



## Male Under Graduate Medical Students Perceived More Stress, Anxiety and Depression During the Course: A Study Cross Sectional

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### ABSTRACT

**Background:** Previous studies show different prevalence of stress, anxiety and depressive symptoms among male and female medical students. **Aim:** A cross sectional study to compare gender wise prevalence of levels of stress in different areas, anxiety and depression among undergraduate students of a Government Medical College. **Materials and Methods:** A semi-structured Proforma used to collect socio-demographic data, Life Events Scale, Hamilton Anxiety Rating Scale, Hamilton Depression Rating Scale and General Health Questionnaire -28 and FGD with probes on various stress areas. **Results and Discussion:** 15 (6.9%) male and 10 (5.1%) female students reported moderate to severe anxiety symptoms, while 19 (8.7%) male and 13 (6.5%) female students reported moderate to severe depressive symptoms. During FGD more male medical students were found having study related stress like assignment difficulties. Their study pattern was "studying at exam times only" and they spent most of their time in leisure activities than in studies. Male students also felt discriminated on the basis of gender by college professors. **Conclusion:** It is clear that male medical students had significant academic stress. More male students found difficulty in medical study, and more severe psychiatry morbidity in the form of anxiety and depression. It is useful for all medical colleges to carry out screening and management programs to identify, prevent and eventually reduce stress; as a part of their medical curriculum.

**KEYWORDS :** anxiety, depression, stress, medical students, gender

### INTRODUCTION

For nearly half a century, stress in medical training has been a topic of concern. As a consequence of increased stress, medical students can experience an alarming amount of stress-associated anxiety, depression, substance abuse, and even suicide. Stress has a detrimental effect both on health as well as academic performance. Possible causes of student distress include adjustment to the medical environment, and recent stressful life events. Medical students and practicing physicians, in comparison with the general population and that of other professions, are exposed to academic and professional stress and therefore are vulnerable to psychosocial health problems and certain specific dysfunctions that may compromise their physical, mental, and social health.

Medical students are a valuable, intellectual and service-providing 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. Medical education and training are cost and time-intensive. There is a high prevalence towards anxiety and depressive symptoms among medical students mainly involving the somatic and affective clusters. Suicidal ideation among medical students has been investigated less often. Students affirm their quality of life is influenced by their medical education experiences, but they also reframe their difficulties and understood as necessary and inherent to the process of becoming doctors. Stress related disorders occur more frequently in females than in males. This disparity is often attributed to gender differences in psychological factors, including affect, cognitive style, and social role identification.

Previous studies showed that medical training seems to have a negative impact on students' mental health. Center for Epidemiological Studies Depression (CES-D) scale suggests that the **women** experienced higher depression levels.<sup>1</sup> Some studies shows that stress was not found to differ significantly on the basis of sex, stay at hostel. Other

factors, including gender, type of social support, family structure, were **not** found to have any significant association with prevalence of depression.<sup>2</sup> A study showed **women** report being more anxious than men, both overall and for most individual situations. Survey of 194 first-and second-year medical students' suicidal ideation shows twenty-four percent (n = 46) of the medical students were depressed.

Longitudinal study comprising depression subscale of the Hospital Anxiety and Depression Scale (HADS-D) suggest **no difference** between men and women in median HADS-D scores & prevalence of depression ranged between 5.7% and 10.6% among all students.<sup>3</sup> Prevalence of depression was found to be 71.25%. Among those with depression, a majority (80%) had mild and moderate degree of depression. The study showed that 46.3% (132) of the depressed were females and 53.7% (153) were **males**.<sup>4</sup> Depression screening survey shows high burnout range was approximately 55% & depressive symptoms were reported by 60%. Another study used standard instruments for quality of life, study-related behavior and experience, perceived medical school stress, anxiety and depression & shows healthy behavior and experience pattern decreased from 47.3% in the first year to 36.9% in the second year and 17.6% in the fifth year. an increase -risk for burnout.<sup>5</sup>

A study on postgraduate medical students suggest anxiety and academic achievement are the significant predictors of specific style belonging those with the highest QOL (general well-being and life satisfaction) have the lowest professional stress and vulnerability to burnout. 184 (38.2%) students with depressive symptoms (BDI > 9) & shows that affective, cognitive, and somatic clusters were significantly higher.<sup>6</sup> Undergraduate medical students' general health questionnaire & brief COPE inventory shows prevalence of psychological morbidity was 20.9 & shows academic and psychosocial concerns & Sources of stress are staying in hostel, high parental expectations, vastness of syllabus, tests/exams, lack of time. Students of lower so-

cioeconomic status scored - depressed & who scored abnormally on the chq (p <0.01) were all significantly more likely to have experienced suicidal ideation.<sup>7</sup> Mean HADS-D score shows prevalence of depression ranged between 5.7% and 10.6%. A study showed 20.3% of medical students had anxiety, 29.3% had depressive symptoms. Beck's Depression Inventory shows that 28.8% of the 2nd year students and 14% of the 4th year students were diagnosed as depressed.<sup>8</sup>

Most Western Universities offer student welfare programs through committees, self-help groups, websites, counselling centres and so on. Studies from other parts of world have shown a high prevalence of depression in medical students but studies on Indian medical students are lacking. India has the largest numbers of medical colleges and medical students. Getting knowledge about psychiatric morbidity is important as it can help in implementing preventive mental health programmes. With this aim a cross sectional study was planned to assess gender wise prevalence of levels of stress in different areas, anxiety and depression amongst undergraduate students of Government Medical College.

**METHODOLOGY**

A cross sectional study was done on Under Graduate medical students studying at Government Medical College. Study included 4 batches studying during the year, 2011-12, which include second year (227), third year (116) and final year(74).

After taking approval from the Human Research Ethics Committee and the college dean, a session was arranged for each batch. During the session, students were explained about the study and were given instructions for data filling. Each query was solved simultaneously. Appropriate time was given to make it easier for the students to complete the questionnaire and return it during the same session. After that, a session on stress management was taken by department of psychiatry. Selected time for the study was midterm for each batch. First year batch which was recently admitted in the medical college was not included in this study. All Under Graduate medical students who gave (oral) consent were included in the study and students who didn't give consent or participate in study were excluded from the study

**INSTRUMENTS:**A semi-structured questionnaire was prepared which contain two parts. the first part included demographic variables and questions regarding different stress areas like academic, hostel, ragging, relational, gender, financial etc. Answer of the questions were in like never, occasionally, sometimes, always Then in second part specific anxiety, depression, general health questionnaire and life events stress scales were used.

**Hamilton Anxiety Rating Scale (HARS) and Hamilton Depression Rating Scale (HDRS)**

Several instruments have been developed to measure anxiety. The most widely used of these is the Hamilton Anxiety Rating Scale (HARS) (Hamilton, 1959, 1969), a measure regarded highly enough to have been included in the National Institute of Mental Health Standard Assessment Battery. The Hamilton Depression Rating Scale was developed in the late 1950s to assess the effectiveness of the first generation of antidepressants and was originally published in 1960. The 14-item HARS form (Hamilton, 1969), the version most widely used with adults (Guy, 1976), was used in rating the adolescents in its original form. As each of the 14 items is rated from 0 (not present) to 4 (severe).<sup>9-14</sup>

The **General Health Questionnaire (GHQ)** was developed by Goldberg in the 1970s. The original GHQ is composed of 60 items. However, different shortened versions of this instrument are currently available, according to the number of items (e.g., 30, 28, and 12). This instrument asks whether the respondent has experienced a particular symptom or behavior recently. Each item is rated on a four-point scale (less than usual, no more than usual, rather more than usual, or much more than usual), using one of two most common scoring methods: dichotomous (0-0-1-1), any score above 4 indicate presence of distress or likert type (0-1-2-3) rating from 0 to 84, total score of 23/24 is the threshold for presence of distress. Considering the GHQ-28 to be a brief, simple and easy to complete instrument, and the fact that its application in research settings as a screening tool is well documented.<sup>15</sup> We also had done focussed group discussion amongst students

and collected data regarding gender related issues. At last The 31 item-containing **students life event stress scale** based on Holmes and Rahe's social readjustment rating scale<sup>16</sup> was administered to them. Then that data was entered into the computer and statistically analyzed by using various tests with software Epi Info.

**RESULTS AND DISCUSSION**  
**DEMOGRAPHIC CHARACTERISTICS**

Total 417 undergraduate medical students were surveyed which include students from second year to final year among which 214(51.7%) were male and 203(48.3%) were female students. Most of students were between 19 to 22 years of age.

**Table 1 : Prevalence of demographic variables**

VARIABLE	RESULTS	
Number of students	Male	214(51.7%)
	Female	203(48.3%)
	Total	417
Age range	19 to 22 years	
Academic year	2 <sup>nd</sup> to final year	
Religion	Hindu	404(97%)
	Muslim	10(2.5%)
	Other	3(0.5%)

**Table 2 : Results of gender wise comparison in academic variables**

No	Variables	Results (n=417)(%)			P value
			Male	Female	
1	Level of satisfaction with study.	Not satisfied	157(73.4)	150(73.9)	0.1
		satisfied	57(26.7)	53(26.1)	
2	Study consumes lots of time	No	186(86.9)	148(72.9)	0.005
		Yes	28(13.0)	55(27.1)	
3	Problems with study or assignment like Difficulty in understanding medical concepts	No	190(88.8)	189(93.1)	0.04
		Yes	24(11.2)	14(6.9)	
4	Difficulty in recall	No	143(66.8)	151(74.4)	0.04
		Yes	71(33.2)	52(25.6)	
5	Difficulty in revision	No	165(77.1)	141(69.5)	0.03
		Yes	49(22.9)	62(30.6)	
6	Cannot accepting life as a medical student.	No	190(88.7)	181(89.1)	0.04
		Yes	24(11.2)	22(10.9)	
7	Worries about preparation up to exam	No	125(58.4)	112(55.2)	0.34
		Yes	89(41.6)	91(44.8)	
8	There were being late or missing classes.	No	185(86.5)	190(94.1)	0.04
		Yes	29(13.6)	12(6.0)	
9	Difficulty with the new semester.	No	151(90.1)	168(85.3)	0.34
		Yes	21(9.9)	29(14.8)	
10	Difficulty with a specific subject.	No	170(79.5)	163(80.3)	0.06
		Yes	44(20.5)	40(19.7)	
11	Feeling overloaded with study most of the time.	No	148(69.2)	136(67.0)	0.05
		Yes	66(30.9)	67(33.0)	
12	Worsen academic performance after getting into medical field.	No	112(52.3)	116(57.1)	0.14
		Yes	102(47.7)	87(42.8)	
13	Cannot ask doubts to teacher.	No	129(69.2)	132(67.0)	0.04
		Yes	83(30.9)	73(33.0)	
14	Go blank in exam	No	196(52.3)	188(57.1)	0.4
		Yes	18(30.9)	15(33.0)	
15	Difficulty to talk in front of the class	No	163 (69.2)	152(67.0)	0.07
		Yes	51(30.9)	51(33.0)	

On comparing the data gender wise, in academic area there was no statistically significant difference found in the level of satisfaction with studies, exam related stress, missing class, problems related to new subjects or new semester and most of them equally found overloaded with medical studies.

Significant difference was found between male and female students regarding medical studies or assignment area like understanding or recall as 24(11.2%) male students compared to 14(6.9%) female students reported difficulty in understanding, while 71(33.2%) male students compared to 52(25.6%) female students reported difficulty in recall (P= 0.04). Regarding the time spent in studies, 55(27.1%) female students compare to 28(13.0%) male students spent most their time in studying (p=0.005). So overall, male students faced more difficulty in their medical study.

**Table 3: Results of gender wise comparison in other stress variables like hostel, relational, family and financial factors.**

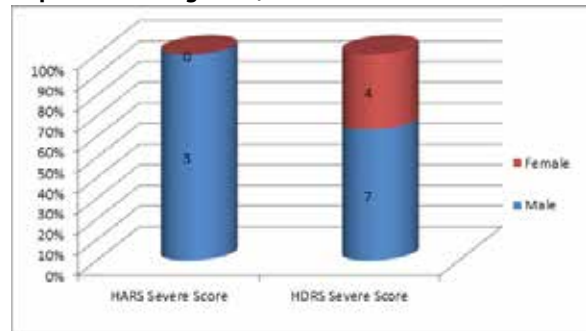
No	Variables		Results (n=417)(%)		P value
			Male	Female	
1	Problems related to basic facilities in hostel	No	115(59.3)	103(54.8)	0.06
		Yes	79(40.7)	85(45.2)	
2	Problems in accepting life as a hostelite.	No	165(85.9)	162(89.0)	< 0.001
		Yes	27(14.1)	20(10.9)	
3	Missing parents	No	143(73.7)	116(63.7)	0.13
		Yes	51(26.3)	66(36.2)	
4	Interpersonal problem with other hostelites	No	175(82.5)	178(89.4)	0.50
		Yes	37(17.5)	21(10.5)	
5	Problems with colleagues/peers	No	196(92.4)	192(94.6)	0.01
		Yes	16(7.5)	11(5.4)	
6	Difficulty in getting support from the family	No	210(99.0)	201(99.0)	0.56
		Yes	2(0.9)	2(1.0)	
7	Financial support is good	No	98(45.8)	66(32.6)	0.04
		Yes	116(54.2)	136(67.4)	
8	Problems related to gender differences in the college	No	191(90.1)	201(99.5)	< 0.001
		Yes	21(9.8)	1(0.5)	
9	Experience of mental /physical harassment being a female/male	No	205(97.6)	198(98.0)	0.02
		Yes	5(2.4)	4(2.0)	
10	Experience of any restrictions being a male/female?	No	201(96.6)	188(93.1)	< 0.001
		Yes	7(3.3)	14(6.9)	
11	Problems related to being Non Gujarati	No	189(89.6)	182(92.6)	0.1
		Yes	22(10.4)	14(7.2)	
12	Problems in reading, writing/ speaking in English	No	180(84.9)	179(88.2)	0.3
		Yes	32(15.1)	26(11.8)	
13	Self esteem and confidence got affected due to difficulty with English language	No	174(81.3)	146(71.9)	0.9
		Yes	40(18.7)	57(28.1)	
14	Problems with Juniors.	No	206(96.3)	201(99)	0.1
		Yes	8(3.7)	2(1)	
15	Problems with seniors.	No	200(93.5)	202(99.5)	0.01
		Yes	14(6.5)	1(0.5)	
16	Problems with teachers.	No	204(95.3)	189(93.1)	0.1
		Yes	10(4.7)	14(6.8)	
17	Interpersonal conflicts have affected studies	No	172(89.1)	173(95)	0.2
		Yes	20(10.9)	10(5)	
18	Problems with my parents.	No	208(97.2)	195(96)	0.2
		Yes	6(2.8)	8(4)	

Regarding hostel issues, overall there was no significant difference found between the results of male and female. However more male students (27) reported that they always thought of difficulty in accepting hostel life compared to female (20) students. More female students 36.2% compared to 26.3% male students reported missing their parents (p=0.01).

There was no significant difference found in the results of students' perception of relation with colleagues, seniors, juniors, teachers and parents and support from family. On comparing financial support more male students 98(45.8%) reported that their financial support was not good compared to 66(32.6%) female students (p=0.04). On

asking about gender related problems in college, 14(6.9%) female students compared to 7(3.3%) male students reported restriction based on their gender. There was no comparable data regarding mental or physical harassment being male or female in college.

**Chart 1 : Hamilton Anxiety, Depression(>24) score (HARS- Hamilton Anxiety Rating Scale, HDRS- Hamilton Depression Rating Scale)**



**TABLE 4-5 : Results of gender wise comparison in HARS, HDRS AND GHQ scores**

No	Scales	Grading – results n(%)				P value
		Normal (<7)	Mild (7-17)	Moderate (18-24)	Severe (>24)	
1	HARS					0.38
	Male	140(63.6)	65(29.5)	12(5.5)	3(1.4)	
Female	133(67.2)	55(27.8)	10(5.1)	0(0.0)		
2	HDRS					0.84
	Male	150(68.2)	51(23.2)	12(5.5)	7(3.2)	
Female	136(68.7)	49(24.7)	9(4.5)	4(2.0)		

3	GHQ	Male	Female	P value
3	Normal	214(52.7%)	192(47.3%)	0.54
	Positive(>10)	6(50%)	6(50%)	
4	GHQ HYPERTALERTNESS SYMPTOMS			0.04
	Normal	209(51.7%)	195(48.3%)	
	Positive(>10)	11(78.6%)	3(21.4%)	
5	GHQ DEPRESSION SYMPTOMS			0.30
	Normal	214(52.3%)	195(47.7%)	
	Positive(>10)	6(66.7%)	3(33.3%)	
6	GHQ SOCIAL DYSFUNCTION SYMPTOMS			0.31
	Normal	191(52%)	176(48%)	
	Positive(>10)	29(56.9%)	22(43.1%)	
7	LIFE EVENTS (STRESSFUL)			0.25
	NEGATIVE	196	192	
	POSITIVE(>300)	18	11	

(HARS- Hamilton Anxiety Rating Scale, HDRS- Hamilton Depression Rating Scale, GHQ- General Health Questionnaire )

On comparing the data from Hamilton rating scale for Depression and Anxiety, there was no significant difference found between male and female but there were 15(6.9%) male and 10(5.1%) female students who reported moderate to severe anxiety symptoms, while 19(8.7%) male and 13(6.5%) female students reported moderate to severe depressive symptoms. On comparing GHQ scoring there was no significant difference statistically but males outnumbered females in depressive, social dysfunction symptoms and hyper alertness. There is no statistically significant relation found between stressful life events of both males and females.

There can be **many reasons** that male students reported more difficulty with medical study like male students showed lack of consistency, seriousness and dedication.

**Table 6: Gender differences in Perceived Academic stress and practices by UG Medical students.**

No	Area of study	By Males	By Females
1	Method of study	Read exam oriented topics, end time preparation, concept based, clear doubts when required	Start preparation since beginning, sincere, make notes, read every topic.
2	Management of time	Average	Better
3	Time spent in leisure activities	More ( sports, going for movies, food, sleep )	Less
4	Memory (recall)	Better than females	Do more revision
5	Satisfaction with study	More satisfied	Less satisfied, more competitive, less confident.
6	Feeling overloaded	sometimes	Mostly
7	Medical study as an overall experience	Hardworking, exam period more stressful otherwise enjoyable	Lengthy, memorable
8	Gender bias experienced	Males are more criticized and have pressure to perform, more harsh punishment	Less expectations compared to males in exam, less punishment

Male students' study style is different from females as males are used to start preparation at the time of exam and read important topics only but at the same time males' study is more focussed, concept based and clear doubts when needed, while females are used to study since the beginning of the year and more sincere in study. Males are used to spend more time in sports, movies, roaming around, food and sleep compared to females who spend more time in study. When asked about satisfaction males are more satisfied with their preparation compare to females who are more competitive and feel overloaded most of the time. Both of them described medical study lengthy, demanding more dedication and hard work, stressful exams etc, still some reported enjoyable and memorable. Male students felt that staff in college faculty has gender bias as they used to behave harshly to boys and having more expectation to perform in exams. Males are more career and future oriented because in Indian set up there is more social pressure towards male side as males are the earning member of the family, so they are more pressurized to perform well and then in profession compare to female who has only supportive role in Indian family. Medical study is tough for these students. They all struggle with a tremendous amount of stress and pressure and have to learn more and more than in the previous generations. As it can be difficult to handle a heavy and challenging study workload, it is important for the college to maintain a well balanced academic environment for better learning; medical college should recognize the importance of considering students' health and well-being as a part of the strategies to improve the quality of medical education and mental health of the students.

**Distress and Suicide Prevention Help (DASH)** Project is running under Department of Psychiatry for the last 4 years, which is a welfare project for medical students. Medical students taking help are assessed and counselled by trained Mental Health Professional (MHP), help is offered after assessing the severity and those medical students have problems come to the OPD for detailed one-to-one interviews by MHPs and treatment is given. Many medical students have been approached, screened and have availed psychiatric services during exams. Stress management seminars have been organized frequently for medical students for which we have received excellent feedback from the students. Department is running orientation programs for 1<sup>st</sup> year students recently admitted in MBBS & also for PG entrants.

Students are the leaders of tomorrow and anything that interferes with their well being should be termed as denying the society their future leaders. It is important to identify the causes and symptoms of stress on students. This will help the College administrators to come up with the best strategies to enable the students to cope up with these stressors while pursuing their academic careers. The negative effect of stress on students is likely to pose challenge to the individual students, their colleagues, and the institution as a whole. Stress poses a great threat to the quality of life of the students. Finally, the university and the college should protect the academic environment by adopting measures that reduce students' stress problem.

It is clear that students had academic stress in terms of level of satisfaction, assignments, exam related, study overload and many of them reported that their performance deteriorated after entering into the medical field. Majority of the students denied any problems related to hostel, gender, relational and financial issues. So overall there was considerable academic stress amongst students.

There were more male students who reported difficulty in understanding and recall during study. They used study at exam time only and spend most of their time in leisure activities other than study. Male students also feel discriminated on the basis of gender by college professors. Males had more severe anxiety and depression score than female.

It is useful for all the medical colleges to carry out screening and management programmes to identify, prevent and eventually reduce stress; as a part of their medical curriculum. It is time to make medical education interesting, restore enthusiasm in the students and to project a more realistic, humane image of the profession. This would decrease the amount of stress and its consequences. It is imperative that future physicians are healthy themselves before they treat others.

**STRENGTH of this study**

- Large sample size
- Stress management techniques were explained after the filling of the questionnaire.

**LIMITATIONS of this study**

- It is a cross sectional study, it does not show a longitudinal relationship of stress as the medical curriculum proceeds as well as no intervention was done to reduce stress.
- Information from other key persons such as parents, teachers were not collected.
- Data from other colleges was not collected and comparison with other colleges or other fields was not done.

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