



“TELE EDUCATION- SATISFACTION, BARRIERS AND ITS PSYCHOLOGICAL IMPACT AMONG UNDERGRADUATE MEDICAL STUDENTS”

Psychiatry

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ABSTRACT

A variety of new measures were implemented for our students during the uncertain COVID-19 pandemic, when maintaining our safety and surviving had taken on a priority status. In order to effectively address these challenges, it is essential to recognize the challenges that medical students faced during their undergraduate studies. The online questionnaire to evaluate the psychological effects of tele-education was administered after receiving institutional ethical committee approval and written informed consents from participants. More than 80% of the students that were impacted by tele-education reported being dissatisfied, demonstrating a substantial correlation between student satisfaction, psychological impact, and tele-education. Hence, it's crucial to pinpoint all of the obstacles, thoroughly assess the challenges of tele-education, and deal with the psychological problems it has brought about among the undergraduate medical students.

KEYWORDS

Tele education, psychological impact, medical students, covid 19 pandemic, medical education.

INTRODUCTION

Even though medical institutes have been working to transform the method and practice of teaching from past few years by reducing lectures and introducing tele-education but this was not developed to an extent that it can be used as a sole modality of education¹. The sudden outbreak of the Novel Corona Virus Disease (COVID-19) which was declared as a pandemic by World Health Organization on March 11, 2020 due to which certain measures were taken to prevent spread of virus which led to the closure of medical schools, and all undergraduate students were relocated to their homes. There was encouragement to continue the teaching programme by using online teaching methods from Medical Council of India (MCI) and other statutory bodies².

Telemedical education refers to health education delivered remotely, utilising (information communication and technologies) ICT for beneficiaries of the healthcare system to learn, and employing digital libraries or data bases³. According to Howlett⁴, "the use of electronic technology and media to deliver, enhance, and support learning and teaching and also entails communication between learners and teachers using the material available online" is another definition of online learning.

Information communication technology flourished during the COVID-19. But concerns like network problems, increased screen time did exist⁵. Since there was abrupt transition, each medical institute had to create its own guidelines and this led to varied learning experiences of students among medical colleges^{6,7}.

As such medical students are exposed to stressful factors such as social adjustments, increased workload, time commitment, frequent exams, as well as the pressures of a clinical environment which can eventually lead to high levels of depression, anxiety, stress. One-third of medical students globally suffer from depression, according to a recent meta-analysis⁸. Before the COVID pandemic, an Indian survey indicated that 32.0%, 40.1%, and 43.8% of medical students had symptoms of depression, anxiety, and stress, respectively⁹.

During the time they were receiving online education in pandemic, a study found that students' motivation, self-efficacy, and cognitive engagement dropped and that 8.7% of students experienced an increase in negative emotions such as depression, anxiety, and worry¹⁰. In light of this, we reasoned that getting student feedback on the online teaching method and evaluating its impact on students' mental health would not only help in understanding student perspectives on this more recent approach as well as its psychological impact, but would also

help in further improving tele-education and effectively addressing the problems faced by students.

MATERIAL AND METHODS-

The study protocol was approved by the Institutional Ethical Committee. And informed online consents were taken before filling the questionnaire. As all the classes were suspended and the lockdown was imposed an online questionnaire was made using Google forms. The questionnaire was designed in a way that it maintains confidentiality and by using a combination of open-ended questions, multiple-choice and Likert scale.

Depression, anxiety and stress scale (DASS 21)¹¹ was used to assess the psychological impact. This Twenty-one item scale consists of three seven-item subscales to assess depression, anxiety and stress over the last week. The responses range from zero if "never" to 3 if "almost always". Total scores for all the three subscales are calculated. And these scores are categorised into normal, mild, moderate, severe and very severe. The questionnaire was then posted on the WhatsApp group of the students with a brief message showing the purpose of this study and how to approach the form. The questionnaire was sent to all students from the first year to the final year and a total of 250 out of 500 students responded.

Statistical Analysis:

Statistical Package for Social Sciences [SPSS] for Windows Version 22.0 Released 2013. Armonk, NY: IBM Corp., was used to perform statistical analyses.

Descriptive Statistics:

Descriptive analysis of all the explanatory and outcome parameters was done using frequency and proportions for categorical variables, whereas in Mean & SD for continuous variables.

Inferential Statistics:

Chi Square Goodness of Fit test was used to compare the distribution in the responses for the study questionnaire among the study participants and to find the associations between various perspectives of tele education based on the year of study, prevalence & severity of depression, stress & anxiety and also between different aspects of tele education among study participants. The level of significance was set at P<0.05.

RESULTS-

Over all 250 out of 500 students responded to the questionnaire and females (n= 156, 62.4%) outnumbered males (n=94, 37.6%). And

mean age of all the participants was 21.28 with a SD of 1.89. Greater number of the respondents included second-year medical students 70 (28%), followed by fourth-year students 68(27.2%) and third year students 67(26.8%), with least respondents from first year MBBS 45(18%).

Table 1 depicts students' opinion regarding the satisfaction, benefits and challenges regarding the online classes.

Table no. 1. Comparison of distribution of responses to the questions on Satisfaction, benefits and challenges of Tele education among study participants using Chi Square Goodness of Fit Test					
Questions	Responses	n	%	2 Value	P-Value
Are you satisfied with tele education?	Yes	67	26.8%	46.136	<0.001*
	No	133	53.2%		
	Not sure	50	20.0%		
Do you miss the class room education?	Yes	185	74.0%	194.264	<0.001*
	No	51	20.4%		
	Not sure	14	5.6%		
If yes, what do you miss the most?	Small talk with friends	162	64.8%	213.264	<0.001*
	Walking between classes with friends	34	13.6%		
	Small talk with faculty	20	8.0%		
	Others	34	13.6%		
What would you prefer?	Recorded classes	103	41.2%	27.848	<0.001*
	Live online classes	103	41.2%		
	Others	44	17.6%		
What do you think are the benefits of tele education?	Time saving	107	42.8%	187.720	<0.001*
	Improved teaching	8	3.2%		
	Increased faculty time	30	12.0%		
	Can attend at any place	97	38.8%		
	Others	8	3.2%		
What are the challenges faced by you with tele-education?	Poor Instructions	65	26.0%	132.080	<0.001*
	Poor interaction with instructors	111	44.4%		
	Poor interaction with classmates	46	18.4%		
	Interruptions/commen	9	3.6%		
	Others	19	7.6%		

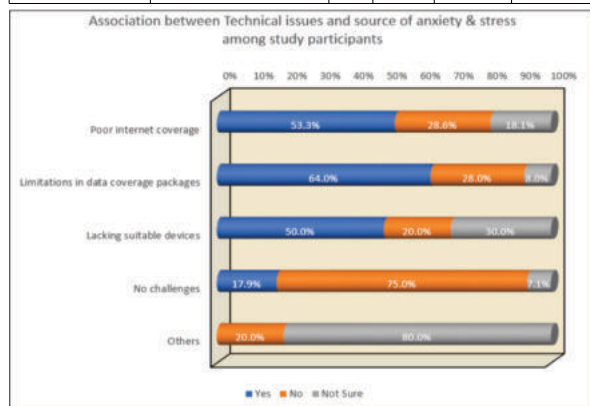


Figure 1

Figure 1 shows the association between technical difficulties experienced by the students and its psychological impact. A strong association was found as 53.3%,64%,50% of the students who encountered technical issues like poor internet coverage, limitations in data packages, lacking suitable devices felt stressed and anxious due this. This was statistically significant at $p < 0.001$.

Table no. 2(a) Association between Online education, Difficulty in attention & Concentration using Chi Square Test								
Difficulty in Concentration	Difficulty in Attention						χ^2 Value	P-Value
	Yes		No		Not sure			
	n	%	n	%	n	%		
Yes	66	97.0%	77	51.7%	22	66.7%	48.246	<0.001*

No	1	1.5%	56	37.6%	5	15.2%		
Not sure	1	1.5%	16	10.7%	6	18.2%		

2(b) Comparison of difficulty of concentration in tele education based on the year of study using Chi Square Test

Difficulty in Concentration	I Year	II Year	III Year	IV Year	χ^2 Value	P-Value
Yes	19	42.2%	47	67.1%	45	67.2%
No	18	40.0%	15	21.4%	17	25.4%
Not sure	8	17.8%	8	11.4%	5	7.5%

As per Table 2a,b of the 250 participants, 68 students had difficulty in maintaining attention during online classes and 97% of them had difficulty in concentrating during the class as well. Among all the students, 67.1% of second year and 67.2% of third year students had impaired concentration. Final year MBBS students were affected the most as 79.4% of 4th year students out of the 68 respondents had trouble concentrating, while only 42.2% of first year medical students were affected.

Students Opinion, Preferences-

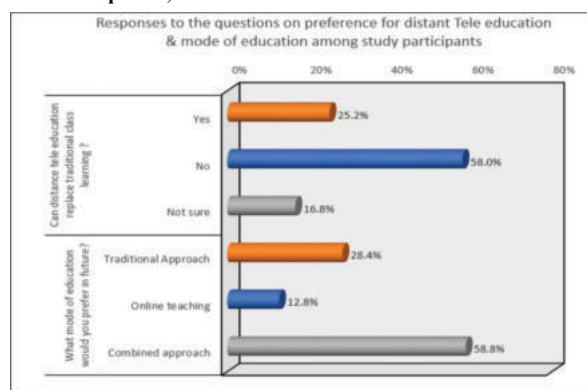


Figure 2

Figure 2 shows students' opinion and preferences as 58% of the students said that tele-education cannot replace classroom teaching. The absence of practical and clinical classes made 87.6% of the students feel less confident. And 48.4% students were dissatisfied with the assignment given while 59.6% of students' daily routine was impaired. Lack of motivation to attend classes was also a concern for (155)62% of the students.

Psychological Impact-

The study showed no association between the prevalence of DAS and year of study ($p < 0.05$)

Table no. 3 Association between satisfaction of online education and varying degrees of Depression, Stress & Anxiety among study participants using Chi Square Test

Variable	Severity	Yes		No		Total		χ^2 Value	P-Value
		n	%	n	%	n	%		
Depression	Normal	44	47.3%	49	52.7%	93	37.2%	35.14	<0.001*
	Mild	5	13.5%	32	86.5%	37	14.8%		
	Moderate	15	21.1%	56	78.9%	71	28.4%		
	Severe	1	5.0%	19	95.0%	20	8.0%		
	Very Severe	2	6.9%	27	93.1%	29	11.6%		
Stress	Normal	61	32.3%	128	67.7%	189	75.6%	13.35	<0.001*
	Mild	3	17.6%	14	82.4%	17	6.8%		
	Moderate	1	5.0%	19	95.0%	20	8.0%		
	Severe	2	15.4%	11	84.6%	13	5.2%		
	Very Severe	0	0.0%	11	100.0%	11	4.4%		
Anxiety	Normal	58	37.4%	97	62.6%	155	62.0%	24.15	<0.001*
	Mild	3	13.0%	20	87.0%	23	9.2%		
	Moderate	3	10.0%	27	90.0%	30	12.0%		
	Severe	0	0.0%	12	100.0%	12	4.8%		
	Very Severe	3	10.0%	27	90.0%	30	12.0%		

Table 3 - It has been found that the students' satisfaction with the online classes is strongly associated with the psychological issues faced by them. Of the 93 students who were not depressed only 52.7% were not satisfied with the tele-education. But out of 157 symptomatic students 14.8%, 28.4%, 8.0%, 11.6% showed symptoms of mild, moderate, severe and very severe depression and 86.5%, 78.9%, 95%, 93.1% of students were dissatisfied with the online classes respectively.

In the present study significantly more female students (54.74%) reports anxiety than male students which was statistically significant at $p=0.04$. Depression and stress too were reported by more females than males.

DISCUSSION-

This study, which involved undergraduate medical students, demonstrates the existence of potential obstacles that can harm students' mental health.

Poor instructions, poor interactions with the teacher, poor interactions with classmates, and frequent interruptions in class, as shown in Table 1, were the most prevalent barriers. It is comparable to a study conducted in the Philippines, where difficulties adjusting to new learning styles, having domestic duties, and a lack of communication between teachers and students were frequently encountered problems¹².

Poor connectivity, followed by insufficient data coverage packages, a lack of appropriate devices, and poor connectivity were the main stumbling blocks in our study. Also, a comprehensive study on "evaluation of e-learning in medical education for developing countries" found that there aren't enough digital resources available for students, which limits the potential for creating online lesson plans. The recent study from developing countries¹³ addressed the issue of poor internet connection, and the results of that study are consistent with those of the present study.

We found that 28.4% students preferred traditional approach and only 12.8% preferred tele-education, while similar result was seen in the study carried out by Singh et al who reported traditional classroom teaching being preferred by majority of 50.9% students and tele-education by only 22.1% students¹⁴. E-learning helps in improved understanding of the subjects and the ease of accessibility, flexible timings were considered to be beneficial by the students as per our study which was similar to the review article by Wilcha¹⁵. But still Students preferred e-learning as a supplement to the traditional classroom teaching methods rather than a replacement¹⁶ as shown in figure 2.

The COVID-19 pandemic was also demonstrated to have an effect on the medical students' mental health which could be due to increased anxiety owing to lack of social interaction¹⁷. A lack of social support may have caused them to experience some psychological disturbances affecting their learning¹⁸.

As per this study, outcome was significant as student satisfaction with online classes was strongly associated with the depression, stress and anxiety symptoms seen in them. In this study 62.8% of the students had depression, Stress was seen among 24.4% and anxiety among 38% of the students and majority of them were dissatisfied with the online classes which was found to be statistically significant. But in contrary to the findings of this study, in Kazakhstan medical students, the prevalence of depression (49% vs 28%) and anxiety (42% vs 15.5%) is significantly higher among students during the period of traditional learning, compared with the period of online education¹⁹. While a cohort study done in Malaysia, Yusoff et al. stated that depression and anxiety were significantly increased in students during online classes²⁰. In turn, Aragon et al. did not find significant differences during traditional and online learning²¹.

Since Students' mental health is greatly affected due to the pandemic, they need help and support from the family, community and their institutions. As the future of education is changing significantly a proper assessment needs to be done and appropriate measures need to be taken to prevent psychological issues. Medical educators should find ways to by reduce the impact of the pandemic so that medical students can cope with these changes.

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