

# COVID-19 Pandemic Effect on Psychological Status and Perception towards the Medical Profession among Haryana's First Year MBBS Students: A Cross-sectional Study

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## ABSTRACT

**Introduction:** The Coronavirus Disease-2019 (COVID-19) pandemic has emerged as a major health crisis throughout the world. In order to control the spread of disease in India, the Central Government imposed a nationwide lockdown. The ongoing spread of the pandemic, strict lockdown measures and delay in the opening of educational institutions in the country are expected to affect the mental health of medical college students too. In order to help and guide the students, we should first be aware of the magnitude of the problem faced by medical students due to the pandemic. For this purpose, this study was conducted online.

**Aim:** To assess the effect of the pandemic on the psychological status of the students and their perception towards medical profession.

**Materials and Methods:** A questionnaire-based cross-sectional study was conducted by the Department of Biochemistry of Kalpana Chawla Government Medical College, Haryana, India from 22<sup>nd</sup> May 2020 to 5<sup>th</sup> June 2020, among 538 first year Bachelor of Medicine, Bachelor of Surgery (MBBS) students from several Government and Government aided medical schools in the state of Haryana after obtaining ethical clearance. The

detailed questionnaire, a study consisting of sections on the current status in relation to the COVID-19 pandemic, perception towards medical profession and psychological status. It was posted online on social media platforms and the responses were collected within 15 days of posting. The psychological status was assessed based on a 21 item Depression, Anxiety, and Stress Scale (DASS-21). Statistical analysis was done by Chi-square test, using Statistical Package for Social Sciences (SPSS) version 20.0 software.

**Results:** Out of 538 student's responses, it shows that 19.1% (n=103) of students experienced moderate stress, probably because of the COVID-19 outbreak and the effect it had on the social and academic aspects of their lives. About 11.5% (n=62) of students had a moderate level of anxiety, and 16.9% (n=91) had experienced moderate depression during the ongoing pandemic.

**Conclusion:** The study demonstrates various factors, like interruptions in regular studies, social distancing, fear of infection, fear of losing a loved one, and worry about the completion of the syllabus and examinations, all cause stress and anxiety in students.

**Keywords:** Anxiety, Coronavirus disease-2019, Depression, Lockdown, Mental status, Stress scale

## INTRODUCTION

The COVID-19 infection was first detected as viral pneumonia of unknown aetiology in Wuhan, Hubei Province, in central China in December of 2019 [1]. Within a few weeks, there was a worldwide spread of COVID-19 infections to various countries [2]. The World Health Organisation (WHO) declared COVID-19 a pandemic on March 11, 2020, after it had spread to over 114 countries [3]. At present, the entire world is in the grip of the deadly COVID-19 pandemic. During the initial phase of the pandemic, over 2-6 billion people around the world were placed on some kind of lockdown [4], and there were around 78,003 confirmed cases and 2,549 deaths in India till May 13, 2020 [5].

To control the spread of disease in India, the Central Government imposed a nationwide lockdown on March 23 for 21 days, which was extended twice for two weeks each. This lockdown has affected all healthcare professionals, including students studying in various educational institutions throughout the country. As of April 8, 2020, teaching has been suspended in educational institutes in 188 countries, according to United Nations Educational, Scientific and Cultural Organisation (UNESCO) [6]. Over 90% of enrolled learners (1.5 billion young people) worldwide were not attending their regular classes. School routines are important coping mechanisms for young people with or without mental health issues [7]. As the pandemic spreads and there are more lockdowns and delays in the

opening of schools, medical college students' mental health is also going to be affected.

During the pandemic, healthcare professionals, including doctors, have emerged as the frontline warriors. In this fight against COVID-19, 412 medical workers have been exposed to the disease, and 96 doctors and 156 nurses have tested positive for COVID-19 across India as of April 2020 [8]. A questionnaire based online study was done with first year MBBS students from several government and government-aided medical schools in the state of Haryana in order to assess the effect of COVID-19 pandemic on the mental health and current perception of 1<sup>st</sup> year MBBS students towards medical profession.

The Biochemistry and Psychiatry Departments planned a study with 1<sup>st</sup>-Year MBBS students from various government and government-aided medical colleges in Haryana using a detailed questionnaire consisting of sections on demographics, and current status in relation to COVID-19 pandemic, perception towards the medical profession, and psychological status using DASS questionnaire [9].

## MATERIALS AND METHODS

This was a questionnaire-based cross-sectional study, carried out in Kalpana Chawla Government Medical College, Haryana, India from 22<sup>nd</sup> May 2020 to 5<sup>th</sup> June 2020. An online questionnaire was developed using Google forms, with a consent form appended to it.

Social media like WhatsApp were used to send the link to the MBBS students of all the Government and Government aided Medical Colleges of Haryana state including KCGMC Karnal, BPS GMC Khanpur, SKHM Medical college Mewat, PGIMS Rohtak, MAMC Agroha, ESIC MC, Faridabad. The responses were collected within 15 days since the first day of online invitation. The Institutional Ethics Committee (IEC) approved the study, approval number KCGMC/IEC/2020/05, and computerised informed consent was obtained from the participants.

**Inclusion criteria:** First year MBBS students studying in various Government and Government aided Medical colleges of Haryana. The Students who had access to the internet.

**Exclusion criteria:** The students with pre-existing psychiatric disorders, e.g., those already taking anti-anxiety medication or antidepressants.

**Sample size calculation:** The sample size was calculated based on the following formula [10]:

$$N = \frac{Z_{\alpha/2}^2 \times p(1-p)}{e^2}$$

Where  $Z_{\alpha/2}$ =value of z (standard normal variate) at 5% level of significance for 95% confidence interval=1.96, p=proportion of students=50%, e=margin of error=5%, N=Total number of 1<sup>st</sup> year MBBS students studying of all Government and Government aided medical colleges in Haryana=810

Considering the response rate of 50%, the final sample size calculated was 522.

The link to the online self-administered questionnaire was shared with all the First Year MBBS students through the respective Class Representatives on social media (WhatsApp, Facebook).

### Study Procedure

A self-designed questionnaire [Annexure-1] consisting of four sections prepared using Google forms, including 21 items on the Depression, Anxiety, and Stress Scale (DASS-21) [9].

1. Socio-demographic characteristics include age, gender, religion, family type, and related information.
2. **Present status in relation to COVID-19:** Details related to the situation in the present scenario, i.e., of lock-down and the spread of COVID-19 in the country.
3. **Perception of medical profession:** Information on how students perceive the role of doctors in the current scenario and the impact, if any, it has had on their perception of their profession.
4. **DASS:** A validated pretested questionnaire assessing stress, depressive, and anxiety symptoms has been used [9]. Each question was rated from a scale of 0-3, where,
  - 0 signifies- Did not apply to me at all
  - 1 Signifies – Applied to me to some degree, or some of the time
  - 2 Signifies – Applied to me to a considerable degree or a good part of time
  - 3 Signifies- Applied to me very much or most of the time

The DASS-21 is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three DASS-21 scales contains seven items, divided into subscales with similar content.

The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, and lack of interest/involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Scores

for depression, anxiety and stress are calculated by summing the scores for the relevant items. Scores on the DASS-21 are multiplied by 2 to calculate the final score [Table/Fig-1] [9].

Variables	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8- 9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

[Table/Fig-1]: DASS-21 scoring system [9].

### STATISTICAL ANALYSIS

The SPSS version 20.0 for Windows software was used for analysing the data. The frequency and percentage were calculated for prevalence. The Chi-square test was used to check the association of demographic variables with the psychological impact of the COVID-19 pandemic and its effect on what 1<sup>st</sup>-year MBBS students thought about the medical field. The p-value <0.05 was considered statistically significant.

### RESULTS

Out of 810 students, 571 responses were recorded, and of these 538 students fulfilled the inclusion criteria. The outbreak had an effect on both their social and academic lives. About 11.5% (n=62) students had a moderate level of anxiety, 19.1% (103) had experienced moderate stress and 16.9% (n=91) had experienced a moderate level of depression during the ongoing pandemic. The stress and anxiety among college students might be due to the impact of the pandemic on their studies [Table/Fig-2].

Parameters	n (%)
<b>Stress level</b>	
Normal	297 (55.2)
Mild	71 (13.2)
Moderate	103 (19.1)
Severe	30 (5.6)
Extremely severe	37 (6.9)
<b>Anxiety levels</b>	
Normal	374 (69.5)
Mild	59 (11.0)
Moderate	62 (11.5)
Severe	25 (4.7)
Extremely severe	18 (3.3)
<b>Depression level</b>	
Normal	319 (59.3)
Mild	62 (11.5)
Moderate	91 (16.9)
Severe	26 (4.8)
Extremely severe	40 (7.5)

[Table/Fig-2]: Number of students with various stress, anxiety and depression levels; (N=538).

**Demographics:** A large majority of students belonged to urban areas and nuclear families, 97.8% (n=526) stayed at home during the lockdown and 39.2% (n=211) of students stayed at home due to fear of COVID- 19 infection [Table/Fig-3].

Characteristics	Category	Values; n	%
Gender	Male	289	53.7
	Female	249	46.3
Rural/Urban	Urban	331	61.5
	Rural	207	38.5

Joint/Nuclear family	Joint family	143	26.6
	Nuclear family	395	73.4
Stay during lockdown	Home	526	97.8
	Away from home	12	2.2
Reason of staying at home during lockdown	Parents insistence	237	44.1
	Fear of COVID-19	211	39.2
	Instructions from College	78	14.5

**[Table/Fig-3]:** Demographics characteristics; (N=538).

**COVID phobia and its impact on students:** Out of 538 respondents, 13% (n=70) felt they were COVID-19 positive even in the absence of contact and symptoms. During the lockdown, only 0.3% (n=2) students came in contact with COVID-19 positive patients, only 3.0% (n=16) had a family member working as a doctor, and 3.2% (n=17) had a family member working as police personnel and fighting as COVID-19 warriors. Only 0.3% (n=2) students reported being COVID-19 positive during the survey. About 10.8% (n=58) of students have been quarantined either in a quarantine facility, at home, or in an isolation ward in a hospital. About 50.9% (n=274) of the students are worried about losing their loved ones and about completing their syllabus.

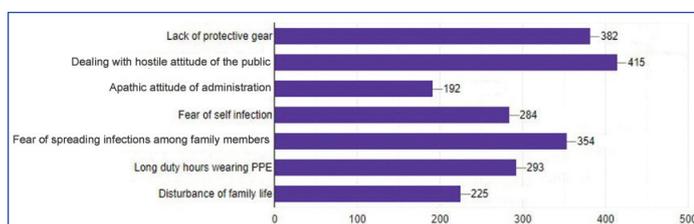
#### Methods adopted for relieving stress due to COVID-19 pandemic:

The students have used different methods to cope with stress caused by COVID-19 pandemic and its impact on their studies and social interaction with their peers and friends [Table/Fig-4].

Method used to relieve stress	Values; N	%
Talk to parents regarding COVID-19	235	43.6
Talk to friends	201	37.3
Talk to siblings	45	8.3
Talking to mother	27	5
Talking to father	6	1.1
Talking to relationship partner	24	4.5
Yoga and meditation	110	20.4
Spend time on social media like Facebook, WhatsApp etc	338	62.8
Regular exercise and playing games	268	49.8
Psychiatric help needed	48	8.9
No psychiatric help needed	490	91
Medication	20	3.7

**[Table/Fig-4]:** Stress relieving methods.

**Perception towards medical profession:** Out of 538 responses, 44.2% of the students (n=238) have chosen the medical profession as a career path because of self-interest, 32.2% (n=173) in order to serve humanity, 18% (n=97) on parents suggestion and 4.3% (n=23) due to the lucrative profession. About seven students chose the other reasons. When asked about the major challenges faced by doctors in India in their fight against the pandemic, the majority (77%, n=415) chose to deal with the hostile attitude of the public, followed by a lack of protective gear (71%, n=382), fear about spreading infection (65.8%, n=354), wearing PPE for long hours (54.5%, n=293), fear of self infection (52.8%, n=284), disturbance of family life (41.8%, n=225) [Table/Fig-5].



**[Table/Fig-5]:** Graph showing major challenges faced by doctors in India in their fight against the pandemic; (N=538).

According to students, about the COVID-19 pandemic, the major lacuna faced by India is the lack of equipment and availability of protective gear (31%, n=167 and 25.8%, n=139, respectively). These were closely followed by a lack of available doctors, 24% (n=129) and hospitals 9.1% (n=49). The 70% (n=328) of students believe that mainly government setups, with a little contribution from private practitioners, contributed more towards providing effective healthcare to COVID-19 positive patients. About 22.5% (n=121) of students think that there is an equal contribution by the government and private sector towards providing effective healthcare to COVID-19 positive patients.

Out of 538 students, 54.6% (n=294) believe that sufficient safety measures have been taken by the government to protect health professionals from COVID-19 infection, and 244 (45.4%) believe otherwise. On the contrary, 61.3% (n=330) of students believe that private hospitals have taken sufficient safety measures, and 38.7% (n=208) think otherwise.

Looking at the present condition of healthcare professionals dealing with COVID-19, 91.1% (n=490) of students are willing to continue with their MBBS course, 5.6% (n=30) are doubtful, and 3.3% (n=18) are thinking about discontinuing [Table/Fig-6]. Those students who are doubtful and thinking of discontinuing their course, 8.9% (n=48), of these, 5.2% (n=28) wish to join the civil services, and 1.1% (n=6) wish to join management.

Question	Values; n	%
Students willing to continue with MBBS course	490	91.1
Students not willing to continue with MBBS course	18	3.3
Students doubtful about leaving the MBBS course	30	5.6

**[Table/Fig-6]:** Students perception towards medical profession.

Upon being asked which health sector they would join after course completion, majority opted for the government sector followed by the private sector as shown in [Table/Fig-7]. 57.8% (n=311) of students do not think that the present scenario influenced their choice of joining the health sector, whereas 27.3% (n=147) of students think to some extent and 14.9% (n=80) completely.

Question	Values; n	%
Students will join Government health sector	368	68.4
Students will join Private health sector*	122	22.7
The above choice affected by COVID-19 pandemic completely	80	14.9
The above choice not affected by COVID-19 pandemic	311	57.8
The above choice affected by COVID-19 pandemic to some extent	147	27.3

**[Table/Fig-7]:** Choice of working in Government or Private health sector after course completion.

After completing the course, 69.1% (n=372) of the students would prefer to stay in India, 19.7% (n=106) would like to go abroad for higher studies but settle in India only, and 11.2% (n=60) would like to settle abroad [Table/Fig-8]. The present scenario influenced the above choice made by 13.8% (n=74) of the students. It influenced 13.9% (n=75) of students and had no influence on 72.3% (n=389) of students. Taking into consideration the present scenario, 93.3% (n=502) of students do not regret their choice to become doctors.

Question	Values; n	%
After completing the course, the students would prefer to stay in India	372	69.1
Go abroad for higher studies but settle in India only	106	19.7
Would like to settle abroad after higher studies	60	11.2
The present scenario did not influence the above decision	389	72.3
The present scenario influence the above decision	75	13.9
The present scenario influence the above decision to some extent	74	13.8

**[Table/Fig-8]:** Students choice of staying in India or abroad after MBBS course completion.

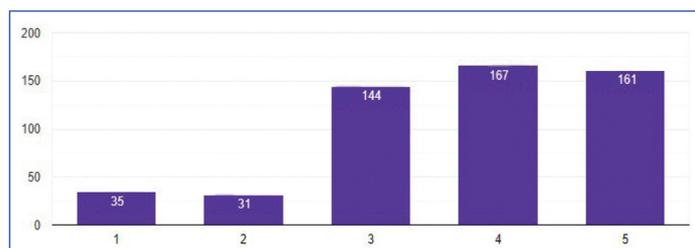
Looking at the present scenario, the majority of the students of MBBS 1<sup>st</sup> Professional opted for clinical branches followed by pre and preclinical specialties [Table/Fig-9].

Broad specialty	Values; n (%)
Clinical	473 (87.9)
Preclinical or Paraclinical	43 (8.0)
Paraclinical	16 (3.0)
Preclinical only	6 (1.1)

[Table/Fig-9]: Postgraduate options opted by MBBS students.

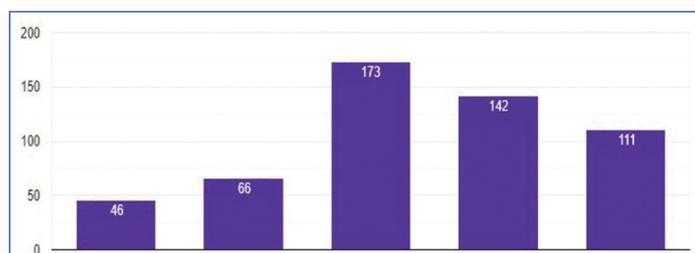
### The extent of stress, anxiety and depression in students: DASS-21:

In the present study, the students were asked to rate their level of worry about missing studies due to the non opening of their educational institute. On a scale of 1-5, where 1 represents the least concerned and 5 represents the most concerned, 31% opted for concerned score 4 and 6.5% showed the least concern for missing their studies, while score 2 was shown by 5.8%, a score of 3 by 26.8% and a score of 5 by 29.9% [Table/Fig-10].



[Table/Fig-10]: Response of students about the level of worry regarding missing studies due to non opening of their institute, on the scale of 1-5.

When the students were asked to rate their level of fear/nervousness due to the COVID-19 pandemic on a scale of 1-5 where 1 signifies least scared and 5 signifies very scared, 20.6% reported very scared and 8.5% reported least scared, while score 2,3 and 4 were shown by 12.3%, 32.2% and 26.4%, respectively [Table/Fig-11].



[Table/Fig-11]: Response of students about the level of worry regarding fear/nervousness due to Covid-19 pandemic, on the scale of 1-5.

## DISCUSSION

During pandemics and epidemics, society faces a lot of challenges. The major brunt of these challenges is faced by healthcare professionals and medical students in the form of cessation of physical teaching, isolation from batch mates, lack of bedside teaching, clinical case studies, and missing practical sessions [11]. In a recent study conducted during the COVID-19 outbreak in India, one fifth of adults were found to suffer from depression and stress and one-fourth from anxiety [12]. The fear of contracting COVID-19 or having a COVID-19 positive family member is highly stressful on top of the fear of lagging behind in studies and worry about upcoming examinations. The anxiety about COVID-19 among MBBS students might be related to the effect of pandemic on their studies and employment in the unforeseeable future [13].

In another study by Shaher H et al., it was found that dissatisfaction with online learning, home-quarantine, sleeping disturbances, eating disturbances, fear of scoring less in academics, feeling lonely and family history of chronic illness were factors that predicted depression, anxiety and stress among university students [14].

The implementation of lockdown in many countries has had a large impact on the social, economic, physical, and mental wellbeing of the population [15]. One of the most vulnerable groups is the students in various schools and colleges across the country [16].

Educational institutes have been closed and have affected the studies of students. Concern about the completion of the syllabus and uncertainty about the postponement of university examinations are major causes of stress and anxiety along with lack of social interaction and being locked in their homes [17].

In the current study, results show that out of 538 responses, 61.5% of the students lived in urban areas, and 73.4% belonged to nuclear families. 44.1% of the students were at home upon the insistence of their parents. About 9.9% (n=53) students had a family member who was directly dealing with a suspected or confirmed COVID-19 patient as a corona warrior. The students had been quarantined at home since the initiation of the lockdown. The absence of interpersonal communication during such circumstances can result in anxiety disorders [18]. All these factors have a definite impact on the psychological condition of the students [19].

In the current study, concern regarding missing college and hostel life was the major cause of fear for 54.3% (n=292) of the students. Earlier study conducted by Saraswathi I et al., in 217 undergraduate students, reported that 35.5%, 33.2% and 24.9% of the undergraduate medical students, including resident interns showed symptoms of depression, anxiety, and stress, respectively during COVID-19 outbreak with the majority with moderate depression (15.2%), moderate anxiety (17.5%), and mild stress (13.4%) [20].

Previous study suggest that emotional and anxiety disorders are associated with risk factors like the death of parents in childhood, not living with parents, and parents having psychological problems and mental illness [21]. The presence of COVID-19 infection in relatives or acquaintances was also a risk factor in the students' anxiety about the COVID-19 pandemic, which is a highly contagious infection [22]. Additionally, due to the significant impact of the pandemic on India's economic status, loss of income source for some families might worry the students about tuition fees resulting in anxiety related to their further education [23] Despite the presence of all these factors, in the present study, 91.1% (n=490) of the 1<sup>st</sup> year MBBS students were willing to continue with their study course, and 87.9% (n=473) of them were still willing to opt for a clinical specialty in their future postgraduate course.

The evaluation of DASS-21 led to the observation that moderate levels of stress, anxiety, and depression were seen in 19.1% (n=103), 11.5% (n=62) and 16.9% (n=91) of the students that responded to the present online study. In the present study, 8.9% of students (n=48) felt that they needed psychiatric counselling to deal with COVID-19 related stress and 3.7% (n=20) took medication to deal with the stress. This further supports the inclusion of stress coping methods and proper communication skills in the MBBS teaching curriculum [24]. The indefinite closure of educational institutions and resorting to distant and remote learning methods have had a specific effect on the education and overall growth of students and in the COVID-19 pandemic, physical psychiatric consultation may be replaced by an online psychiatric counselling session to help students cope with such stress [25]. So highly efficient and sturdy social support system becomes a bare necessity during this period.

### Limitation(s)

The limited approachability to the students due to lack of personal smart phones, email IDs and proper internet connection are some of the limitations of the study. Moreover larger sample size involving different states of the country should have thrown light on how students belonging to a different cultures, traditions and family setups react to national health emergencies like pandemics.

## CONCLUSION(S)

As this study demonstrates the importance of psychological support for first year MBBS students, its necessity cannot be overstated. Students get stressed and anxious when their studies are interrupted, they do not stay in touch with their friends, they are afraid of getting sick, and they worry about their syllabus and exams. Therefore it requires a more robust curriculum to prepare the MBBS students to face such challenges in the future.

Living with parents, doing exercise, yoga/meditation, and spending time on social media like Facebook and WhatsApp have been used by the students to cope with stress during the pandemic. It's also very important for students to get psychological help from their families, schools, and society so they can deal with these problems. Social support helps reduce stress during pandemics, encourages exploring and appreciating the importance of help-seeking methods. So families, schools, and society should work together to help students get through this difficult time.

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