Original Article

The Psychological Impact of the COVID-19 Pandemic and Online Teaching on the Academic Performance of Medical Students in Eastern India

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Abstract

Background: COVID-19 has spread throughout the world and has resulted in significant morbidity, mortality, and negative psychological impact. This cross-sectional study is exploring the effect of the pandemic on mental health and academic performace of medical students. Survey was done to solicit participants' feedback regarding their experience in academic difficulties during the COVID-19 pandemic.

Material and Methods: It was a cross-sectional observational study with a convenience sample conducted in Medical College at Eastern India. Study assessed the mental health of students' participants during the COVID-19 outbreak by using structured questionnaires and studies its impact on academic performance in upcoming WBUHS Professional Examinations. An online google form questionnaire link was shared with the participants. The final questionnaire for this study consisted of 17 questions (15 closed-ended and 2 open-ended) and a rating scale divided into three sections. After the filling of questionnaires, participants were followed up for their academic performances.

Results: Ability to focus on academic work (72-93%) and difficulties with online learning (17-31%) were the most commonly cited issues related to academics. Change of behavior in response to the pandemic was pervasive. Our respondents almost universally increased hand washing, limited social outings, and started wearing masks.

Conclusion: Study results indicate that college students who are experiencing considerable number of academic and everyday difficulties during the COVID-19 pandemic also report increased levels of mental health burden.

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This study will add to the existing body of literature on the impacts of the COVID-19 pandemic, lockdown and online learning on the social an sychological health of students.

Keywords: Novel coronavirus (COVID-2019), online teaching, mental health, psychological impact, academic performance

Introduction

The novel coronavirus (COVID-2019) has spread very rapidly all over China and several other countries, causing an outbreak of acute infectious pneumonia.[1] Several governmental measures have been taken to counteract the risk of disease spreading. These measures include travel restrictions, mandatory quarantines for travelers, social distancing, bans on public gatherings, schools and universities closure, business closures, self-isolation, asking people to work at home, curfews, and lockdown.[2, 3] Authorities in several countries worldwide have declared either lockdown or curfew as a measure to break the fast spread of virus infection.[4] These measures have a negative worldwide effect on the business, education, health, and tourism.[5]

Most of the medical colleges have quickly adapted to the online classes with shifting of live clinical exposure with the virtual one. Some schools also echoed concerns over clinical clerkships and assessment during these times. The COVID-19 pandemic represents a transformation in medicine with the advancement of telehealth, adaptive research protocols, and clinical trials with flexible approaches to achieve solutions.[6]

Challenges to online education reported in the medical literature so far include issues relating to time management, use of technology tools, students' assessment, communication, and the lack of in-person interaction.[7] Besides, online education may not be equitable in terms of access and the quality of teaching.[8]

Mental health issues are the leading impediment to academic success. Mental illness can affect students' motivation, concentration, and social interactions—crucial factors for students to succeed in higher education.[8] However, no detailed study on the mental health status of medical college students facing the epidemic has been conducted to date in Indian setup. The 7-item Generalized Anxiety Disorder Scale (GAD-7) is one of the most widely used instruments for the detection and screening of anxiety disorders to aid the diagnostic process of specific disorders.[9] The GAD-7 takes less than 3 min to complete and easy to score.[10] Today, the GAD- 7 is the most widely used measure of anxiety used in clinical practice and research due to its diagnostic reliability and efficiency (Johnson et al., 2019).[11]

Methods of guiding students to effectively and appropriately regulate their emotions during public health emergencies and avoid losses caused by crisis events have become an urgent problem for colleges and universities.[12] The impact of medical student psychological distress due to COVID 19 on academic performance has not been systematically examined. This study provided an opportunity to closely examine the potential impacts of study related stress factors on student's psychological distress and their academic performance during their professional exams and academic life. Therefore, in the present study investigated and analyzed psychological impact of the COVID-19 pandemic and online teaching on the academic performance of medical students in Eastern India.

Material and Methods

It was a cross-sectional observational study with a convenience sample conducted in Medical College at Eastern India. An online structured questionnaire was developed by using Google form, with a consent form appended to it. Project was approved by Institutional Ethics Committee before commencement of study. The target population comprised undergraduates of a medical college in different semesters. The respondents in the target population were sampled by a convenience sample. Present study assessed the mental health of students' participants [1st MBBS, 2nd MBBS and Final MBBS as because there were no students currently in 3rd Professional Part I] during the COVID-19 outbreak by using structured questionnaires and studies its impact on academic performance in upcoming WBUHS Professional Exams. The aim and uses

of data of the questionnaire was briefly explained at the beginning of the questionnaire. The final questionnaire for this study consisted of 17 questions (15 closed-ended and 2 open-ended) and a rating scale divided into three sections. After the filling of questionnaires, participants were followed up for their academic performances. Finally, those who completed the questionnaire were included in the final analysis (based on response rate). Participation was voluntary. Study tools used were structured questionnaire and 7-item Generalized Anxiety Disorder Scale (GAD-7).[13, 14]

The study instrument comprised a structured questionnaire packet that inquired information on demographics, knowledge levels and sources of COVID-19 information, behaviour changes, academic and everyday difficulties, and mental health measurements (depression, anxiety, somatization, and stress). Questionnaire survey was done using a multi-item questionnaire over a 4 months period (Dec 2020 to March 2021). A link to the survey was delivered to students via e-mail, and two to three reminders was sent in the subsequent week following the initial invitation. Participants provided informed consent to participate in an anonymous survey by completing and submitting the questionnaire electronically. By end of July/Aug/Sept 2021, their respective MBBS professional exams result was declared by Health University and was noted and correlated with the findings of questionnaire survey.

Results

Table 1: Descriptive statistics for observed indicators of academic difficulties and challenges of online teaching

Characteristics	Academic Year Final MBBS [n=100]	2ND MBBS [n=100]	First MBBS [n=100]	Chi-Square test (P-Value)
Academic difficulties encountered during the lockdown [May be single or multiple replies]				
Ability to focus on academic work	93 (93%)	72 (72%)	86 (86%)	0.003*
Completing assignments and tests	33 (33%)	19 (19%)	12 (12%)	
Difficulties with online mode of learning	23 (23%)	17 (17%)	31 (31%)	
Inadequate Wi-Fi/ Computer access	7 (7%)	9 (9%)	13 (13%)	
No academic difficulties	0 (0%)	0 (0%)	0 (0%)	
Challenges of online teaching [May be single or multiple replies]				
Communication	11 (11%)	18 (18%)	25 (25%)	
Student assessment	17 (17%)	12 (12%)	27 (27%)	
Use of technology tools (access to hardware and software)	23 (23%)	14 (14%)	19 (19%)	
Experience in online teaching/ learning	9 (9%)	17 (17%)	36 (36%)	
Mental health (stress, anxiety)	67 (67%)	51 (51%)	75 (75%)	
Learning curve (adapting to unfamiliar technology)	37 (37%)	13 (13%)	24 (24%)	
Time management	29 (29%)	42 (42%)	38 (38%)	
Students' evaluations of faculty	11 (11%)	18 (18%)	22 (22%)	
Technophobia	10 (10%)	6 (6%)	18 (18%)	
Others	03 (3%)	4 (4%)	7 (7%)	

Biggest challenges of online teaching were noted like mental stress [51-75%] followed by time management [29%-42%] and learning curve (adapting to unfamiliar technology) [13-37%]. Ability to focus on academic work (72-93%) and difficulties with online learning (17-31%) were the most commonly cited issues related to academics. Ability to focus on academic work was also a significant predictor of somatic problems, together with problems in completing assignments and tests. After checking the normality of the variables we performed. Non parametric tests (chi-square test) were used to make group comparisons. There was significant difference between the groups in academic difficulties, with p–value 0.003 [Table 1].

Table 2: Descriptive statistics for observed indicators of feedback on online teaching by medical undergraduates

Feedback on Online Teaching by Medical Undergraduates				**Chi-square test (P –value)**
Previously attended any online classes				
Characteristics	Academic Year Final MBBS [n=100]	2ND MBBS [n=100]	First MBBS [n=100]	
Yes No	27(27%) 73(73%)	11(11%) 89(73%)	5 (5%) 95 (73%)	3.452
Given the opportunity to ask questions during the e-classes				
Yes No	67(67%) 33(33%)	73(73%) 27(27%)	79(79%) 21(21%)	2.583
The material shared before/after e-classes was useful				
Yes No	33(33%) 67(67%)	64(64%) 36(36%)	42(42%) 58(58%)	5.472
Rating your interaction with the teacher during e-classes				
As good as physical class room Better than physical classroom Poorer than physical class room	19 (19%) 2 (2%) 79 (79%)	30 (30%) 4 (4%) 66 (66%)	16 (16%) 1 (1%) 83 (83%)	0.008*

The material shared before/after e-classes was useful responded by (33%-64%). Better rating of interaction with the teacher during e-classes was reported in the range of (1%-4%). Majority responded poorer than physical classroom by [66%-79%] in different semesters [Table 2].Change of behavior in response to the pandemic was pervasive. Our respondents almost universally increased hand washing, limited social outings, and started wearing masks. After checking the normality of the variables we performed Non parametric tests (chi-square test) were used to make group comparisons. There was significant difference between the groups in terms of interaction with the teacher, with p– value 0.008.

Table 3: Descriptive statistics for observed indicators of the impact of online teaching mental health burden

Characteristics	**Final MBBS [n=100]**	**2nd MBBS [n=100]**	**First MBBS [n=100]**	**Chi-Square test P -value**
Anxiety level according to Generalized Anxiety Disorder 7-item (GAD-7) scale				
No anxiety	14 (14%)	23 (23%)	19 (19%)	0.001*
Mild	73 (73%)	69 (69%)	70 (70%)	
Moderate	11 (11%)	8 (8%)	11 (11%)	
Severe anxiety	02 (2%)	0 (0%)	0 (0%)	

7-item Generalized Anxiety Disorder Scale scores of 5, 10, and 15 are taken as the cut-off points for mild, moderate and severe anxiety, respectively. Generalized Anxiety Disorder 7-item (GAD-7) scale in Final Yr MBBS (N=100) were reported as no anxiety 14%, mild 73%, moderate 11% and severe anxiety 2%. In 2nd MBBS participants' anxiety levels were noted as no anxiety 23%, mild 69%, moderate 8% and severe anxiety 0%. 1st MBBS participants' anxiety levels were noted as no anxiety 19%, mild 70%, moderate 17% and severe anxiety 0%. After checking the normality of the variables we performed Non parametric tests (chi-square test) were used to make group comparisons. There was significant difference between the groups in terms of interaction with anxiety level, with p – value 0.001[Table 3].

Table 4: Impact of COVID 19 pandemic, lockdown and online teaching on academic performance

Characteristics	Final MBBS [n=100]	2ND MBBS [n=100]	First MBBS [n=100]	Chi-Square test P -value
Results Passed Failed	87 (87%) 13 (13%)	88 (88%) 12 (12%)	75 (75%) 25 (25%)	0.001*
Above 70%	09 (09%)	11 (11%)	10 (10%)	0.001*
65-70%	13 (13%)	16 (16%)	12 (12%)	
60-65%	19 (19%)	14 (14%)	13 (13%)	
55-60%	26 (26%)	28 (28%)	23 (23%)	
50-55%	20 (20%)	19 (19%)	17 (17%)	
<50%	13 (13%)	12 (12%)	25 (25%)	

After checking the normality of the variables we performed non parametric tests (chi-square test) were used to make group comparisons. There was significant difference between the groups in terms of interaction with results (passed and failed), with p–value 0.001 [Table 4].

Discussion

Since the COVID-19 outbreak and lockdown, a few studies have emerged describing higher levels of anxiety and increased risk perception among college students during COVID-19 pandemic.[12,15,16] The current study is among the first to examine the impact of the COVID- 19 pandemic, lockdown and online learning on mental health and academic performance among undergraduate medical college students in a tertiary care teaching hospital, Haldia, West Bengal.

High levels of depression were associated with difficulties in focusing on academic work. Inability to focus on academic work during lockdown and negative impact of online teaching were more likely to be associated with higher levels of poor academic performace in the University Professional Exams. Cross-sectional, self-report data on psychological distress and COVID-19 exposure by Kibbey MM et al revealed that nearly half of the students reported elevated psychological distress, including health anxiety, general anxiety, and depression.[17] Khan AH et al study revealed that about 28.5% of the respondents had stress, 33.3% anxiety, 46.92% depression from mild to extremely severe, according to DASS 21 and 69.31% had event-specific distress from mild to severe in terms of severity according to IES.[18]

Sundarasen S et al cross-sectional online survey shown that out of 983 respondents, 20.4%, 6.6%, and 2.8% experienced minimal to moderate, marked to severe, and most extreme levels of anxiety. Researchers had used Zung's self-rating anxiety questionnaire during the COVID-19 pandemic and lockdown. The main stressors include financial constraints, remote online teaching and uncertainty about the future with regard to academics and career.[19]

Baloch GM et al study had shown that among the respondents, 125 (25.3%), 45 (9.1%) and 34 (6.9%) experienced minimal to moderate, severe, and most extreme levels of anxiety, respectively. The most prominent stressors attained from the qualitative feedback from the Pakistani students are associated with online teaching, concerns about their academic performance and completion of the current semester,

uncertainty related to exam dates, and the status of the following semester.[20]

Our results indicate that college students who are experiencing considerable number of academic and everyday difficulties during the COVID-19 pandemic also report increased levels of mental health burden. This is of potential concern as the pandemic is occurring against the backdrop of increasing mental health issues among college students.[21] As uncertainties about the future continue this may lead to worsening mental health status, particularly among young individuals.[22]

Conclusion

COVID-19 is imposing threat both on physical and mental health since its outbreak. All forms of mental health burden were significantly associated with online learning difficulties. Analyses indicated that economic hardship was the most significant predictor of depression among respondents, followed by difficulties with focusing on academics. Anxiety levels were significantly higher among final MBBS students. Ability to focus on academic work was also a significant predictor of somatic problems, together with problems in completing assignments and tests. Our results indicate that college students who are experiencing considerable number of academic and everyday difficulties during the COVID-19 pandemic also report increased levels of mental health burden.

Conflict of Interest: None

Ethical clearance: Approved by Institutional Ethics Committee, IIMSAR & DRBCH, Haldia

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