

Study of Psychological Wellbeing of Medical Students at Mahatma Gandhi Institute of Medical Sciences

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ABSTRACT

Background

Medical students undergo tremendous stress during different stages of the MBBS course which is known to have a negative effect on their cognitive function and adversely affects their mental health also. This study was embarked upon to assess the psychological wellbeing of medical students by estimating the level of anxiety, factors leading to depression and various stress factors that a medical student has to encounter in college life.

Material and Methods

This was a cross sectional Descriptive survey research. A total of 177 medical students were recruited via random sampling technique. The instrument was a carefully drafted online form comprising of two standardized questionnaires (PHQ-9 and Spielberger's anxiety scale) and a section with questions which attempt to find different stressors that may influence a medical student's mind.

Results

Out of 177 responders, 27.68% showed a moderate depression out of which 23(46.93%) were males and 26(53.07%) female students. Maximum students showing moderate depression belonged to first year MBBS (53.06%) followed by second year students (36.73%). No correlation was observed between students from Hindi medium schools and depression/anxiety. Top 3 reasons that according to students cause stress are studies friends and financial problems. Students reported to be using sports, majority playing games like badminton (122;68.9%), cricket (56;31.6%) and basketball (37;20.9%). Students also preferred to be involved in activities like listening to music (148; 83.6%), reading (94; 53.1%), dancing (68;38.4%), art and singing. Many reported that yoga (20;11.3%) and meditation (30;16.9) helped them to cope with stress.

Conclusion

This study has identified different stressors affecting the psychological wellbeing of medical students in rural medical college and also probed into finding ways adopted by students to help them cope with stress.

Keywords : Well-Being, Stress, Medical Students, Depression

I. INTRODUCTION

Universities are considered as excellent centers for education, yet some students fail to benefit due to various reasons.¹ Medical students undergo

tremendous stress during different stages of the MBBS course. The students of 1st year of medicine journey from a phase of rote learning to self-directed learning and hence, stand on the brink of transition. This sudden transition for a student with a hectic

curriculum and rapid vitality of his social environment activates the distress cycle.

Several educationists and sociologists pointed out that various student problems severely affect their learning process. A high level of stress is known to have a negative effect on cognitive functioning and learning of students in a medical school which affects their studies and mental health.²

The professional educational program is highly stressful. A student after passing Pre-medical examination get admission into a medical college to study a professional course for the first time in their life. A medical college is a place which is mostly different from other professional colleges. After entering a medical college, a student for the first-time experience so closely so many peoples 'joy as during child birth and sorrow as during death of a patient in a place. These may cause some emotional disturbance to the student also for the beginning phases of student life.³ Getting into the medical school is a matter of pride in India, but the challenges faced by students of being in medical school are often overlooked. Many studies have described the stressors of medical training and the associated negative consequences on the mental and physical health of medical students.³⁻⁶

Stressors are defined as personal and environmental experiences which result in stress.⁷ Some stress in medical school training is required for learning.⁸ 'Favorable stresses' facilitates learning whereas stress that suppresses learning is called 'unfavorable stress'. Medical students may perceive the same stressors differently depending upon their cultural backgrounds, personal traits, experiences and coping skills. It was hypothesized that the undergraduate students of our rural medical college would be no exception when it comes to experiencing stress so we undertook this survey in order to identify the stress factors, the level of anxiety and factors leading to depression that a medical student encounters in college life.

II. METHODS AND MATERIAL

Study design

This was a cross sectional Descriptive survey research.

Study participants

A sample size of 177 undergraduate students of age group 17-22 years from MGIMS, Sevagram was employed in this study to derive responses. Sample size was estimated using OpenEpi, Version 3 software and the formula

Sample size:

$$n = [DEFF * Np(1-p)] / [(d^2 / Z^2_{1-\alpha/2} * (N-1) + p*(1-p))]$$

Sampling procedure

The participants of the study were selected via random sampling technique.

Study Setting

Study was carried out in Mahatma Gandhi Institute of Medical Sciences which is a rural Medical College, Sevagram in Wardha district in central India.

Data Collection Tools

A carefully drafted online questionnaire was mailed to medical students of Mahatma Gandhi Institute of medical Sciences. It comprised of two standardized questionnaires (PHQ-9 and Spielberger's anxiety scale) and a section with questions pertaining to wellbeing, stressors and antistressors, background of students were prepared with the assistance of psychology consultant. Mentioning the name of the student was made voluntary whereas all other questions were mandatory to attempt.

1) Spielberger's anxiety scale:

was used to determine the anxiety score of the students. The anxiety levels were assessed using questionnaire called the 'State Trait Anxiety Inventory' [STAI].⁹ This is a self-report assessment device, which includes separate measures of state and

trait anxiety. State anxiety (S-Anxiety) is defined as a transitory emotional state characterized by consciously perceived feeling of tension and apprehension. Trait anxiety (T-Anxiety) refers to relatively stable individual differences in anxiety proneness.

The STAI consists of two separate subscales that contain 20 items each. The items are in the form of statements, the subjects will have to use to describe themselves. The essential qualities to be evaluated are feelings of apprehension, tension, nervousness, and worry. Both subscales (S-Anxiety and T-Anxiety) use a 4-point Likert scale to allow the subject to show how often or how much each question applies to them in both situations. Also, the test is designed to take only 20 minutes at the maximum to reduce the amount of fluctuations in S-Anxiety that could become apparent if the test was to go for a long period of time.

2) Patient Health Questionnaire (PHQ)

The PHQ-9 is the depression module, which scores each of the 9 DSM-IV criteria as "0" (not at all) to "3" (nearly every day). PHQ-9 scores of 5, 10, 15, and 20 represent valid and easy-to-remember thresholds demarcating the lower limits of mild, moderate, moderately severe, and severe depression. Scores less than 10 seldom occur in individuals with major depression while scores of 15 or greater usually signify the presence of major depression. There is strong evidence for the validity of the PHQ-9 as a brief measure of depression severity as per data of 6,000 patients from two studies performed by Kroenke K et al.¹⁰ The PHQ-9 demonstrates a satisfactory sensitivity, specificity, diagnostic agreement, and overall diagnostic accuracy as compared with the clinical interview. It is the first such tool to be tested for use in adolescents and offers an acceptable and efficient tool for early detection and recognition of mental disorders in this high-risk group.¹¹

Table 1. Interpretation of PHQ-9 Total Score:

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

3) Self constructed questions

- I completed school from (Hindi/ English medium school)
- What do you think causes stress in your life?
- Do you play sports?
- What are the different games that you play?
- What other activities are you involved in?
- Do you feel relaxed afterwards?
- Do you think you work better when in stress?
- Do you think stress is good, necessary or useful? why?

The information gathered during this survey research project was kept strictly confidential.

Statistical analysis

Data was collected by a carefully drafted online questionnaire. The tabulation of responses and their statistical analysis was done using Microsoft Excel 2007 software.

Ethics Consideration

Prior approval from Institutional Ethics Committee was obtained before the commencement of the study. All study participants gave written informed consent. It was ensured that consent is given voluntarily, fully informed and is obtained from the persons who are competent to do so.

III. RESULTS AND DISCUSSION

A total 177 medical students (in the age range of 17-22 years) voluntarily participated in the study, completed

the questionnaire and submitted the responses. Out of 177 responders, 90 students were females (51%) and 87 were male students (49%). Maximum responders were first year medical students (87; 42.9%) followed by second year students (63; 35.6%).

Spielberger's anxiety scale (Figure 1)

Anxiety status of medical students was assessed by Spielberger's anxiety scale. Depending on the characteristics of the stressful stimulus conditions, individuals experience differential levels of state anxiety as a function of their level of trait anxiety. The Mean $\pm$ SD of State, Trait and total Anxiety scores of all the study subjects have been tabulated (Table 2).

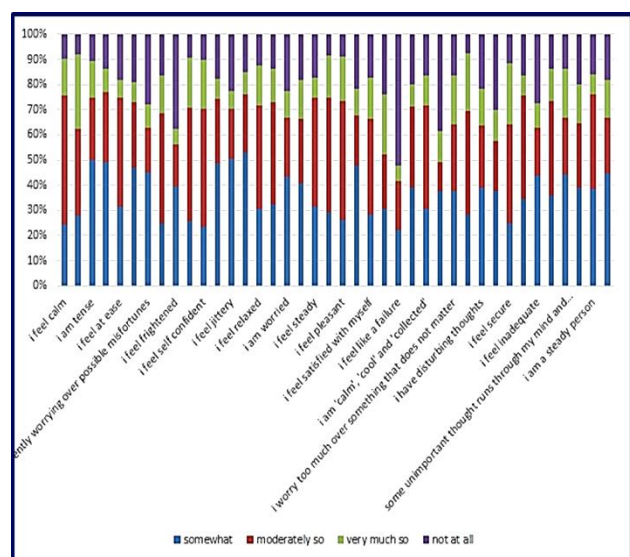


Figure 1. Graphical illustration of the responses to the STAI

Table 2. Mean $\pm$ SD of Anxiety scores

	Anxiety Score
State Anxiety scores	47.23 $\pm$ 11.06
Trait Anxiety scores	47.38 $\pm$ 11.25
Total Anxiety scores	47.30 $\pm$ 11.16

Patient Health Questionnaire (PHQ) (Figure 2)

Out of 177 responders, 49 students (27.68%) showed a 10-14 (moderate depression) PHQ-9 score out of which 23(46.93%) were males and 26(53.07%) female students. Maximum students showing moderate depression PHQ score (10-14) belonged to first year

MBBS (26; 53.06%) followed by second year students (18; 36.73%).

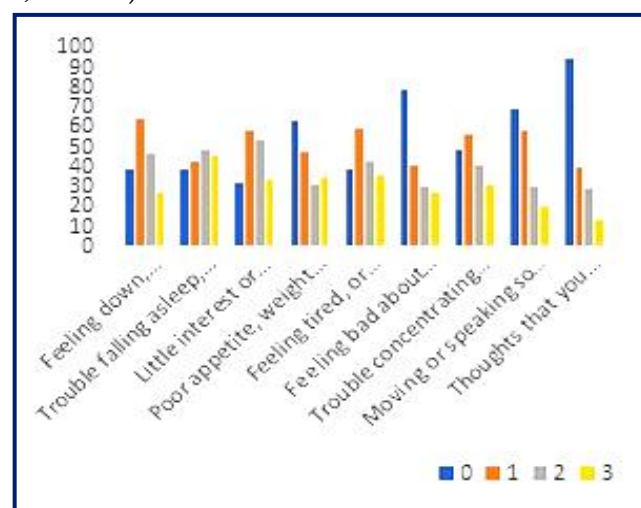


Figure 2. Graphical illustration of the responses to the PHQ

An issue that got our attention was the students showing PHQ score of 20-27 (severe depression) that were 20/177 (11.29%) with equally involved males and females. Out of 20, 10 were second year MBBS students and 9 first year and 1 student who belonged to third year. (Figure 3)

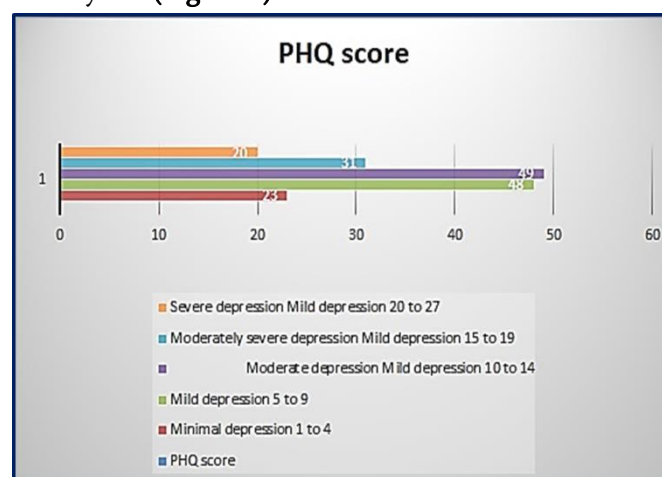


Figure 3. Graph representing the fraction of different stages of depression detected in responders according to the PHQ.

On digging deeper, students with PHQ score 26 and 27 were calculated which showed two students (1 male and 1 female) belonging to first and second year respectively had a score of 26. 4 students out of which 3 female students (2 from second year and 1 from first

year) and 1 male student from third year showed a score of 27.

Self-constructed questions

No correlation was observed between students from Hindi medium schools and depression/anxiety. Top 3 reasons that according to students cause stress are studies (100; 56.5%) friends (37; 20.9%) and financial problems (17; 9.6%). 73 (41.2%) claimed to play sports regularly while rest play occasionally and some claimed to have not been involved in extracurricular activities since they joined college. 13 (7.3%) students stated that they do not feel better even after playing after indulging in other activities like listening to music, dancing, reading etc. When asked if they feel that stress is important to get the work done, 87 (49.2%) replied with no followed by 47 (26.6%) who said maybe and 43 (24.3%) who agreed that they work better under stress. (Figure 4)

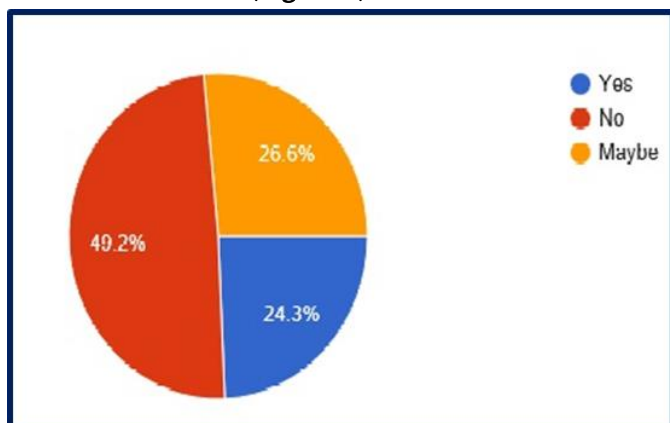


Figure 4. Response to the question: do u work better under stress?

India has seen a rise in suicides among students over the past years. From students suffering from stress due to their class 10th or 12th board examination to those studying in engineering or medical colleges, large amount of population is still ignorant to the fact that stress and depression exists. It is not a made-up excuse by the students to get rid of responsibilities but a fact that they themselves are unaware of and hence fail to deal with.

Mahatma Gandhi Institute of Medical Sciences is situated in rural areas of Vidarbha which is in central part of the country. It was first thought that students here did not have recreational opportunities due to which they were predisposed to stress which further led to depression but on reviewing the studies conducted in other parts of the subcontinent, the picture was found to be more or less the same. Students from metro cities were found to be suffering with just as much stress as those of the rural ones.

The observation proves to be true when we see one of the studies on stress conducted in medical students of Seth G S Medical college¹² where 238 students were investigated using Zung's depression scale and majority of students (175/238--73%) perceived stress. It was also assumed that India being a developing country and also believed to be having a strict and fussy education system, had a higher stress/depression rate but it was seen that different countries across the globe showed a similar scenario as per two studies conducted in the United States of America. The first of them tried to identify prevalence of burnout, variation of its prevalence during medical school and impact of personal life. It was seen that out of 50% response rate, burnout was seen in 45% students and the frequency of burnout increased in senior students ($p < 0.03$).¹³ In the second study, the aim was to assess the frequency of suicidal ideation among medical students and explore its relationship with burnout (state of emotional, mental, and physical exhaustion caused by excessive and prolonged stress) in which it was observed that 50% of students experienced burnout and 10% experienced suicidal ideation during medical school.¹⁴

Our results were compared with those of other studies which were conducted using the same scale (PHQ). 237 medical students undertaking a baccalaureate course in medicine from Maulana Azad Medical College, New Delhi. From a response rate of 79%, the overall prevalence of provisionally diagnosed depressive and major depressive disorder was found to

be 21.5% and 7.6%, respectively. The highest prevalence of depression was seen in first year students followed by second year students (P value < 0.001). It was also observed that students with poor or excellent academic performance (based on the scores obtained in recent terminal or annual examinations) had higher rates of depression (P value < 0.05). Gender did not have any significant association with prevalence of depression in this study.¹⁵ Response rate was found to be higher in first and second year students when reviewed in previous studies. In a different study conducted in a private medical college showed prevalence of self-identified depression (PHQ-9 $\geq$ 5) to be 64% with 1st and 2nd years students having significantly higher levels than 3rd and 4th year students (P = 0.0096). Highest level of depression on PHQ-9 was seen in the 1st year. Prevalence of moderate to severe depression (PHQ-9 $\geq$ 10) was found to be 26.6%.¹⁶ Prevalence of self-identified depression was marginally higher in females. A strikingly important finding revealed in our study was; students when asked the question if they have had 'Thoughts that you would be better off dead, or of hurting yourself in some way?' 10 (5.6%) of them replied with 'several days', 6 (3.4%) replied 'more than half the days' and 4 (2.3%) students replied 'nearly every day'.

In corroboration to this, a study of a total of 72 students documented that 14.3% of them scored in the moderate to severe depression range on the PHQ-9 and twenty-two students (4.4%) reported suicidal ideation at some point during medical school.¹⁷ The mean of total anxiety score as assessed by Spielberger's anxiety scale obtained from students of our study was 47.30, which is greater than basal anxiety score (30.92) of the medical students in a previous study using the same scale.¹⁸

Measures of Coping with stress

Scientists have found that regular participation in aerobic exercise decreases the overall levels of tension,

raise and stabilize mood, improve sleep, and improve self-esteem. Even five minutes of aerobic exercise is believed to stimulate anti-anxiety effects. According to an ADAA (Anxiety and Depression Association of America) online poll, 14 percent of people reported to make use of regular exercise to cope with stress. Others reported talking to friends or family (18 percent); sleeping (17 percent); watching movies or TV (14 percent), as well as eating (14 percent) and listening to music (13 percent) as stress relievers.¹⁹ Similarly, in our study, students reported to be using sports, majority playing games like badminton (122; 68.9%), cricket (56; 31.6%) and basketball (37; 20.9%). Other sports played by the students in their free time were football, volleyball and even table tennis. Students also preferred to be involved in other activities like listening to music (148; 83.6%), reading (94; 53.1%), dancing (68; 38.4%) and also art and singing. Many reported that yoga (20; 11.3%) and meditation (30; 16.9) helped them to cope with stress. Physical activity is a proven way to reduce stress. Other effective methods include mind-body practices of breathing exercises, yoga, and meditation. Relaxation techniques have been used to assist in the treatment of phobias, panic disorder, and depression, as well as providing relief for people in stressful situations. Thirteen (7.3%) of responders refuse to have any relief after playing their favorite sport or indulging in extracurricular activities. Our study highlights the need for interventions in to cope up stress in medical education. Student counseling and informal mentorship is the need of hour. Stress management workshops, soft skills development techniques at the entry of medical career would be helpful. Relaxation techniques like meditation, yoga and involvement in physical activities like outdoor sports can be recommended as stress busters.

IV. CONCLUSION

Consequences of all problems such as social, economic, cultural and education can affect student's mentality

and may persist for long period eventually be converted into psychological problems. In a nutshell, this survey study was aimed to identify different stressors that may affect or are concerned with the psychological wellbeing of medical students in our rural medical college located in Central India with low resource setting and meagre recreational avenues. We observed an attitude of turning a blind eye and apathy among students towards existing stress which is a serious problem and may be harbinger of serious mental and psychosocial problems. In this study we also probed into finding ways adopted by students to help them cope with stress. An alarming suicidal ideation revealed in the students entails a dire need for escalating awareness and encouragement from peers and faculty. Stress though a well-studied entity in medical students is yet to be explored further with more research

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