. Conclusion**

From the above results and discussion it is clear that final year students report more depression, anxiety and stress than the first year students. However the study showed more impact on females of final year with considerable amount of depression.

This study also concludes that in order to improve physical and mental health in medical students, institutes should plan proper counselling strategy periodically. This will be beneficial for improving overall mental health of students.

#### **5. Acknowledgment**

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#### **6. References**

[1]. Bayram N, Bilgel N. The prevalence and socio-demographic correlations of Depression, Anxiety and Stress among a group of University Students. *Social Psychiatry and Psychiatric Epidemiology*, 2008; 43: 667-672.

[2]. Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. *Medical journal of Malaysia*.2004; 59: 207-211.

[3]. Tjia J, Givens JL, Shea JA. Factors associated with under treatment of medical student depression. *Journal of American College Health*.2005; 53: 219-224.

[4]. Yusoff MSB, Rahim AFA, Yaacob MJ. The prevalence of final year medical students with depressive symptoms and its contributing factors. *International Medical Journal*. 2011;18 : 305-309.

[5]. Hemers KF, Danoff D, Steinert . Y, Leyton M, Young SN. Stress and Depressed Mood in Medical Students ,Law students and Students at MCGILL University, *ACAD MED* 1997,72 : 708-14.

[6]. K. Modi, D. Kumar. "Anxiety and Depression in Medical Students and its association with Coping Methods adopted by them".*IJRRMS*.2013; vol 32: pp 20-22.

[7]. WHO. Mental Health: New Understanding, New Hope. The World Health Report. World Health Organization. 2000[1]. Available at [http://www.who.int/whr/2000\[1\]/en/10.03.2003](http://www.who.int/whr/2000[1]/en/10.03.2003).

[8]. Zaid ZA, Chan SC, Ho JJ. Emotional disorders among medical students in a Malaysian private medical school. *Singapore Medical Journal*. 2007; 48(10):895–899.

[9]. Singh A, Lal A, Shekhar A. Prevalence of depression among medical students of a private medical college in India. *Online Journal of Health and Allied Sciences*.2010; 9:8–12.

[10]. Inam SN, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. *The Journal of the Pakistan Medical Association*.2003; 53: 44–47.

[11]. S. H. Lovibond, P.F. Lovibond. *Manual for the Depression Anxiety Stress Scales*. Sydney Psychology Foundation. 1995. Vol2.

[12]. B. T. Shaikh, A. Kahloon, M. Kazmi. Students, stress and coping strategies: a case of Pakistani medical school. *Educ Health (Abingdon)*. 2004; vol7:pp346-53.

[13]. T. S. Chandrasekhar, R. S. Pathiyil, V. S. Binu, C. Mukhopadhyay, B. Ray, R. G. Menezes. Coping strategies among undergraduate medical students of Nepal. *BMC Medical Education*.2007, vol7:pp26. Available at: [http://www.biomedcentral.com/\[1\]472-6920/7/26](http://www.biomedcentral.com/[1]472-6920/7/26) accessed on 29th July 2014.

[14]. A. N. Supe. A study of stress in medical students at Seth G.S. Medical College. J Postgrad Med. 1998; vol 44: pp 1-6.

[15]. B. Vivek, B. Girish, R. Yugantara, Kadam, D. Alka. A study of stress among students of professional colleges from an urban area in India. Sultan Qaboos Univ Med J. Aug 2013; vol13: pp 429–436.