

Research Paper

Stress in Medical Students and its Consequences: A Cross-Sectional Study at a College of Medicine in Saudi Arabia

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ABSTRACT

Studies shows that stress is more in medical students compared to other profession. Causes are academic overload etc. it reduces the efficiency, performance, physical and mental problems and may leads addiction and suicide. Some changes in medical curriculum made is not much fruitful. The present study was conducted in college of medicine, King Feisal University, Saudi Arabia, where we are following problem-based learning by self-structured questioners after explanation. Our result shows that 47.18% of medical students are suffering from severe stress compared to 22.50% of in engineering students. Striking result is 66.22 % of female medical students have severe stress. This problem is more in final year male medical students (61.54%). The common cause of their stress are vast syllabus, Exam system lack of counseling etc. so it is necessary to Timely reviving of academic curriculum, exam pattern, additional recreational activities like music, sports, educational tours, cultural activities, interaction and guidance by faculties, counselling, mentorship, relaxation techniques, stress management workshops etc. Teachers must put more concentration on students with problem and try to encourage in learning rather than scolding student by their ranks.

Keywords: *Stress, Medical students, King Faisal University, Saudi Arabia*

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As per WHO report stress is more common in medical students. Studies from different part of the world also proved that stress in the Medical students is higher than other professional courses^{1, 2, 3, 4, 5}. It is because of the working environment of medical students is challenging at the teen tender age. These type of emotional distress are not episodic but it is persistent and chronic. The level of stress is more in females compared to males. Study shown that stress level is maximum in first 2 years of medical schooling. Studies proved the incidence of stress in student varies from 68 to 94.52%⁵.

Causes of stress are Academic pressures-. Main reason is workload of traditional curriculum i.e. Vastness of academic syllabus, large volume of information. Frequent examinations and less time for repeated learning. Social issues like Fears of failing, Lack of emotional and social support or the level of support available to them was not adequate, Lack of positive interpretation^{6, 7, 8} Competition rather than cooperation between learners. Lack of time for recreation, and less free time than premedical students. Minimal opportunity to relax and recreate^{3, 9, 10}. Others causes like financial problems. Language problems, the loss of contact with friends and family, homesickness, high parental expectations, improper quality of food in mess¹⁰.

Stress upsets an individual's health physically and mentally. Physically Stress will reduce the efficiency, learning ability and academic performance^{11, 12, 13}, it may cause serious illness, change in appetite and vital parameters and Stress can cause depression which leads to anger, fear, anxiety, incompetence, uselessness, guilt, sleep disorders, burnout, dropping, and suicide attempts and death. Unfavorable stress was associated with substance (alcohol, drug etc.) Ultimately affecting the social and physical life over a period of time^{7, 9}. 2 Study conducted in India and Zimbabwe shows that depression in medical student is around 20%^{22, 23}.

MATERIALS AND METHODS

Our present study is a self-rated cross sectional study based on the structured questionnaire created by us.

This study was conducted in the College of medicine, King Faisal University, Al-Ahsa, kingdom of Saudi Arabia. Consent and clearance from the ethical committee was taken. Students from 1st MBBS to Final year were enrolled. Student's feedback was taken by self-structured questionnaire. The purpose and method of study was explained to all the students. Informed consent also taken from student.

The questionnaires has three parts. The first part was about the socio demographic and academic details about the participants. Second part included different stressor. 22 questions about factors giving them stress are included. Describe what things were included in this second part. The third part is about addiction. Five options were given to each question, each option was allotted marks from 5 to 1 (e.g. 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1= strongly disagree). Similar study was analyzed in different college of same university for comparison. The obtained data was analyzed statistically.

RESULT

This cross-sectional study was conducted in the medical college, King Faisal University, Al – Ahsa, Saudi Arabia.

The result of our study is shown in the following tables.

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Table 1 – Presence of stress in male and female medical students om %.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
FemaleM-74	66.22 (49)	27.03 (20)	06.75 (5)	00.00	00.00
Male M- 174	39.08 (68)	34.48 (60)	22.42 (39)	02.87 (5)	01.15 (2)
Total - 248	47.18 (117)	32.26 (80)	17.74 (44)	02.02 (5)	00.81(2)

Table 2 – Stress in male medical students of different phases in %.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
4 th & 5 th - 39	61.54	28.21	10.26	00.00	00.00
3 rd year - 30	43.33	33.33	23.33	00.00	00.00
2 nd year - 36	28.78	33.33	33.33	00.00	00.00
2 nd year -12	41.66	41.66	00.08	00.00	00.08
1 st year - 49	30.61	36.73	26.53	04.08	02.04
1 st year – 20	30.00	45.00	15.00	05.00	05.00

Table 3 - stress in medical student compared to bank employees of same age in%.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
Medical student -	47.18	32.26	17.74	02.02	00.81
Commerce students	16.67	20.00	40.00	16.67	06.67

Table 4 - stress in medical student compared to engineering students of same age in %.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
Medical student -	47.18	32.26	17.74	02.02	00.81
3 rd Engineers	22.50	55.00	20.00	02.50	00.00

Table 5- stress in medical student compared to nursing students of same age in the same university.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
Medical student -	47.18	32.26	17.74	02.02	00.81
Nursing - 42	35.71	35.71	14.29	09.52	04.76

Table 6 - stress in medical student compared to dental students of same age in the same university.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
Medical student - 248	47.18(117)	32.26 (80)	17.74 (44)	02.02 (5)	00.81(2)
4 th Dental - 22	27.27	45.45	18.18	04.54	04.54

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Table 7 - stress in medical student compared to Pharmacy students of same age in the same university.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
Medical student -	47.18 (117)	32.26 (80)	17.74 (44)	02.02 (5)	00.81 (2)
Pharmacy -49	65.31	16.33	10.20	08.16	00.00

Table 8 - stress in medical student PBL Batch compared to Tradition student of the same university.

	Sever stress	Moderate stress	Mild stress	No stress	Not at all
PBL Medical-	47.18	32.26	17.74	02.02	00.81
Traditions Medical-25	32.00	40.00	24.00	04.00	00.00

Our study shows that 75.70% of male medical students and 93.20% female students are stressed. Compared to 36.67% of commerce students. (P value 0.013). Out of 47.18 are severely stressed (table1, 3). Stress in engineering, nursing and dental students studying in same university are relatively less (table 4, 5, 6). Level of stress is more in female students and 4th year male students. These are all alarming signs. Another observation is severe stress is more (65.31%) in pharmacy college students of our university (table 7). Compared to traditional batch, problem-based learning (PBL) students have more severe stress (table 8). The common cause of their stress are vast syllabus (83.42 %) (P value 0.006), Exam system (75.82%), lack of counseling (61%) (P value 0.003) difficulty of the syllabus, (55.63%) (P value 0.017) uncertainty of future (55.56%) (P value 0.022) and lack of trained teachers (55.55%). (Table 9) (P value 0.038)

Other causes are lack of guidance (48.91%) lack of co-curricular activities (47.16), lack of teaching aids 37.37%), (P value 0.007), fear of failing in the exam (31.48%) and language problem (31.46%)

Other less important causes are transportation (28.34%) (P value 0.011), finance (22.61%), (P value 0.012) accommodation (22.57%) (0.004) home sick (21.79%), support from fellow friends (21.97%) (P value 0.018) racism (17. 86), family problems (15.90%), and health problem (10.02%) (P value 0.001)

Some more rare opinions are afraid to talk to teachers, questions out of syllabus, more of rote learning, sex discrimination by teachers.

14.37% of male student are smoking tobacco, drinking alcohol, addicted to drugs like beta blockers etc. to overcome stress (P value 0.001). It is less in female and it is only 04.05%.

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Table 9. The causes of stress in different students.

	Male medic c	Femal e medic	Aggrega te	Pharmac y	Dent al	Enginee r	Nursin g	Commerc e.
Vast syllabus	80.00	86.84	83.42	95.92	77.27	85.00	69.04	28.67
Difficult syllabus	46.64	64.62	55.63	73.47	81.82	57.50	23.80	30.00
Language	27.75	35.16	31.46	57.14	27.27	06.25	08.57	26.67
Exam system	65.00	86.63	75.82	75.51	41.91	72.50	32.86	08.67
Guidance	41.98	55.84	48.91	71.42	22.72	52.50	28.57	36.66
Teaching aids	35.63	39.11	37.37	59.18	31.82	08.00	48.57	36.66
Lack of co curriculum	42.49	51.82	47.16	55.11	36.37	55.00	15.24	30.00
Lack of counseling	50.00	72.00	61	42.86	36.37	65.00	18.57	46.66
Support from friends	22.59	21.35	21.97	36.73	27.27	27.05	35.71	7.67
Fear of failing	26.47	36.48	31.48	36.78	36.35	22.05	09.52	30.00
Health	08.12	11.92	10.02	16.33	9.09	02.50	02.38	02.00
Finance	29.27	15.94	22.61	79.59	27.27	25.00	14.28	31.00
Family	15.78	16.01	15.90	08.16	04.54	17.50	16.66	30.00
Home sick	22.07	21.50	21.79	46.94	13.63	20.00	11.90	20.00
accommodati on	19.90	25.23	22.57	28.58	27.27	17.50	11.90	30.00
Racism	15.46	20.26	17.86	26.57	04.54	07.50	16.66	36.67
Transport	20.20	36.48	28.34	32.65	22.72	27.50	10.95	14.33
Future	52.86	58.26	55.56	53.19	31.81	57.50	28.10	33.34
Trained teachers	43.06	58.04	50.55	36.73	27.27	57.50	13.34	05.33

Summary of response to the questions

variables	chi-square	p-value	in favor of	%
Year of study * Syllabus is difficult	42.31	.017	first year	56.2
Year of study * Lack of guidance	49.36	.003	first year	48.2
Year of study * Health problem /physical disability	60.06	.001	third year	12.1
Year of study * Lack of teaching aids & lab facility	51.91	.001	first year	41.1
Year of study * Too much focus on passive learning than active knowledge.	43.09	.014	first year	55.3
Year of study * Hostel & accommodation problem	47.65	.004	first year	23.3
Year of study * Fear of joining junior batch	42.97	.014	third year	29.00
Year of study * Uncertainty of future	41.21	.022	first year	50.7
Previous year grade * As a student I have stress in my life	19.30	.013	B	75.8
Previous year grade * Syllabus is difficult	30.51	.001	C	-
Previous year grade * Financial situation	19.57	.012	C	31.9
Previous year grade * Lack of guidance	16.32	.038	C	
Previous year grade * Lack of support from fellow students	18.46	.018	C	23.3
Previous year grade * Transportation	19.81	.011	C	27
Previous year grade * Fear of joining junior batch	26.87	.001	C	29

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Gender * Syllabus is extensive	16.36	.006	male	81.7
Gender * Syllabus is difficult	12.70	.026	male	
Gender * Financial situation	17.66	.003	male	
Gender * Lack of teaching aids & lab facility	16.03	.007	male	
Gender * Transportation	22.63	.001	male	
Gender * To avoid stress I am addicted to....	26.86	.001	male with smoking	11.7

DISCUSSION

Stress is a feeling that one has when they are overloaded and struggling to cope with demands. It is a known fact that medical students are suffering from stress and its adverse effects. There is a need to know the cause and solution for this. A study conducted by different authors shows similar results^{6, 14}. This study was conducted to find out the main causes of stress in them. So that possible solutions can be found out¹⁶.

The suggestions given by experts were to review academic and exam schedules, some changes in medical curriculum made is not much fruitful.

It is necessary for the medical education policy makers, the college management, teachers and students to be aware of medical student problems and act as per that when planning medical curriculum. Addition of recreational activities, compulsory interaction of student with teaching faculty to reduce the amount of stress²¹.

Changes in the exam system like open book exams, screening the question papers by expert committee may be needed. Try to avoid excess of syllabus for exams are absolute. Modification of infrastructure like well-maintained museum, library and computer labs may help¹⁵. Regular student counseling minimum twice a year to explore student problems guiding about their future by experts. Regular training the teachers about improved teaching methods, co-curricular activities like sports and cultural activities in between curriculum. Providing facilities within the campus. Transport and financial support to future doctors are very much necessary. The student with problem must be identified and given special concentration on them rather than appreciations distinction students by teachers. Relaxation techniques, stress management workshops etc. for them are necessary.

The possible solutions are to build physical and mental health in medical students by 1. Proper student counseling to assess student difficulties, problems and stressors in early period. Giving emotional, psychological support, mentoring & guidance earliest to decrease their stress level^{17, 18, 19, 23}. 2. Modification of exam and academic activities. Addition of recreation between academic activities and monitoring them. Introduction of outdoor and indoor sports¹⁰. 3. Constant friendly interaction and guidance by the faculty members¹², improve the relations of student and teachers, reducing communication gaps. Conduction of medical quizzes, workshops, CME, Conferences Clinicopathological conferences free of cost will enhance students learning capacity. Teaching in small groups of 8 to 10 students may give more attention to students. Interact with professors. Interpersonal interactions between learners (students) and teachers^{6, 12}. Improve the methods of teaching by teaching aids, improving museum, improving the hostel facilities etc. May help our future doctors to learn and serve the society in a better way^{12, 15, 20}.

CONCLUSION

Present study concluded that our medical students affected with high stress in spite of awareness about it. It is not only affecting their academic performance even their health too.

It is necessary to reduce this stress and its adverse consequences. Timely reviving of academic curriculum, exam pattern, additional recreational activities like music, sports, educational tours, cultural activities, interaction and guidance by faculties, counselling, mentorship, relaxation techniques, stress management workshops etc. may reduce stress in medical students. I feel some more study like this is needed to know some more causes may ensure good future for the doctors and the society. Teachers must put more concentration on identifying students with problems and try to encourage in learning rather than scolding student by their ranks.

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Conflict of Interest

The author(s) declared no conflict of interest.

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