ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST)
Vol. 2, Issue 6, June 2016

A STUDY ON THE PREVALENCE OF STRESS AND THE FACTORS CONTROLLING STRESS ON MEDICAL STUDENTS STUDYING IN A GOVERNMENT MEDICAL COLLEGE, TAMIL NADU

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ABSTRACT:

Aim: This study is aimed to determine the prevalence of stress and the factors controlling stress in medical students studying MBBS in a Government Medical College, Tamil Nadu.

Methods: it is a Cross sectional study, 320 medical students of l,ll,lll lV th year MBBS, 80 from each year,40 male and 40 female students after proper concent, fill the MSSQ Questionnaire developed by Muhamad Saiful Bahri Yusoff, Universiti Sains, Malaysian Medical School containing 40 items representing the six stressor domains. Reliability analysis shows that the MSSQ has a high internal consistency as Cronbach's alpha coefficient value was 0.95 which is more than the acceptable cut-off point of 0.6. The stress scores are compared between male & female student of each year by using Student's t test. The scores of different domains are compared between the students of l,ll,lll lV th year by using ANOVA for significance.

Result: The present study shows the **total stress** percentage experienced by MBBS students during various years of study are as follows, I MBBS female 39.17%**,** I MBBS male 35%, II MBBS female 61.67**%,** II MBBS male 34.72%, III MBBS female 35.83 % III MBBS male 38.89% and IV MBBS female **63.89%,** IV MBBS male **60.28%.** The present study also shows **significantly (p < 0.0001) high level of stress experienced by II MBBS Female, IV MBBS Female (p < 0.00001) and IV MBBS Male students (p < 0.00001)** while comparing to the other year students. The stress due to all the stressors are also increased in them. **Stress due to various stressors** increases in male as the year advances except IInd year where it decreases. Stress increases in female in the second year and decreases in third year, again to raise in the IVth year. Present study obviously shows that majority of medical students are undergoing mild to moderate degree of stress during various stages of their MBBS course.

Conclusion: This project stresses, stress reduction in the form of meditation, yoga and regular sports activities to the students. The teachers must be friendly with the students, so that the students must approach them in times of difficulties and get correct advice. Students with severe stress must be identified well in advance and suitable psychiatric treatment mostly in the form of counseling and in a few, with medication can also be done

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INTRODUCTION:

The term ‘stress’ was first employed in the 1930’s by the Endocrinologist, Hans Selye [1]. Stress is the "wear and tear" our bodies experience, as we adjust to our continually changing environment. A stressor is defined as a personal or environmental event that causes stress.

Numerous studies in Asian countries including India have revealed that persistent stressful conditions were associated with mental and physical health problems in medical students at various stages of their training. Studies have reported an association of excessive stress level lowered medical students’ self-esteem, cause anxiety and depression, difficulties in solving interpersonal conflicts, sleeping disorders, cynicism, decreased attention, reduced concentration and academic performance.

AIM AND OBJECTIVE:

To determine the prevalence of stress and factors controlling stress in medical students at various stages of MBBS course at a Government Medical College, Tamil Nadu. A few studies on this topic have been done in Tamil Nadu. Hence this study is done to find out the prevalence of stress and factors controlling stress in medical students studying MBBS.

MATERIALS AND METHODS:

It is observed that medical students undergo tremendous stress during various stages of the MBBS course. This is a cross sectional study done on students of First , Second Third and fourth MBBS students of a Government Medical college who has given written consent after reading the information sheet regarding this research work. These students were asked to complete a questionnaire called ‘The Medical Student Stressor Questionnaire (MSSQ)’ designed by Muhamad Saiful Bahri Yusoff[2] in Universiti Sains, Malaysian Medical School.

Study design: Cross sectional study

Study period: 1 year

Study population: 320 medical students of l,ll,lll lV th year, 80 from each year, 40 male and 40 female students of each year of a Government Medical College.

The students were asked to fill the Questionnaire 6 months after the commencement of that year of study in the morning hours 20-30 minutes prior to the commencement of their classes. Care was taken that no internal assessment test or class test was there within one week prior to this evaluation.

Type of sample: Stratified Random Sampling

The MSSQ was developed by Muhamad Saiful Bahri Yusoff, Universiti Sains, Malaysian Medical School[2] to identify the stressors of medical students as well as measure the intensity of stress caused by the stressors. The six domains of stress measured by the MSSQ were developed based on previous researches into

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1. Academic related stressors (ARS),

2. Intrapersonal and interpersonal related stressors (IRS)

3. Teaching and learning-related stressors (TLRS),

4. Social related stressors (SRS),

5. Drive and desire related stressors (DRS),

6. Group activities related stressors (GARS)

The MSSQ consists of 40 items representing the six stressor domains. A validation study was conducted on 761 medical students representing multiple ethnicities, religions and cultures. The validation found that the MSSQ has good psychometric properties; it is a valid and reliable instrument that can be used to identify students' stressors as well as measure the intensity of the stressors[2].Factor analysis shows that all the items are well distributed according to the six groups. Reliability analysis shows that the MSSQ has a high internal consistency as Cronbach's alpha coefficient value was 0.95 which is more than the acceptable cut-off point[6] of 0.6.

Having a high score in a particular stressor group generally indicates that the events, conditions or situations from that particular group causing the stress. The validity and reliability studies have indicated that the scores from the questionnaire are highly trustworthy[2].

The degrees of stress have been categorized into

1. Mild: It just causes mild stress on students (Score 1).

2. Moderate: Indicates that it reasonably causes stress. However the student can manage it well. (Score 2).

3. Severe: Indicates that it causes a lot of stress, the students' emotions seem to be disturbed by it and daily activities are compromised due to it (score 3). [6]

The study variables include the gender (male and female) and the year of study (l,ll,lll lVth year MBBS) . The six domains of stress are evaluated separately for each student.

The stress scores are compared between male & female student of each year by using Student's t test.[7] The scores of different domains of stress are compared between the students of l,ll,lll lV th year by using ANOVA for significance[7].

EXCLUSION CRITERIA: Married students, Students who were already under Antipsychotic treatment, Regular yoga practitioners, Students involved in regular Athletic practices

INCLUSION CRITERIA: The remaining students who gave consent for this study were included

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RESULT:

TABLE: 1 Number and Percentage of students having **no stress** due to various stressors during various stages of MBBS course

Stressors	I MBBS Female (40)	I MBBS Male (40)	Il MBBS Female (40)	Il MBBS Male (40)	Ill MBBS Female (40)	Ill MBBS Male (40)	IVMBBS Female (40)	IVMBBS Male (40)
I ARS	0	0	0	0	1(2.5%)	1(2.5%)	0	0
II IRS	0	6(15%)	1(2.5%)	2(5%)	2 (5%)	2(5%)	1(2.5%)	0
III TLRS	1(2.5%)	4(10%)	2(5%)	6(15%)	1(2.5%)	0	1(2.5%)	1(2.5%)
IV SRS	1(2.5%)	9(22.5%)	1(2.5%)	2(5%)	7(17.5%)	2(5%)	0	2(5%)
V DRS	17(42.5%)	8(20%)	6(15%)	0	3(7.5%)	1(2.5%)	1(2.5%)	0
VI GARS	5(12.5%)	9(22.5%)	0	7(17.5%)	5(12.5%)	8(20%)	2(5%)	2(5%)
Total % with no stress	60/600X 100= **10 %**	90/600 X 100= **15%**	25/600X 100 = **4.17%**	42.5/ 600 X 100 =**7.08%**	47.5/600X 100 = **7.92%**	35/600X 100 =**5.83%**	12.5/600X 100 = **2.08%**	12.5/600X 100 = **2.08%**

TABLE: 2 Number and Percentage of students having **mild stress** due to various stressors during various stages of MBBS course

Stressors	I MBBS Female (40)	I MBBS Male (40)	Il MBBS Female (40)	Il MBBS Male (40)	Ill MBBS Female (40)	Ill MBBS Male (40)	IVMBBS Female (40)	IVMBBS Male (40)
I ARS	30 (75 %)	32 (80%)	12 (30%)	40 (100%)	37(92.5%)	37(92.5%)	7(17.5%)	11(27.5%)
II IRS	26(65%)	24(60%)	12(30%)	28(70%)	35(87.5%)	26(65%)	6(15%)	12(30%)
III TLRS	25(62.5%)	26(65%)	15(37.5%)	25(62.5%)	33(82.5%)	29(72.5%)	10(25%)	13(32.5)
IV SRS	29(72.5%)	26(65%)	16(40%)	35(87.5%)	31(77.5%)	26(65%)	9(22.5%)	15(37.5%)
V DRS	18(45%)	25(62.5%)	8(20%)	36(90%)	27(67.5%)	23(57.5%)	16(40%)	15(37.5%)
VI GARS	23(57.5%)	22(55%)	3(7.5%)	26(65%)	30(75%)	25(62.5%)	11(27.5)	17(42.5%)
Total% with mild stress%	377.5/600 X 100 = **62.92%**	387.5/600 X 100 = **64.58%**	165/600 X 100 **=27,5%**	475/600 X 100 =**79.17%**	482.5/600 X 100 = **80.42%**	415/600 X 100 =**69.17**	147.5/600 X 100= **24.58%**	207.5/600 X 100 = **34.58%**

ISSN 2395-695X (Print)
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TABLE: 3 Number and Percentage of students having **moderate stress** due to various stressors during various stages of MBBS course

Stressors	I MBBS Female (40)	I MBBS Male (40)	Il MBBS Female (40)	Il MBBS Male (40)	Ill MBBS Female (40)	Ill MBBS Male (40)	IVMBBS Female (40)	IVMBBS Male (40)
I ARS	10 (25%)	8(20%)	26 (65%)	0	2(5%)	2 (5%)	26(65%)	25(62.5%)
II IRS	14 (35%)	8(20%)	20(50%)	10(25%)	2(5%)	12(30%)	21(52.5%)	20(50%)
III TLRS	14(35%)	10(25%)	14(35%)	9(22.5%)	6(15%)	11(27.5%)	18(45%)	18(45%)
IV SRS	10(25%)	5(12.5%)	15(37.5%)	3(7.5%)	2(5%)	8(20%)	24(60%)	20(50%)
V DRS	4(10%)	7(17.5%)	14(35%)	4(10%)	10(25%)	14(35%)	17(42.5%)	18(45%)
VI GARS	12(30%)	8(20%)	28(70%)	8(20%)	6(15%)	7(17.5%)	21(52.5%)	14(35%)
Total % with moderate stress	160/600 X 100 = **26.67%**	105/600 X 100 = **17.5%**	292.5/600 X 100 = **48.75%**	85/600 X 100 = **14.17%**	90/600 X 100 = **15%**	135/600 X 100 = **22.5 %**	317.5/600 X 100 = **52.92%**	287.5/600 X 100 = **47.92%**

TABLE: 4 Number and Percentage of students having **severe stress** due to various stressors during various stages of MBBS course

Stressors	I MBBS Female (40)	I MBBS Male (40)	Il MBBS Female (40)	Il MBBS Male (40)	Ill MBBS Female (40)	Ill MBBS Male (40)	IVMBBS Female (40)	IVMBBS Male (40)
I ARS	0	0	2 (5%)	0	0	0	7(17.5%)	4(10%)
II IRS	0	2(5%)	7(17.5%)	0	1(2.5%)	0	12(30%)	8(20%)
III TLRS	0	0	10(25%)	0	0	0	11(27.5%)	8(20%)
IV SRS	0	0	8(20%)	0	0	0	7(17.5%)	3(7.5%)
V DRS	1(2.5%)	0	12(30%)	0	0	2(5%)	6(15%)	7(17.5%)
VI GARS	0	1(2.5%)	9(27.5%)	0	0	0	6(15%)	7(17.5%)
Total % with severe stress	2.5 /600 X 100 = **0.42%**	7.5 /600 X 100 = **1.25%**	125 /600 X 100 = **20.83%**	0	2.5 /600 X 100 = **0.42%**	5 /600 X 100 = **0.83%**	122.5/600 X 100 = **20.42%**	92.5/600 X 100 = **15.42%**

Scores: no stress = 0, mild stress = 1, moderate stress = 2, severe stress = 3

TABLE- 5 **Scores obtained** due to various stressors during various stages of MBBS course

Stressors	I MBBS Female (40)	I MBBS Male (40)	Il MBBS Female (40)	Il MBBS Male (40)	Ill MBBS Female (40)	IllMBBS Male (40)	IVMBBS Female (40)	IVMBBS Male (40)
I ARS	50	48	70	40	41	41	80	73
II IRS	54	42	73	48	40	50	84	76
III TLRS	53	46	73	43	45	51	79	73
IV SRS	49	36	70	41	35	42	78	74

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
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V DRS	29	39	72	44	47	57	68	72
VI GARS	47	41	86	42	42	39	71	66
Mean & SD	47±9.19	42±4.43	75.67±10 .05	43±2.83	41.67±4.18	46.67±7. 06	76.67+5. 99	72.33+3. 39
Total scores for 720	**282**	**252**	**444* P < 0.0001**	**258**	**250**	**280**	460* P < **0.00001**	434* P <. **0.00001**
Percentage of stress	282 / 720 x100 = **39.17%**	252 / 720 x100 =**35%**	444 / 720 x100= **61.67%**	258/ 720 x100= **35.83%**	250 / 720 x100 = **34.72%**	280 /720 x100= **38.89%**	460/720 x100= **63.89%**	434/ 720 x100= **60.28%**

*P< 0.05 is significant

Chart 1: Comparison of scores due to various stressors at various stages of MBBS course

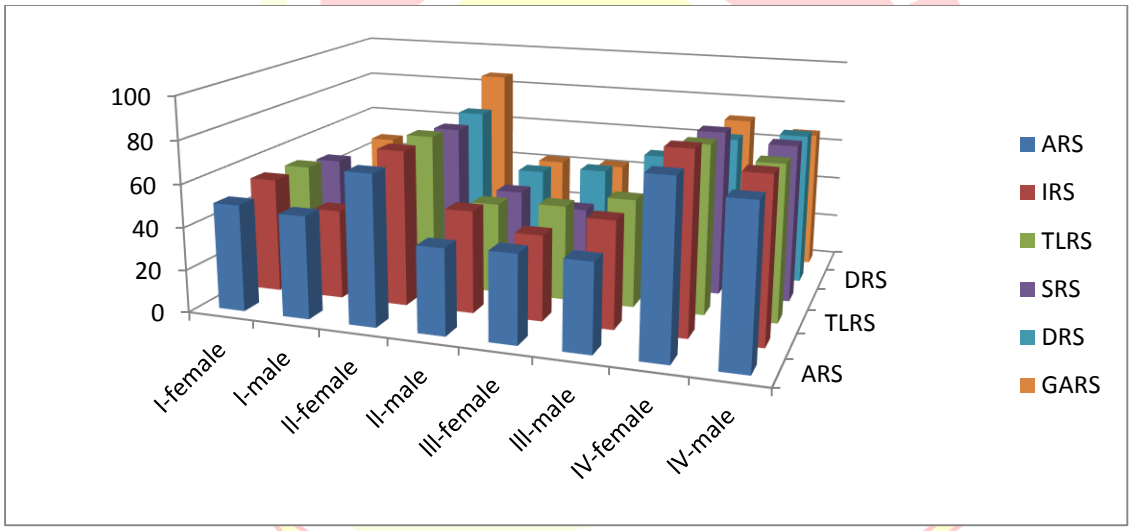
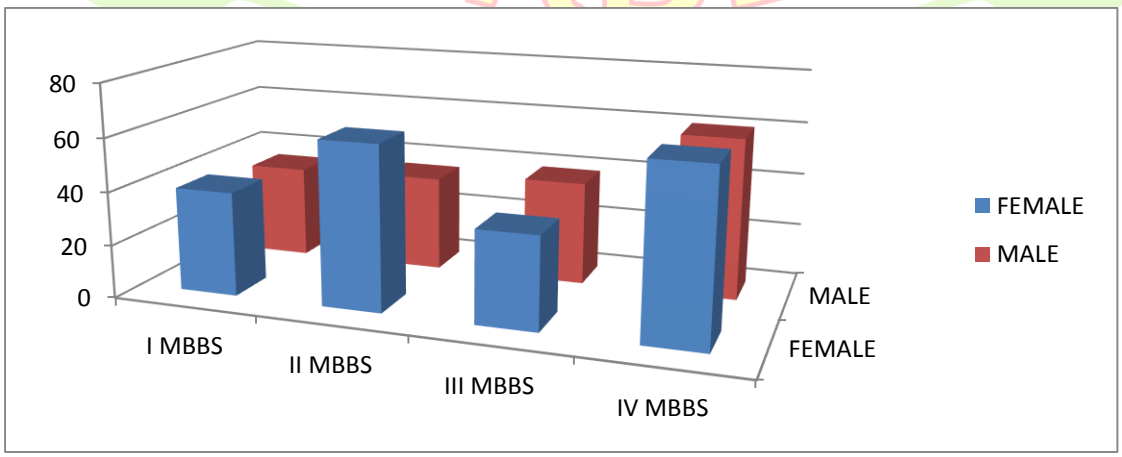


Chart 2: Comparison of total percentages of stress experienced by students during various stages of MBBS course



ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
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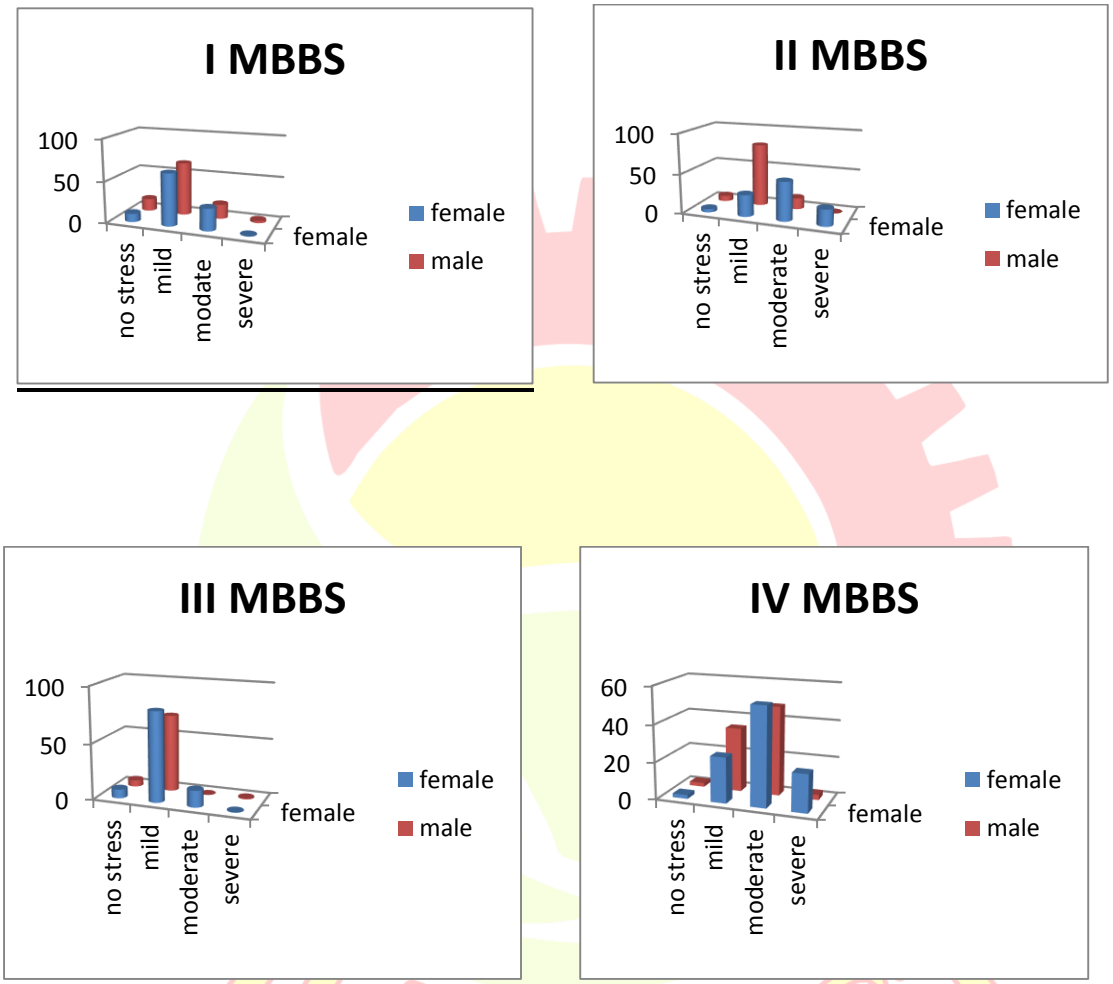
Chart 3: Comparison of degree of stress in medical students at various stages of MBBS course



DISCUSSION:

Previous study conducted by Priti Solanky et al[3] in Government Medical College, Surat shows that 3.12% of the students reported having no stressor experience, 55.6% reported mild to moderate stressor experience and 41.2% with severe stressor experience. Major factors responsible for stress identified in this study are increased load towards exam, vast syllabus, not getting expected marks, less time for repeated learning and procrastination.

Another study conducted at SAIMS Medical College, Indore, Madhya Pradesh by Balakrishnan et al[4] shows that 38.2% had mild stress, 32.4% were normal, while 19.1% suffered from marked major stress and 10.3% were in extreme major stress category in total studied subjects. The major proportion of boys 43.6% and girls 31.0% had mild stress, 33.3% boys and 31.0% girls were normal, 15.4% and 24.1% boys and girls suffered from marked major stress and 7.7% and 13.8% boys and girls were in eddddxtreme major stress category respectively.

Another study conducted by Muhamad Saiful Bahri Yusoff in Universiti Sains Malaysian Medical Students[5] showed that the prevalence of stress among the medical students was 29.6%. The top 10 stressors were academic-related. Prevalence of stress for the first, second, third, fourth and fifth year students was 26.3%, 36.5 %, 31.4%, 35.3% and

21.9%, respectively. Year of study was the only significant factor affecting stress among medical students.

Another study conducted by Hamza M. Abdulghani et al in a College of Medicine in Saudi Arabia [7] shows that the total prevalence of stress was 63%, and the prevalence of severe stress was 25%. The prevalence of stress was higher among females (75.7%) than among males (57%). The stress significantly decreased as the year of study increased, except for the final year.

The present study shows the following: The percentage of students **without stress** are as follows : I MBBS female 10% , I MBBS male 15% , II MBBS female 4.17% , II MBBS male 7.08%, III MBBS female 7.92% III MBBS male 5.83% and IV MBBS female 2.08%, IV MBBS male 2.08% (table 1).

The percentage of students with **mild stress** are as follows : I MBBS female 62.92% , I MBBS male 64.58% , II MBBS female 27.5% , II MBBS male 79.17%, III MBBS female 80.42% III MBBS male 69.17% and IV MBBS female 24.58%, IV MBBS male 34.58% (table 2).

The percentage of students with **moderate stress** are as follows : I MBBS female 26.67% , I MBBS male 17.5% , II MBBS female 48.75% , II MBBS male 14.17%, III MBBS female 15% ,III MBBS male 22.5% and IV MBBS female 52.92%, IV MBBS male 47.92%. (table 3).

The percentage of students with **severe stress** are as follows : I MBBS female 0.42% , I MBBS male 1.25% , II MBBS female 20.83% , II MBBS male 0%, III MBBS female 0.42% III MBBS male 0.83% and IV MBBS female 20.42%, IV MBBS male 15.42% (table 4).

The present study also shows that majority of students are experiencing mild to moderate degree of stress during their study period. (chart3).

The present study also shows the **total stress** percentage experienced by MBBS students during various years of study are as follows, I MBBS female 39.17% , I MBBS male 35% , II MBBS female **61.67%** , II MBBS male 34.72%, III MBBS female 35.83 % III MBBS male 38.89% and IV MBBS female **63.89%** IV MBBS male **60.28%.** This shows **significantly high level of stress experienced by II MBBS Female** ($p < 0.0001$)**,** while comparing to II MBBS Male**. Significantly high level of stress is also experienced IV MBBS Female** ($p<0.00001$) and **IV MBBS Male students** ($p< 0.00001$) while comparing to the other year students (table 5, chart 1, 2). The stress due to all the stressors are also increased in them (chart 1).

Stress due to various stressors increases in male as the year advances except II nd year where it decreases. Stress due to various stressors increases in female in the second year and decreases in third year, again to raise in the IVth year (chart1). Present study obviously shows that majority of medical students are undergoing mild to moderate degree of stress during various stages of their MBBS course (chart3).

CONCLUSION:

Present study obviously shows that majority of medical students are undergoing mild to moderate degree of stress during various stages of their MBBS course. .All the 6 domains of stress such as. 1. Academic related stressors (ARS), 2. Intrapersonal and interpersonal related stressors (IRS), 3. Teaching and learning-related stressors (TLRS), 4. Social related stressors

(SRS), 5. Drive and desire related stressors (DRS) and 6. Group activities related stressors (GARS) almost equally plays a role in medical students studying MBBS degree course.

Health personnel must be role models to the society and their health conditions both physical and mental, have to be taken care well in advance during their study period itself. This project stresses stress reduction in the form of meditation, yoga and regular sports activities to the students[8,9,10]. The teachers must be friendly with the students so that the students must approach them in times of difficulties and get correct advice. Students with severe stress must be identified well in advance and suitable psychiatric treatment mostly in the form of counseling and in a few with medication can also be done.

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