

STRESS ASSESSMENT IN MBBS FIRST YEAR STUDENTS BEFORE AND AFTER STRESS MANAGEMENT TRAINING DURING COVID-19 LOCKDOWN: A NORTH INDIAN STUDY.

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Abstract

Introduction: Stress is a well known contributor of many diseases. Corona virus infection pandemic has added stress in everyone’s life. Medical students have been reported to feel more depressed, anxious and stressed due to numerous factors in previous research. There has been lot of stress due to shutdown of colleges and modification of teaching pattern.

Material and method: This study was planned to estimate the stress in First year MBBS students of SHKM GMC Nalhar, Nuh, Mewat, Haryana, India to explore the stress prevalence and factors causing stress in the students. Then a stress management training was given to the students. After one month the analysis was repeated to assess the feedback, which fell into the lockdown period observed during COVID-19 pandemic. Medical Student Stressor Questionnaire (MSSQ) was used to assess stress.

Results and observation: The stress was found to be mild in 43 (35 %), moderate in 66 (55%), high in 11 (9%) among students.(Figure 1 A) After one month, the stress reported was mild in 67 (55.83%), moderate in 41 (34.17%), high in 12 (10%).(Figure 1 B) Stress was reported by 64.35% male students on first instance while 47.52% on second. Female students also displayed a fall in stress from 63.15% to 26.31%.

Conclusion: Stress was detected in more than fifty percent First professional medical students in SHKM GMC Mewat, Haryana, which was reduced after stress management training. It is proposed that stress management training should be given in MBBS first professional and during pandemic like Coronavirus infection.

Introduction

Coronavirus disease 2019 is a highly infectious disease caused by coronavirus, also known as “severe acute respiratory syndrome coronavirus 2” (SARS-CoV-2).¹ Coronavirus disease 2019 emerged as a gigantic pandemic affecting all nations within a span of few months. By 1 July 2020, 10,321,689 confirmed cases of COVID-19, including 507,435 deaths were reported to WHO. ²

The Ministry of Health and Family Welfare (MoHFW) has confirmed a total of 585,493 cases, 347,978 recoveries (including 1 migration) and 17,400 deaths in the country.³ The common clinical manifestations of COVID-19 include fever, dry cough, dyspnea, muscle pain, confusion, headache, sore throat, rhinorrhea, chest pain, diarrhoea, nausea, and vomiting.⁴ SARS-COV-2 is believed to be more transmissible than SARS-COV. ⁵ Social distancing was advocated to be the only solution to break the cycle of

virus transmission to curb the spread of Coronavirus as no vaccine or treatment was available. ⁶

India underwent first lockdown on 24th March 2020 and 1.3 billion population was ordered to restrict their movement and stay at home.⁷ Emergency declarations were made. Medical colleges, schools and universities were closed to avoid gatherings. Panic prevailed in the hospitals as number of patients and death continued to rise.

Medical college students were sent to their homes and no one knew how long the series of lockdowns will run. This stress was additional to the routine stress faced by Medical college students. As the primary focus of Medical colleges has been shifted to provide essential cares to the COVID-19 positive patients, medical education has been disrupted and whole system of teaching has been shifted. This brought new difficulties for both faculty and students.

Medical education is a stressful academic curricula and Undergraduate students frequently develop stress due to examination fear, high parental expectations, peer pressure, lack of leisure time, financial problems, relationship disharmony, and aspirations for higher studies. 8,9

This study was planned to estimate the stress in First year MBBS students of SHKM GMC Nalhar, Nuh, Mewat, Haryana, India to explore the stress prevalence and factors causing stress in the students. Then a stress management training was given to the students. After one month the analysis was repeated to assess the feedback, which fell into the lockdown period observed during COVID-19 pandemic.

Material and method

This cross-sectional study was done by Department of Biochemistry, SHKM, GMC, Nuh, Mewat, Haryana, on 120 MBBS first year students in March - April 2020. Study was Ethically approved from the Ethical Committee of the Institution. Exclusion criteria included a prior history of psychiatric illness, use of psychotropic drugs, or any chronic illness.

During a one hour practical session on 14th March 2020 in Biochemistry Department, participants were familiarised with the study objectives and method. After taking informed written consent, questionnaire for assessing stress was projected on the screen in English.

The Medical Student Stressor Questionnaire (MSSQ 40) was used to identify the level and source of stress. The items on MSSQ represent 40 events that have been identified to be the most probable source of stress in medical students. Respondents were requested to assess each event in them during the past month by choosing from five responses: 'causing no stress at all', 'causing mild stresses', 'causing moderate stress', 'causing high stress' and 'causing severe stress'.

The MSSQ is scored by assigning a value of 0–4 on Likert scale for each of the respective responses. A response of 'causing no stress at all' would be scored as 0 and a response of 'causing severe stresses' scored as 4. Mean score of 40 responses by a subject was used as an indicator of stress. Stress was graded on the basis of mean response score as mild (0.01-1), moderate (1.01-2), high (2.01-3), and severe (3.01-4). Mild stress should be interpreted as no stress while moderate stress as reasonable stress. High stress indicates significant emotional disturbances without disturbances in daily activities and in severe stress, routine activities are hampered. The participation was entirely voluntarily. Thirty minutes were given to the students to fill the forms. Confidentiality was maintained.

After filling of questionnaire, a thirty minutes powerpoint presentation Titled " Being Well while being a Doctor" explaining the A to Z of stress management was given to the students by the Psychiatrist from the Institution.

Students were requested to fill the form again after one month on 14th April 2020 and changes in the stress was compared. Due to complete Lockdown in the country, Questionnaire was distributed to the students by Electronic App 'Whatsapp" and results were collected after one hour.

MSSQ-40 questionnaire, developed in a Malaysian Medical school is a validated tool to measure stress and the contributing factors of stress. 40 questions drafted in this questionnaire belongs to six domains of stressors related to

Academics

Intra-personal and interpersonal-relations

Teaching and learning

Social-relations

Drive and desire

Group activities

MSSQ-40 Questionnaire is attached in Appendix. Sample size of this study was 120 subjects.

For every participant, a mean of 40 responses was calculated.

Statistical analysis

Data analysis was done using Python language. Frequency with 95% confidence interval was assessed for categorical variables. Stress for participant was calculated as mean of 40 responses. Paired T test for before and after stress of all subjects as well as for each stress factor was done. Less than 0.05 P value was taken as significant.

Results and Observations

101 (84.17%) participants Study subjects were males and 19 (15.83%) were females. Mean of 40 responses for each subject was used to assess the grade the stress in mild (0.01-1), moderate (1.01-2), high (2.01-3), and severe (3.01-4) categories. The stress was found to be mild in 43 (35 %), moderate in 66 (55%), high in 11 (9%) among students.(Figure 1 A) After one month, the stress report was mild in 67 (55.83%), moderate in 41 (34.17%), high in 12 (10%).(Figure 1 B) Stress was reported by 64.35% male students on first instance while 47.52% on second. Female students also displayed a fall in stress from 63.15% to 26.31%.

Paired t test for Mean stress level difference before and after one month and stress management lecture was

performed and the p value was 0.00019, the test statistic t equals -3.849331, is not in the 95% critical value accepted range [-1.9801 : 1.9801]. $x=-0.28$, is not in the 95% accepted range: [-0.1400 :0.1400].

Mean stress level in boys before and after was 1.28 (SD 0.58) and 1.09 (SD 0.61) respectively while in girls the mean was 1.17 (SD 0.54) and 0.95 (0.43). Median, Interquartile range and SEM has been summarised in Figure 2.

The distribution of subjects in Mild/ No stress, moderate and severe stress is mentioned in Figure 3. No statistical difference in stress was found between Males and females. P value of male vs females mean stress score was 0.44 and 0.34 before and after one month.

Most stressful factor among students was “Q32: Large amount of content to be learnt”, on both incidences (Before mean stress score 3.183 (1.22 SD) and after 2.275 (1.14 SD) p value < 0.0001). Academic factors were among the highest disturbing factors as summarised in Table 1. Statistically significant fall was noticed in stress due to academic factors like : Getting poor marks (p 0.01), Large amount of content to be learnt (p <0.0001), Unable to answer the questions from the teacher (p <0.0001), Unjustified marking process (p <0.0001).

Among teaching and learning factors, a significant decrease was noticed in: Lack of guidance from teachers (p <0.0001), Uncertainty of what is expected of me (p 0.0001), Not enough medical skill practice (p <0.0001), Teacher : lack of teaching skills (p 0.0012), Inappropriate assignments (p <0.0001), Lack of time to review what have been learnt (p 0.02), Frequent interruptions of my work by others (p <0.0001), Not enough feedback from teacher (p 0.0005). Stress due to verbal or physical abuse was lower after one month (p 0.04). Stress caused by lack of time for family was found to decrease (p 0.005).

In the set of drive and desire, stress factors which lowered were : Unwillingness to study medicine (p 0.0001) and Poor motivation to learn (p 0.0013). Feeling of incompetence was reduced significantly (p 0.01).

Top 5 Stress Factors	BEFORE	Mean Stress among subjects	AFTER	Mean Stress among subjects
1	Large amount of content to be learnt	3.18	Large amount of content to be learnt	2.275
2	Unjustified marking process	2.50	Quota system in examinations	2.175
3	Need to do well (self expectation)	2.42	Need to do well (self expectation)	2.13
4	Frequent interruptions of my work by others	2.28	Tests/ examinations	2.04
5	Inappropriate assignments	2.26	Falling behind in reading schedule	1.78

Table 1: Top five stressors before and after stress management training

During this one month gap stress was increased in factors like: Quota system in examinations (p 0.01), Working with computers (p 0.05), Not enough study material (p 0.003), Learning context- full of competition (p 0.007), Facing illness or death of the patients (p 0.0029), Unable to answer questions from patients (p 0.013), participation in class discussion (p 0.006) and participation in class presentation (p 0.04).

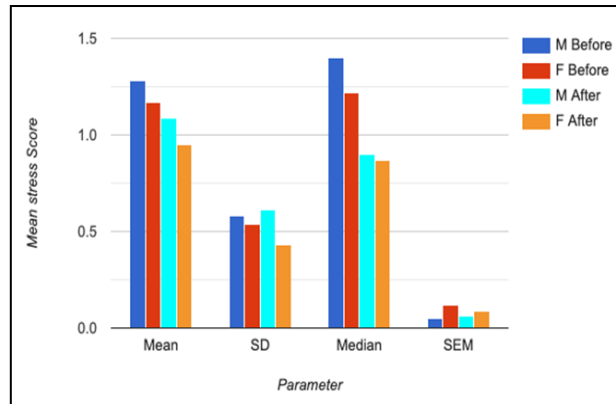


Figure 2: Median, Interquartile range and SEM of male (M) and female (F) students

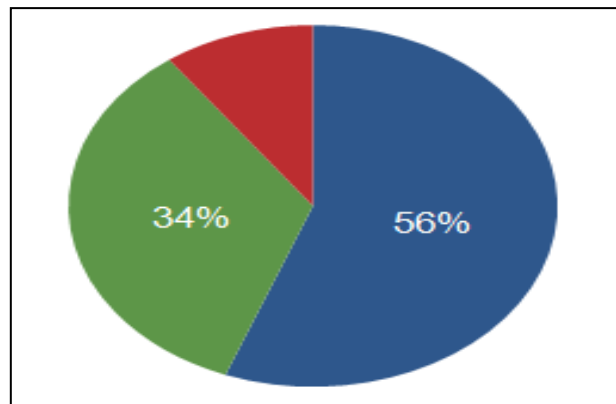


Figure 1B: Stress after one month in students

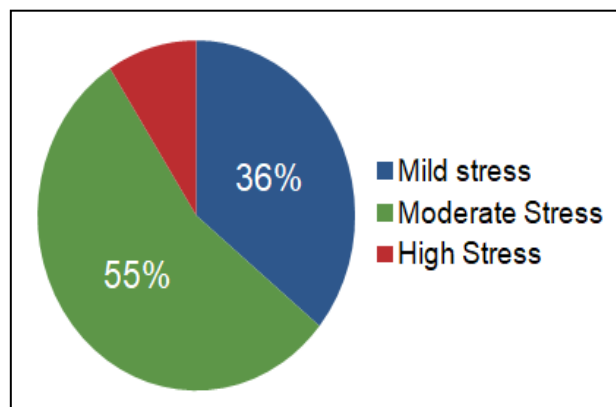


Figure 1A: Stress among students before the training

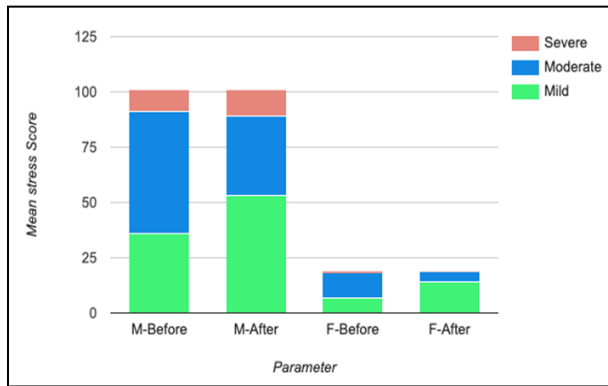


Figure 3: Mean stress score in Male (M) & Female (F) students before and after stress management training

Discussion

This study was conducted in SHKM GMC, Nalhar, Nuh, Mewat, Haryana, India by Department of Biochemistry to assess the stress among first year MBBS students (120 participants). The Medical Student Stressor Questionnaire (MSSQ 40) was used to score the stress felt by the student. Questionnaire filling was done twice, after a stress management lecture. The effect of this training was observed after one month.

Stress prevalence

Prevalence of moderate and high stress among first year MBBS students was 64% which was reduced to 46.17% post one month. This was significantly lower than stress prevalence reported in 5th semester students (91.1%) from Medical college in Kolkata.¹⁰ Some other studies from Indian medical colleges in Agartala and Surat also reported higher prevalence of stress, 94.52% and 96.5% respectively, using different scales.^{11,12} A study conducted at Kurnool, Andhra Pradesh demonstrated that 78.19% of the 133 first year medical students were stressed.¹³ According to Vaidya et al and Nandi et al, the stress in medical students was 51.37% and 52.56% respectively.^{14,15}

Studies conducted in Foreign countries like Iran and Saudi Arabia reported stress similar to our study in respondents.^{16,17} 15-20 % of medical students in US needed medical intervention for psychiatric illness.¹⁸ A study found that 31.2% of British students had emotional disturbances.¹⁹ Higher prevalence of stress, depression and anxiety in medical students than normal population has been demonstrated by many other studies.^{20,21}

Stress comparison of male and female subjects:

In our study mean stress level in boys before and after was 1.29 and 1.09 respectively while in girls the mean was 1.15 and 0.95. No statistical difference was noted between males and females on both occasions. The fall in stress in males was significant ($p = 0.0244$).

In contrast, female respondents had reported higher stress compared with their male counterparts in some researches. This may be due to the fact that women articulate depressive symptoms even minor ones, more easily.²² Similar results were noted by a study at Kerala.²³ A higher percentage of girl students admitted to have stress compared to their boys.¹⁵ Supe et al however did not reveal any gender predilection in an Indian study.²⁴ Girls (52.88%) perceived greater stress when compared to boys (47.12%) though the difference did not reach statistical significance in another study.¹³

Stress factors

Academic factor "Large amount of content to be learnt" was admitted to be the most stressful factor by students on both instances in our study. Poor performance at the exam, large content to be learnt and lack of time to revise were the major causes of stress among the students according to an author.¹³ Similarly academic related factor was also the most important stress factor in MBBS students overall in studies performed by Kakoli et al and Pratibha et al.^{22, 14} This academic pressure keeps on steadily increasing in medical student with the year of curricula.²⁵ Synergistic results have been accrued by many other studies.²⁶⁻²⁹

There can be two factors for this fall in stress among students in our study. First is the effect of stress management training imparted to the students. During this session various stress management techniques were discussed. Second factor was as classes were suspended during this one month due to Covid-19 pandemic, students were at their homes with their family hence the emotional support and better supervision by family lowered stress. The stress due to staying away from home, nonavailability of facilities in remote areas and obtaining adequate sleep hours was significantly reduced in students.

COVID-19 pandemic has spread panic, fear and stress all over the world. Medical community has been enormously affected both academically and emotionally to face this challenge.³⁰ Due to lockdown in Coronavirus pandemic, novel teaching methods have been introduced like online webinars.³¹

It has been not easy to cope up with the technology advances and subject complexities for students. A student is continuously bothered about questions like; when will colleges reopen? How my syllabus for practical classes will be done? What will be the pattern of examinations?

It is well known that the total time needed to acquire medical degree as well as the associated mental and physical pressure is greater as compared to other subject fields.³²⁻³⁵ Studies have noted that age group between 18 to 24 years is at high risk for psychiatric disorders such as major depressive disorder, anxiety, and psychiatric

comorbidities.36-38 Hence stress assessment and management becomes very crucial. Undetected and untreated mental disturbances may persist in adulthood.39

Conclusion

Stress was detected in more than fifty percent First professional medical students in SHKM GMC Mewat, Haryana, which was reduced after stress management training. It is proposed that stress management training should be given in MBBS first professional and during pandemic like Coronavirus infection. Moreover the decision of Government to suspend the college classes has also helped to ameliorate the stress in Coronavirus pandemic time.

Limitations of this study

MSSQ questionnaire used in this study does not include questions specifically on Corona virus infection which could have been added to better understanding of stress factors. Another limitation is that the addition of other MBBS professional students was not done.

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Appendix 1: The Medical Student Stressor Questionnaire (MSSQ) 40

Do you feel stress due to	0	1	2	3	4
1 Tests/ examinations					
2 Conflicts with other students					
3 Quota system in examinations					
4 Parental wish for you to study medicine					
5 Need to do well (self expectation)					
6 Not enough study material					
7 Conflicts with personnel(s)					
8 Heavy workload					
9 Participation in class discussion					
10 Falling behind in reading schedule					
11 Participation in class presentation					
12 Lack of guidance from teachers					
13 Feeling of incompetence					
14 Uncertainty of what is expected of me					
15 Not enough medical skill practice					
16 Lack of time for family and friends					
17 Learning context- full of competition					
18 Teacher : lack of teaching skills					
19 Verbal or physical abuse by other students					
20 Talking to patients about personal problems					
Do you feel stress due to	0	1	2	3	4
21 Unable to a answer questions from patients					
22 Inappropriate assignments					
23 Having difficulty understanding the content					
24 Getting poor marks					
25 Poor motivation to learn					
26 Lack of time to review what have been learnt					
27 Verbal or physical abuse by teacher					
28 frequent interruptions of my work by others					
29 unable to answer the questions from the teacher					
30 Conflict with teacher					
31 Unwillingness to study medicine					
32 Large amount of content to be learnt					
33 Need to do well (imposed by others)					
34 Not enough feedback from teacher					
35 Unjustified marking process					
36 Lack of recognition for work done					
37 Working with computers					
38 Verbal or physical abuse by personnel(S)					
39 Family responsibilities					
40 Facing illness or death of the patients					