

ORIGINAL ARTICLE

Consequences of the COVID-19 Pandemic on Mental Health of the Medical Students in the Western Uttar Pradesh, India

Devanshi Mehndiratta¹, Shilpa Patrick², Prithpal S. Matreja²

ABSTRACT

The COVID-19 pandemic put the entire country on a lockdown and resulted in a multitude of changes in our everyday lives. It profoundly affected various sectors with medical students being no exception. With the shift to online learning, disruption of clinical rotations and increased uncertainty surrounding the healthcare system, medical students have faced unprecedented challenges. They were already vulnerable to poor psychological well-being due to the high-pressure environment that they study and train in; mental health of medical students may be significantly affected by the changes caused by the COVID-19 pandemic. This research explores the consequences of the pandemic on the mental health of medical students. This cross-sectional study was conducted for a period of 6 months at a tertiary care hospital in Western Uttar Pradesh, India. A total of 340 medical undergraduate students across all phases of their professional course were included in the study after they provided a written informed consent. A pre-validated questionnaire was administered via google form. The questionnaire consisted of 15 multiple choice questions which were close-ended responses. The majority of the participants agreed that delay in the entrance exam was very stressful for them, with family pressure to score good marks as everyone was at home during the lockdown. More than half of the participants agreed that the acquisition of theoretical knowledge and clinical skill were hampered during the pandemic. They even had difficulty in understanding and imagining various concepts of anatomy due to inability to perform dissections. Our study showed that most of the participants agreed that delay in the entrance exam was very stressful and more than half of the participants agreed that the acquisition of theoretical knowledge and clinical skill were hampered during the pandemic.

Keywords: COVID-19, mental health, medical students, medical education

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INTRODUCTION

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus which was declared as a pandemic by the WHO on March 11, 2020.¹ This pandemic resulted in a multitude of changes in our everyday lives. From lockdowns to social distancing and mandatory face coverings, this pandemic was rapidly changing

the definition of “new normal”.² In March 2020, everything across India was shut down to curb the transmission of COVID-19. People had not been at home for longer periods of time than ever before in recent times. Closure of workplaces, lack of extracurricular and outdoor activities, and disrupted eating, sleeping, and daily routines affected everyone at different levels.³

The pandemic also had a significant impact on

1. Intern Doctor, Teerthanker Mahaveer Medical College and Research Centre, Teerthanker Mahaveer University (TMU), Moradabad, Uttar Pradesh-244001, India.
2. Department of Pharmacology, Teerthanker Mahaveer Medical College and Research Centre, Teerthanker Mahaveer University (TMU), Moradabad, Uttar Pradesh-244001, India,

Correspondence to: Prof. Prithpal S. Matreja, Department of Pharmacology, Teerthanker Mahaveer Medical College and Research Centre, Teerthanker Mahaveer University (TMU), Moradabad, Uttar Pradesh-244001, India, Email: drpsmatreja@yahoo.co.in

medical education, as patient exposure, history taking and examination, and hands-on training are crucial toward development of basic medical skills, which medical students are gradually taught throughout the four professional years. The pandemic led to major changes in the established curriculum, from online classes to suspension of clinical skills teaching and postponement of examinations, medical undergraduate education suffered significantly.²

Along with academic disruption, the pandemic also affected the mental health of medical students. It resulted in unprecedented psychological stress, with high rates of depression, anxiety, and feelings of isolation reported by medical students worldwide.⁴ Medical students are already vulnerable to poor psychological well-being due to the high-pressure environment that they study and train in; the mental health of medical students may be significantly affected by the changes caused by COVID-19.^{5,6}

This questionnaire-based study helps to uncover the factors affecting medical education during pandemic among medical students, thereby providing insight into the adversities faced by them, which, in turn, could suggest necessary reforms that could be instituted for maintaining the continuity of medical education, amidst these uncertain times. The aim of the study was to assess the consequences of COVID-19 on the mental health of medical students.

METHODS

This cross-sectional study was conducted between June and November of 2021, in the Department of Pharmacology of a tertiary care hospital in Western Uttar Pradesh, India. A total of 340 medical undergraduate students across all phases of their professional course were included in the study after they provided a written informed consent. The study was conducted of the tertiary care hospital.

All participants who were more than 18 years of age, enrolled in the medical college for undergraduate courses and were willing to give written informed consent were included in the study. Any participant who was not willing to comply with the study protocol was excluded from the study.

The minimum sample size calculated for the study was 340 participants based on the prevalence of 67%, with 95% confidence interval and an error

of 5% using the formula $n = Z^2 \cdot a/P(100-P)/E^2$. A total of 340 medical students studying across various years of the professional course were included in the study.

All the participants who fulfilled the inclusion and exclusion criteria were enrolled in the study. A questionnaire was prepared to perform a cross-sectional study to assess the consequences of COVID-19 on the mental health of medical students. The questionnaire was validated prior to circulating it to research participants with a pilot study performed. For the pilot study a total of 15 participants were enrolled who were subjected to the questionnaire, all the participants enrolled in the pilot study were excluded from the main study. The questionnaire was administered and checked for coefficient of reliability by Cronbach's alpha, and it was found to be 0.799 with high internal consistency. The google form was created and circulated across all students, only those students who filled the google form were included in the study. The questionnaire consisted of 15 multiple choice questions which were close-ended responses. The data was filled in the questionnaires. The scoring was done based on a 5-point Likert scale.

Data was obtained and filled up in excel sheets and frequency (percentage) of responses were obtained from all participants. Chi-Square test was applied and a $p < 0.05$ was considered statistically significant.

RESULTS

A total of 340 participants completed the questionnaire circulated via Google Link and were included in the analysis of the result. The mean age of the participants was 20.78 ± 3.46 years. 132(38.8%) were male and 208(61.2%) were female; male-female ratio was 1:1.58. Of all the participants who filled the complete questionnaire 43.5 % (n=148) were pursuing their Phase 1 MBBS Program; 37.1% (n=126) were pursuing their Phase 2 MBBS Program and 19.4% were pursuing their Phase 3 MBBS Program. The phase wise and sex wise distribution is shown in Table 1. Most of the participants 37.1% gave a neutral response on the question that delay in NEET was an opportunity to prepare more for the exam as shown in Table 2 and Figure 1. 75% participants either strongly agreed / agreed that delay in the entrance exam was very stressful for them, and 61.5% were of the agreement that family pressure

was there to score good marks as everyone was at home during the lockdown. Majority of the participants (77.9%) agreed that they were relieved after getting admission to medical college. Most of the participants (47.4%) agreed that they were disturbed when the lockdown was reinstated, and 40.9% agreed that their studies were disrupted by the pandemic. More than half of the participants (50.3%) agreed that the acquisition of theoretical knowledge was hampered and 58.5% agreed that they had difficulty in acquiring clinical skill during the pandemic. Most of the participants (78.8%) were of the view that they had difficulty in understanding and imagining various concepts of anatomy due to inability to perform anatomy dissections. Majority of participants (49.4%) were

happy when their medical college re-opened, with 41.8% agreeing that they could focus more on their studies in offline mode. The pattern of responses obtained from students are shown in Table 2 and Figure 1.

Table 1: Phase wise and gender distribution of the study participants (N=340)

Phase of MBBS	Male (n=132)	Female (n=208)	p-value
Phase 1	68	80	>0.05
Phase 2	41	85	
Phase 3	23	43	

Chi-square test was applied.

Table 2: Response of participants (percentage) for the questionnaire

Question number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. I found the delay in NEET as an opportunity to prepare more for the exam.	3.8 13	28.2 96	37.1 126	25.3 86	5.6 19
2. I found the delay in the entrance exam very stressful.	28.2 96	46.8 159	18.8 64	4.7 16	1.5 5
3. I felt my family's pressure to score good when everyone was at home during the lockdown.	22.1 75	39.4 134	25.9 88	7.9 27	4.7 16
4. I was relieved when I finally got admission into a medical college after being in lockdown for a year.	33.8 115	44.1 150	18.8 64	2.4 8	0.9 3
5. I was disturbed when the entire country again went into lockdown in 2021 when my medical college had just begun.	21.1 72	47.4 161	27.6 94	1.5 5	2.4 8
6. My medical education has been significantly disrupted by the pandemic.	26.8 91	40.9 139	24.4 83	4.7 16	3.2 11
7. I have been able to find meaningful learning opportunities in spite of the pandemic.	10.3 35	39.4 134	40.0 136	9.4 32	0.9 3
8. COVID-19 outbreak has affected my acquisition of theoretical knowledge.	7.1 24	50.3 171	33.1 113	7.1 24	2.4 8
9. COVID-19 has affected my acquisition of clinical skills.	23.5 80	58.5 199	15.6 53	1.5 5	0.9 3
10. Being unable to perform anatomy dissections it was difficult to understand and imagine various concepts in anatomy.	38.2 130	40.6 138	15.0 51	4.7 16	1.5 5
11. I was happy when the medical colleges reopened after lockdown in 2021.	37.0 126	49.4 168	8.8 30	2.4 8	2.4 8
12. I could focus better on my education in offline mode as compared to online.	37.0 126	41.8 142	15.0 51	2.4 8	3.8 13
13. COVID-19 affected my grades in the end of the year examination.	18.9 64	29.1 99	40.0 136	8.8 30	3.2 11
14. COVID-19 has affected my future prospects in medical career.	13.5 46	36.2 123	37.0 126	11.8 40	1.5 5
15. I felt the urge to get some psychological help during the pandemic.	7.9 27	22.9 78	33.8 115	24.4 83	11.0 37

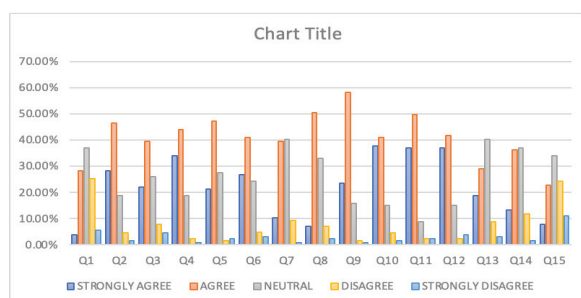


Figure 1: Response of participants (percentage) for the questionnaire

DISCUSSION

The results of our study showed that out of the 340 participants, 38.8% were males and 61.2% were females with a mean age of 20.78 ± 3.46 years. Most of the students 43.5% were pursuing their first year with 37.1% and 19.4% pursuing their second and third year respectively. The majority of the participants agreed that delay in the entrance exam was very stressful for them, with family pressure to score good marks as everyone was at home during the lockdown. The majority of the participants agreed that they were relieved after getting admission to medical college and were disturbed when the lockdown was reinstated, as their studies were disrupted by the pandemic. More than half of the participants agreed that the acquisition of theoretical knowledge and clinical skill were hampered during the pandemic. They even had difficulty in understanding and imagining various concepts of anatomy due to inability to perform dissections. The participants were happy when their medical college re-opened, and they could focus more on their studies in offline more.

A previous study done on medical undergraduate students demonstrated that almost half (46.4%) of students reported a decreased interest in medicine with 69.38% felt that they became less productive in studies during the pandemic. More than two-thirds of the respondents felt that on graduation, their clinical skills would be inferior compared to students that graduated prior to the pandemic. The results of our study are quite like this study as in our study also more than half of the participants described a difficulty in acquiring theoretical and clinical skills and the participants were stressed for the lack of dissection. Our study differed from the results of a previous study, as we had a greater

sample size and our study also acknowledged the stress related to the entrance examination among the participants.²

Another study done to assess the mental health consequences of COVID-19 on medical students worldwide demonstrated that students expressed their concerns over their abilities to choose their speciality of interest. The participants also had higher levels of anxiety, stress and exhaustion. The results of our study differ from this study as our study mainly focussed on their loss of acquiring skill and knowledge during online classes.⁷

Another multicentric study was done to assess the effect of pandemic on medical students showed that three-fourth students were of the view that the pandemic had significantly disrupted their medical education, and more than half believed they should continue with normal clinical rotations during this pandemic. Though they had concern regarding the adequate availability of PPE kits for all. The results of our study are in alignment with this study. Our study also showed that the majority felt difficulty in acquiring knowledge and skill.⁸

Another study done on children and adolescents quarantined during the pandemic showed that these participants had greater psychological stress with more than half of them having worry, helplessness and fear. The results of this study are similar to our study which showed that participants were quite worried about the loss incurred during their training. Though our study was conducted on participants more than 18 years of age already pursuing their professional course with a break in-between due to the pandemic.³

One study assessing the impact of COVID-19 on medical students around the globe showed mixed responses obtained from different areas varying from negative impact on the training (by three-fourths of the participants) to unprecedented psychological stress to more depression to a positive impact on their mental well-being. The results of our study differ from this study as most of the participants in our study reported lack of acquisition of both theoretical and clinical skill and difficulty in understanding core concepts because of lack of dissection.⁴

Another study assessing the anxiety and

depression reported that female participants reported higher rates of anxiety and depression.⁹ Our study differs from this study as we only looked into the acquisition of knowledge and skill in the participants. Moreover, our study also assessed the impact in learning capabilities of the participants which was impacted due to the pandemic. The sample size in our study was comparatively larger and mainly involved MBBS students within their first three years.⁶

Few studies assessing the mental health status of the medical graduates showed that COVID-19 pandemic negatively affected the mental health of the undergraduate medical students with higher prevalence and levels of anxiety and stress, and depression symptoms remaining unaltered. The results of our study are different from some of the previous studies as we were more focussed on the learning and educational impact of COVID-19.¹⁰⁻¹²

There are a few limitations of our study. Firstly, the sample size was small, due to paucity of time in data collection we could not increase the sample size. Secondly, most of the students enrolled in our study were from the first three years of the medical graduation program, involvement of all year of students could have helped us in understanding the various aspects, but due to lack of availability of time for data collection we restricted ourselves to the first three years of students. Thirdly, a longitudinal study could have given us different results but the purpose of our study was only to analyse factors impacting the medical education.

CONCLUSION

To conclude, our study showed that the majority of the participants agreed that delay in the entrance exam was very stressful for them, with family pressure to score good marks as everyone was in homes during the lockdown. The majority of the participants agreed that they were relieved after getting admission to medical college and were disturbed when the lockdown was reinstated, as their studies were disrupted by the pandemic. More than half of the participants agreed that the acquisition of theoretical knowledge and clinical skill were hampered during the pandemic. They even had difficulty in understanding and imagining various concepts of anatomy due to inability to perform dissections.

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Ethical approval: This study was approved by the Institutional Review Board (IRB) of Teerthanker Mahaveer Medical College and Research Centre, Teerthanker Mahaveer University (TMU), UP, India.

Authors' contribution: Conceptualization and design of the study: D Mehndiratta; data collection, compilation and analysis: D Mehndiratta, S Patrick, PS Matreja; manuscript writing, editing and final submission: D Mehndiratta, S Patrick, PS Matreja.

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