



ASSESSMENT OF THE EFFECT OF THE COVID-19 LOCKDOWN RESTRICTIONS ON THE MENTAL HEALTH STATUS OF UNDERGRADUATE MEDICAL STUDENTS IN SUBBAIAH INSTITUTE OF MEDICAL SCIENCES, SHIVAMOGGA

Psychology

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ABSTRACT

Background: Novel corona virus disease 2019 has uniquely affected the daily life and academic trajectory of many medical undergraduate students. The objectives of this study were to evaluate the effect of COVID-19 lockdown restrictions on the stress, depression and anxiety levels of undergraduate medical students. **Methods:** A cross sectional study was done by survey questionnaire in undergraduate medical students using perceived stress scale & DASS 21. 123 medical students responded. Data collected was entered in MS Excel and then transferred to the SPSS software (Version 21) for analysis. **Results:** Out of 123 students participated in the study, female students made about 65% of the study's participants. Out of 123 participants, 43.9% were in their third year, 35.8% in their first year, 18.7% in their second year, and only 1.6% in their fourth year. 81.3% of the students experienced moderate level of stress during lockdown. There was no significant difference between the mean stress, anxiety and depression scores between male and females (0.641), (0.820), (0.768). The mean distribution of stress, anxiety and depression scores was not statistically different between the groups. (0.859), (0.315), (0.611). **Conclusion:** The COVID-19 pandemic increased the level of stress among medical students. Female students are at more risk of having high stress. Resources, including counselling, peer advocacy & support can be provided by the medical colleges to the students. It is pertinent that students who feel the symptoms of anxiety & depression should seek professional mental health care.

KEYWORDS

COVID-19, UG Medical students, Stress, Anxiety, Depression

INTRODUCTION:

The Novel Coronavirus Disease 2019 (COVID-19) which spread quickly worldwide and impacted all aspects of daily life was declared a pandemic by the World Health Organization in March 2020.¹ The most distressed group of students compared to any other course have been the Undergraduate medical students.² Medical undergraduate students are expected to master a huge amount of knowledge and skills and at the same time are known to have higher levels of psychological impairment due to the stressful study environment. The cognitive function of medical students as well as their ability to learn may lead to unfavourable impacts due to high stress.³

Various studies conducted on undergraduate medical students before the COVID-19 pandemic have shown to demonstrate distinct higher mental health issues like burn out, Generalized anxiety disorder and depression. Studies have shown that about 30.0% of females and 11.7% of males were severely stressed. 65.0% of females and 78.3% of males were moderately stressed. 5.0% of females and 10.0% of males were less stressed.⁴ Previous studies have shown that females are the susceptible population and are more stressed and depressed than males in this context.⁵ The prevalence of depression was 28.07% in male students versus 32.43% among female students.

The first cases of COVID-19 were reported in India in January 30, 2020. A meta-analysis demonstrating the impact of COVID-19 showed that the COVID-19 pandemic had significant mental health impacts on medical students in India, Iran, Brazil, China and United Arab Emirates.⁶

By March of 2020, many medical colleges started to cancel hospital training and replaced the curriculum to online module and simulated patient care experiences. This may have added to the anxiety of the students which they were already experiencing.

In a typical curriculum, medical students progress through pre & para clinical years and two clinical years of hospital bed-side training. The usual transition from pre & para clinical to clinical years showed that anxiety symptoms are highest in third-year medical students.⁷

The lockdown restriction had pushed classes from offline to online mode, uncertainties in life, lack of transparency from authorities, repeated postponement of examinations, raising concerns, personal restrictions, self-doubts, sudden changes and lack of future planning.

These numerous last-minute adaptations undoubtedly impacted student learning and can influence the level of stress, anxiety and depression in undergraduate medical students. Hence affecting the mental health of the students. Thus, affecting their decision making at work and their personal life and which can lead to more conflicts in the work environment. In young people, longitudinal studies also suggests that stress predicts depression.⁸ Depression harms ability to focus, diminishes one's energy, and ability to make career decisions.⁹ The mental health status of these students can be determined by assessing the stress levels, depression level and anxiety levels in them.

In the current crisis caused by the pandemic, the emerging literature is beginning to reveal certain differences based on gender and age. Younger people and women show higher levels of fear of COVID-19, anxiety, stress, and depression.¹⁰ After reviewing the emerging literature on the critical situation of global pandemic caused by COVID-19, it is clear that more research is needed on the possible predictors of depression.

The mental health of the future doctors of this country must be made priority. This study will therefore throw light on whether this COVID-19 pandemic restrictions has made any significant changes in the levels of stress, depression and anxiety among medical undergraduates or not.

The primary objectives of this study are

- I. To study the effect of COVID-19 lockdown restrictions on the stress levels of undergraduate medical students
- II. To study the effect of COVID-19 lockdown restrictions on depression and anxiety levels of undergraduate medical students

The secondary objectives of this study are - to compare the stress, anxiety and depression levels among male and female medical undergraduates

MATERIALS & METHODS:

With the approval of Institutional Ethics Committee, a cross sectional study was done in undergraduate medical students from Subbaiah Institute of Medical sciences, Shivamogga. Study population included all the medical undergraduate students (categorised as males and females) in a medical college from 1st year MBBS to 4th year MBBS. The students were asked to fill in the survey forms that were provided to them in their classrooms in their free time.

Inclusion Criteria:

1. Students who have given an informed consent
2. Students studying in 1st, 2nd, 3rd, 4th year MBBS in Subbaiah Institute of Medical Sciences, Shivamogga
3. Students between 18-25 years of age

Exclusion Criteria:

1. Students who have not given an informed consent
2. Interns working in the college hospital

Data was collected through surveys circulated through Google forms. The Data collected included

- a) Informed consent
- b) Demographic data- Age, Sex, Year of study
- c) Tools used:

A) Perceived Stress scale (PSS):¹¹ Is a classical stress assessment tool that help us understand and perceive stress. The questions in this scale ask about the feelings and thoughts during the last few months. It is a measure of the degree to which situations in one's life are appraised as stressful. In each case, student was asked to indicate how often he/she thought or felt a certain way.

It consists 10 multiple choice questions (MCQs) with answers (ratings) that range from 0-4. 0 'being never' and 4 being 'very often'. The PSS score was determined by as follows. First, we reverse the scores for questions 4, 5, 7, and 8. On these 4 questions, the scores are changed as 0 = 4, 1 = 3, 2 = 2, 3 = 1 and 4 = 0. We then added up the scores for each item to get a total. Based on the total obtained, the individual was categorised into 3 groups. This method of assessing the stress levels is done separately for males and females from the study population to compare the stress levels in males and females.

B) DASS 21:¹² Depression, anxiety, stress scale- 21 is a self-report questionnaire that was used to measure the severity of depression, anxiety and stress in an individual. The DASS-21 is a short form of the DASS (which has 42 questions). The DASS-21 has 7 scaled divided into various subscales with similar content. This scale measures dysphoria, hopelessness, self-deprecation, lack of interest, lack of involvement, inertia and anhedonia. The anxiety scale assesses autonomic arousal, situational effects, skeletal muscle effects, and subjective experience of anxious affect. It consists of 21 multiple choice questions (MCQs) with answers (ratings) that range from 0-3. 0 being 'never' and 3 being 'almost often'.

DASS-21 scoring method: The scale to which each item belongs is labelled as D (depression) and A (anxiety). For each scale sum the scores for the identified items. The DASS-21 is a shorter version of the DASS (42), hence the final score of each group was multiplied by 2. This final score is then compared to the DASS profile sheet and the result is provided. This method of assessing the depression levels and anxiety was done separately for males and females from the study population to compare the anxiety and depression levels in males and females. The confidentiality of the individual taking the survey was maintained and will not be disclosed under any circumstance.

Statistics:

Data collected was entered in MS Excel and then transferred to the SPSS software (Version 21) for analysis. Gender distribution & distribution of study population according to the year of the study with frequency & percentage was done. Severity of stress among the gender & study year of the students was done. Comparison of the stress among males & females was done by unpaired t-test, & with the year of study was done by one way ANOVA. Comparison of Anxiety & Depression among males & females was done by Mann Whitney u test & comparison of anxiety & depression with the year of study was done by Kruskal Wallis test. A p-value of <0.05 was considered statistically significant.

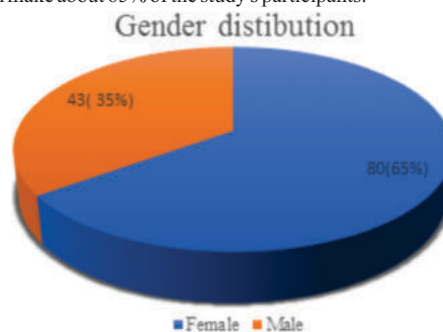
RESULTS:

A total of 123 medical students from first year to final year MBBS participated in the study. Out of 123 students, 80 were females & 43 were males given in Table -1 & Fig-1. Women make about 65% of the study's participants.

Table1: Gender Distribution The Study Population

Gender	Frequency	Percentage
Female	80	65.0
Male	43	35.0
Total	123	100.0

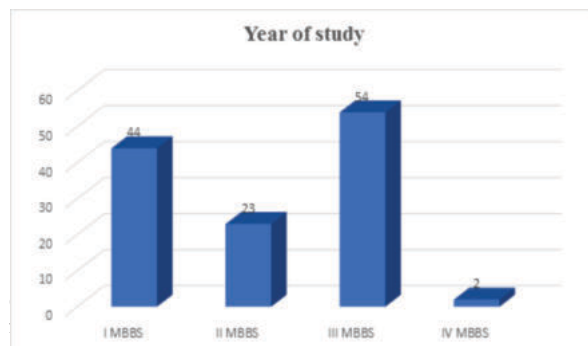
Women make about 65% of the study's participants.



Out of 123 medical students, 44 students from first MBBS, 23 from second MBBS, 54 from third MBBS & 2 students from Final year MBBS participated in the study. Distribution of study population according to year of study was given in Table- 2 & Figure-2. Out of 123 participants, 43.9% were in their third year, 35.8% in their first year, 18.7% in their second year, and only 1.6% in their fourth year.

Table2: Distribution Study Population According To Year Of Study

Year of study	Frequency	Percentage
I MBBS	44	35.8
II MBBS	23	18.7
III MBBS	54	43.9
IV MBBS	2	1.6
Total	123	100.0



The severity of stress among undergraduate medical students was assessed by perceived stress scale. Most students (81.3%) experience moderate level of stress- Table-3. Gender wise severity of stress was shown in Table-4. Severity of stress among study year of the students was shown in Table-5. Comparison of stress among males and females was done by Unpaired t test. There is no significant difference between the mean stress score between male and females (0.641) – table-6. Comparison of the stress with the year of study was done by One-way ANOVA. The mean distribution of stress score is not statistically different between the groups. (0.859) – Table-7.

Table3: Severity Of Stress

Stress level	Number	Percentage
Low	6	4.9
Moderate	100	81.3
High	17	13.8
Total	123	100

Most students (81.3%) experience moderate level of stress

Table4: Severity of stress among Gender

Gender	Stress Level			Total
	Number (%)			
	Low	Moderate	High	
Male	5(29.4)	33(33)	5(29.4)	43(35)
Female	1(16.7)	67(67)	12(70.6)	80(65)
Total	6(100)	100(100)	17(100)	123(100)

Table5: Severity of stress among study year of the students

Year of study	Stress Level			Total
	Number (%)			
	Low	Moderate	High	
I MBBS	1(16.7)	37(37)	6(35.3)	44(35.8)

II MBBS	3(50)	16(16)	4(23.5)	23(18.7)
III MBBS	2(33.3)	45(45)	7(41.2)	54(43.9)
IV MBBS	0(0)	2(2)	0(0)	2(1.6)
Total	6(29.4)	100(33)	17(29.4)	123(100)

Table6: Comparison Of Stress Among Males And Females

Gender	Stress Score		p-value
	Mean	±SD	
Female (80)	21.81	±4.02	0.641
Male (43)	21.33	±6.27	

Unpaired t test

There is no significant difference between the mean stress score between male and females (0.641)

Table7: Comparison Of Stress With Year Of Study.

Year of study	Stress Score		p-value
	Mean	±SD	
I MBBS (44)	21.98	±4.44	0.859
II MBBS (23)	21.57	±6.36	
III MBBS (54)	21.43	±4.74	
IV MBBS (2)	21.00	±0.00	

One-way ANOVA

The mean distribution of stress score is not statistically different between the groups

Comparison of Anxiety among males and females was done by Mann whiney u test. The median distribution of anxiety scores is not statistically different between male and female (0.820) -Table-8. Comparison of Anxiety with year of study was done by Kruskal Wallis test. The median distribution of anxiety scores is not statistically different between the group (0.315) - Table-9.

Table8: Comparison Of Anxiety Among Males And Females

Gender	Anxiety		p-value
	Mean	±SD	
Female (80)	11.38	±10.33	0.820
Male (43)	10.93	±10.31	

Mann whiney u test

The median distribution of anxiety scores is not statistically different between male and female.

Table9: Comparison Of Anxiety With Year Of Study.

Year of study	Anxiety		p-value
	Mean	±SD	
I MBBS (44)	12.95	±10.24	0.315
II MBBS (23)	9.04	±10.12	
III MBBS (54)	10.81	±10.51	
IV MBBS (2)	9.00	±4.24	

Kruskal Wallis test

The median distribution of anxiety scores is not statistically different between the group

Comparison of depression among males and females Mann Whitney U test. The median distribution of depression scores is not statistically significant different between males and females (0.768) – Table-10. Comparison of depression score with year of study Kruskal Wallis test. The median distribution of depression scores is not statistically significant different between groups (0.611) - Table-11.

Table10: Comparison Of Depression Among Males And Females

Gender	Depression Score		p-value
	Mean	±SD	
Female (80)	6.04	±5.82	0.768
Male (43)	5.70	±6.51	

Mann Whitney U test

The median distribution of depression scores is not statistically significant different between males and females

Table11: Comparison Of Depression Score With Year Of Study

Year of study	Depression score		p-value
	Mean	±SD	
I MBBS (44)	5.95	±4.90	0.611
II MBBS (23)	5.00	±5.45	

III MBBS (54)	6.50	±7.10	4(1,9.25)	
IV MBBS (2)	0.0	±0.0	0	

Kruskal Wallis test

The median distribution of depression scores is not statistically significant different between groups.

DISCUSSION:

Many people who attend college, generally regarded as the most stressful period of one's life represent the transition from adolescence to adulthood.^{13,14} A prior meta- analysis in medical students estimated the global prevalence of anxiety at 33.8%.¹⁵ Throughout their college careers one third of students suffer from moderate to severe depression. As a result, students are reluctant to take on challenging projects and assignments, harming their educational careers because of low self-esteem.¹⁶

In April 2020, a group of 24 world- leading spectrum of experts from across the bio-psycho-social strata determined that there is an immediate priority in collecting data on the mental health effects of the COVID-19 pandemic across different populations.¹⁷ The present study answers the call by trying to determine the impact of covid -19 in the undergraduate medical students in Subbaiah Institute of Medical Sciences, Shivamogga. In this study, 81.3% of students experienced moderate level of stress. This shows that major psychological health problems exist among university students in the context of COVID-19 lockdown. This is consistent with the moderate levels of stress, anxiety & depression seen in the Chinese population in the early stages of pandemic.¹⁰ Numerous studies have shown a risk of higher stress in females than males.³ Female students may perceive adverse situations and challenging conditions as more stressful than male students.¹⁸ This study's results have important implications in serving as one time point prevalence of stress & anxiety during the pandemic. This may be of value for the future investigations of COVID-19's psychological impact on medical students.

Predictors of stress included the student's training in medical college and their rapid transition to remote learning. These factors likely impact student's student wellbeing and academic performance. For first and second-year students, the transition to remote learning contributed to feelings of stress. Third and Fourth-year students were unsure about their ability to progress through their education in a time where students were no longer allowed in or limited in choices of clinical learning environments. Students likely feared potential exposures if they did continue their clinical postings. Students found themselves having to work in their more distracting home environments, losing the social support of their peers. Both students and faculty had to adapt and adjust to the use of new technologies quickly.¹⁹ Students had significantly higher stress potentially due to high stakes checkpoints in medical students' academic career, disruption of university examinations that determine their eligibility to continue their career. Studying for University examinations without definitive test dates had contributed to the feelings of burnout for the students.

The present study found that during the COVID -19 pandemic, there is high prevalence of anxiety and stress in medical students. Students with pre-existing mental health conditions are more likely to have higher anxiety & stress levels.

CONCLUSION:

Medical colleges are a high-pressure environment. Students are not immune to the added stressors presented by the global pandemic. This study showed that medical students have experienced significant impacts due to stress added by the pandemic & had high levels of stress & anxiety at survey time. Though vaccinations were provided to medical students for COVID-19, there is an increasing need to continue to track the mental health status of students for underlying levels of anxiety, stress and depression. Medical colleges can supply students with resources, including counselling, peer advocacy & support. Those students who feel the symptoms of anxiety & depression should seek professional mental health care.

Limitations of the study:

There are several limitations of the present study including the limited collection of demographic data. Data could have been collected from all the medical colleges in Karnataka with respect to gender & distribution of the study population according to the year of study instead of single institution alone. The study population between each

year of study could have been more uniform.

Acknowledgements:

Authors would like to thank all the medical students who had taken part in this survey.

Conflict of interest: The authors declare no conflict of interest

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