Original Article

Teleconsultation Services by Medical Students during the Second Wave of the COVID-19 Pandemic in India

Sabira Aalia Dkhar[1], Ruqia Quansar[1], Tazean Zahoor Malik[1], S. Mohammad Salim Khan[1], Inaamul Haq[1], Qazi Imran Abid Noorani[2]

[1]Department of Community Medicine, Government Medical College, Srinagar, Jammu and Kashmir, [2]Indian Institute of Management, Shillong, Meghalaya, India

Abstract

Introduction: Teleconsultation refers to interactions between a clinician and a patient providing diagnostic or therapeutic advice through electronic means. Teleconsultations effectively guide the patient's diagnosis and treatment, minimizing the risk of disease transmission. It plays an important role when a person is not able to move out from their residence for fear of contracting the virus or is suspected of having the disease. **Materials and Methods:** We conducted an online survey-based study during July–August 2021 in medical students (Bachelor of Medicine, Bachelor of Surgery) of different medical colleges in India. Using Google Forms, the questionnaire was circulated to participants. Statistical analysis was done using SPSS (ver. 22). The determination of association was achieved using logistic regression for statistically significant variables ($P < 0.05$) on initial analysis. **Results:** Out of 386 students, only 98 (25.4%) had been part of teleconsultations for patients during the second wave of the COVID-19 pandemic (April–May 2021) in India. The student's age, gender, designation, whether they received any training for teleconsultation, whether they felt they helped COVID-19 patients, and whether their studies were affected were significantly associated with the overall experience of the student. **Conclusion:** The provision of deployment of medical students and interns for teleconsultation services would reduce the burden of patients in hospitals as mild COVID-19 cases could be provided treatment using telemedicine facilities.

Keywords: COVID-19 pandemic, medical students, teleconsultation, telemedicine

Introduction

Teleconsultation refers to the communication between a physician and a patient or between two physicians for diagnosis and/or treatment via electronic means.[1] Consultations can be either synchronous (real time) via texts/phone calls or asynchronous over E-mails/fax.[1] Teleconsultations are a safe and effective way to assess suspected cases, guide the patient's diagnosis and treatment, and also minimize the risk of disease transmission by preventing contact between doctor and patient.[2] Telehealth and telemedicine play a vital role in patient-centered healthcare delivery in the diagnosis and the management of chronic diseases and future treatment plans.[3] Telemedicine is a promising technology and a way to improve access to health care in areas where such facilities are insufficient and remote areas.[4]

The healthcare system is a three-tier system, and there is a difference in the quality and accessibility of health care in urban and rural areas. This gap can be bridged with the help of teleconsultation.[5] For telemedicine to reach its full potential, it is essential to establish the attitudes of patients and healthcare professionals toward this technology.[4] The more knowledge of the benefits and capabilities of telemedicine the healthcare workers have, the more positive their attitudes toward this technology are expected to be. As a result, their confidence in using this technology will increase.[6] Identifying the factors which influence the service quality in teleconsultation, conducting scientific evaluation, and improving its service quality have become a widespread concern for government departments, medical and health institutions, doctors, patients, and so on.[7] If teleconsultation is established correctly, good outcomes such as timely access to correct medical information,

Submitted: 31-May-2024 **Revised:** 05-Mar-2025
Accepted: 02-Apr-2025 **Published:** 30-Apr-2025

Access this article online

Quick Response Code:

Website: http://journals.lww.com/amit

DOI: 10.4103/amit.amit_72_24

Address for correspondence: Dr. Tazean Zahoor Malik, Department of Community Medicine, Government Medical College, Srinagar, Jammu and Kashmir, India.
E-mail: tazean@gmail.com

How to cite this article: Dkhar SA, Quansar R, Malik TZ, Khan SM, Haq I, Noorani QI. Teleconsultation services by medical students during the second wave of the COVID-19 pandemic in India. Acta Med Int 2025;12:7-10.

quality improvement of the diagnosis and treatment process, increased physician trust, and significant improvement in the total quality of health care will result.[8]

In India, the National Teleconsultation Service of the Ministry of Health and Family Welfare is the first of its kind online outpatient department (OPD) service offered by a country's government to its citizens. It aims to provide healthcare services to patients in their homes. Through e-Sanjeevani OPD, anyone can seek medical advice and medication through audio and video.[9] Telemedicine has been supported by the Indian Space Research Organization and the Department of Information Technology and implemented through the state governments.[5] Telemedicine is gaining popularity in the COVID-19 era. Before the current pandemic, many patients did not know that they could avail the telemedicine option in their physicians' practices. However, this scenario has changed with social distancing measures, as some leading telehealth platforms have reported an increase between 257% and 700% in the number of virtual patient visits, which may correlate with the geographical impact of COVID-19.[10]

To bolster the ranks of the stretched healthcare system during the COVID-19 pandemic, the Government of India issued guidelines for the deployment of final-year medical students (Bachelor of Medicine, Bachelor of Surgery [MBBS]) and interns for teleconsultation and monitoring of mild COVID-19 cases after due orientation and under supervision by the medical faculty.[11]

Objectives

1. To assess the status of teleconsultation services provided by the medical students in hospital setting during the COVID-19 pandemic
2. To look into factors affecting the overall experience of the medical students who provided the teleconsultation services.

Materials and Methods

Study design: The overall experience of the medical students was self-reported and rated on a five-point Likert scale with excellent being the highest (5) and worst being the lowest (1). For this purpose, we conducted an online survey-based study during the months of July–August 2021. **Study setting:** The study was conducted in various medical colleges of India. All medical colleges are considered as tertiary care hospitals catering to a vast majority of patients. During the COVID-19 pandemic, also, the hospitals were inundated with suspected and confirmed patients of COVID-19 of varying severity. The Government of India issued guidelines for deploying MBBS final-year students to supplement the existing staff of the hospitals.[11] **Study population:** The study population consisted of medical students studying in their final year and those undergoing 1-year compulsory rotatory internships currently. The students belonged to different medical colleges of India, such as Chandigarh, Delhi, Gujarat, Kerala, Jammu and Kashmir, Meghalaya, and Sikkim. **Study tool:** The data were collected using an online questionnaire created through Google Forms. The questionnaire was developed by the researchers and validated. Face validity was evaluated by four researchers who assessed the questionnaire for clarity, style, ease of understanding, and layout. Content validity was assessed by experts from the field of research who reviewed the tool for readability, clarity, and comprehensiveness and agreement on questions to be retained in the final questionnaire. The tool was pretested in a pilot study on 30 medical students. The updated questionnaire was edited on Google Forms and then circulated to the study participants. Data analysis: For statistical analysis, SPSS version 22 (Statistical Package for Social Sciences (SPSS) Ver. 22 (IBM Corp., USA)) was used for both descriptive as well as analytical results. The determination of association was achieved using logistic regression for statistically significant variables ($P < 0.05$) on the initial analysis. **Sample size and sampling strategy:** Since we could not find any relevant data available on the topic at the time of conceptualizing the present study, for calculating the sample size, we assumed the proportion in the population to be 50%. Using an absolute error of 5% with a 95% confidence interval, the sample size was calculated as 384. The selection of participants was purposive and based on the convenience of the researchers.

Ethical considerations

The requisite permissions were sought and received from the Institutional Review Board before the commencement of the study vide approval number IRBGMC/05-07 dated July 05, 2021. Every participant was asked to give their consent while filling out the Google Forms. The description box in the form contained instructions for the participants, specifying that only those who consent should fill out the form and submit it. Those participants who submitted the Google Forms were deemed to have consented to participate in the study. The responses obtained from the participants were anonymous as no E-mail addresses were collected during the filling of the form. The procedures used follow the guidelines laid down in the Declaration of Helsinki (2008).

Results

A total of 395 responses were received from students of 10 different medical colleges in India. Out of these, 9 responses (2.2%) were found to be incomplete and hence excluded from the study. The complete 386 responses were included for the analysis. Table 1 depicts the sociodemographic characteristics of the study participants.

Out of the 386 participants, only 98 students (25.4%) said that they had been a part of the teleconsultations for patients during the second wave of the COVID-19 pandemic (in April–May 2021). Table 2 shows the responses received by these participants regarding their experience of teleconsultation.

A five-point Likert scale (1 – lowest and 5 – highest) was used to judge the participant's overall experience of teleconsultation during the COVID-19 pandemic. The overall experience was

Table 1: Sociodemographic characteristics of the study participants

Variable	Frequency (%)
Age (years)	
22	81 (21)
≥23	305 (79)
Gender	
Male	192 (49.7)
Female	194 (50.3)
Current residence	
Hosteller	221 (57.3)
Day scholar	165 (42.7)
Year of study	
Final year	266 (68.9)
Intern	120 (31.1)

Table 2: Various factors influencing teleconsultation services provided by the participants

Variable	Frequency (%)
Part of teleconsultation during the second wave	
Yes	98 (25.4)
No	288 (74.6)
Received training for teleconsultation	
Yes	58 (59.1)
No	40 (40.8)
Whether they felt they were helpful to the COVID-19 patients	
Yes	82 (83.7)
No	16 (16.3)
Whether under supervision while providing teleconsultation	
Yes	56 (57.1)
No	42 (42.9)
Whether patient satisfied by the consultation	
Yes	66 (67.3)
No	32 (32.7)
Overall experience of teleconsultation	
Worst (1)	6 (6.1)
Bad (2)	6 (6.1)
Okay (3)	15 (15.3)
Good (4)	56 (57.1)
Excellent (5)	15 (15.3)
Studies affected	
Yes	26 (26.5)
No	41 (41.8)
Maybe/can't say	25 (25.5)
Not applicable	6 (6.1)
Whether any Incentive was received	
Yes	5 (5.1)
No	87 (88.8)

self-reported based on the respondents' participation during the COVID-19 pandemic in providing the teleconsultation services. 57.1% of participants gave a score of 4 (good) while scores of 3 (okay) and 5 (excellent) were received from 15.3% of participants each. Scores of 1 (worst) and 2 (bad) were given by 6.1% of participants each. On analyzing the data for the association, student *t*-test and Chi-square tests were used to compare the variables. Those found statistically significant were then included in a logistic regression model. We found that the age of the participant, their gender, their designation, whether they had received any training for teleconsultation, whether they felt they were of help to the COVID-19 patients, whether their studies were affected, and whether they had been under supervision while providing teleconsultation were found to be significantly associated with the overall experience of the participant. This is depicted in Table 3.

Discussion

The COVID-19 pandemic has brought about a sweeping change in healthcare delivery, which has shifted from in-person consultations to a web-based format.[12] Utilizing telemedicine services by medical students and incorporating them in various medical fields, medical students can learn new skills to be effective providers.[13] Medical educators are challenged with figuring out how to integrate learners into virtual workflows while teaching and providing patient-centered virtual care. The medical curriculum does not have a strong structure to incorporate telemedicine training. Hence, the students had very little knowledge of telemedicine before the pandemic.[14]

In our study, we had 386 participants, which included students studying in the final-year MBBS and those undergoing internship, who were recruited for teleconsultation according to the announcement made by the government. The age group comprised 21% of participants who were ≤22 years and 79% who were 23 years or more. The number of males and females was almost the same, with males being around 49.7% and females being 50.3%. Around 31.1% of the participants were interns and 68.9% were final-year students. More than half (i.e., 57.3%) were hostellers and 42.7% were day scholars. Out of these 386 students who took part in the survey, 98 participants had provided teleconsultation services, which accounted for 25.4%. We have included the data from these 98 participants to find the association of the overall experience of telemedicine during the pandemic and other factors related to telemedicine.

Out of the participants who played a role in teleconsultation services, 83.7% felt that their involvement was beneficial to the patients. The reason for this could be the feeling of satisfaction at being able to help someone who could not physically visit the hospital for a consultation or check-up. Also, as these services were not a mock drill the participants would have felt they were needed. Participants felt that their patients were satisfied with their consultation; this was seen with 6.3% of the participants. This was also seen in a study where patients reported high patient satisfaction scores for telemedicine visits, and the majority of patients were comfortable with having medical students as part of their care team.[12]

Around 57.1% of the participants were under supervision while giving teleconsultation to patients. It is seen in many places where medical residents are allowed to be part of telemedicine,

Table 3: Logistic regression model for the predictor variables found significant on *t*-test and Chi-square test

Predictor variables	OR	95% CI	*P*
Gender	0.252	0.060–0.443	0.009
Age	1.443	1.039–1.847	0.0001
Designation	0.390	0.144–0.637	0.0008
Received training	0.811	0.539–0.983	0.0005
Under supervision	0.597	0.314–0.881	0.0006
Help to COVID-19 patients	0.776	0.419–1.134	0.0005
Studies affected	0.282	0.229–0.335	0.0001

OR: Odds ratio, CI: Confidence interval

as long as the residents and their supervisors follow the requirements as if the care was provided in person.[15] In the present study, 61.1% had received some kind/form of training before giving teleconsultation. This training could have been in any form, formal or informal, brief or detailed. This is a routine practice in many places that the residents should be equally trained to provide care just like their seniors or supervisors.[15] However, for training the interns or final-year students, no structured modules or protocols have been designed to date, and hence, the quality of training given would depend on the competence of the supervisor.

Only 5.1% of the students received a stipend from the hospital or through the government mechanisms, although many states had promised a stipend. The delay could be due to the pandemic, which has brought about many hiccups in the regular form of work, or it may be due to an improper system of channeling the funds kept for the stipend. However, this delay can negatively impact the morale of the youngsters working in telemedicine services in the future.

The overall experience of the participants with teleconsultation during the pandemic was good for 57.1%, excellent for 15.3%, okay for 15.3%, worse for 6.1%, and bad for 6.1%. The participants are the group of medical students who are either focusing on their entrance for a master's degree or on clearing their final-year examinations, and hence, they spend more time studying and attending coaching classes. Now, since they had to spend time and energy in first learning telemedicine practices and then using these for teleconsultation, they might have been feeling burdened as was seen in our study where about 26.5% felt that their studies were being affected.

Conclusion

Telemedicine clinics have been successfully used for managing patients with chronic conditions, those who have attended low-risk urgent care visits, and those with mental health concerns. In our study, we found that only 25.4% of final-year MBBS students and interns were part of teleconsultations. If proper training is provided to these students, they would help in teleconsultation services, thus reducing the burden of patients in hospitals as mild COVID-19 cases could be provided treatment using telemedicine facilities. The teleconsultation model can also be utilized for other diseases, especially noncommunicable diseases. Furthermore, medical students should be integrated into telemedicine clinics and exposed to telehealth whenever possible before residency as this would allow them to explore newer avenues of providing patient care.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Banerjee M, Chakraborty S, Pal R. Teleconsultation and diabetes care amid COVID-19 pandemic in India: Scopes and challenges. J Diabetes Sci Technol 2020;14:714-5.
2. Pan American Health Organization, World Health Organization, Geneva. Teleconsultations During a Pandemic: Factsheet; 2020. Available from: https://www3.paho.org/ish/images/docs/covid-19-teleconsultations-en.pdf. [Last accessed on 22 May 2024].
3. Albarrak AI, Mohammed R, Almarshoud N, Almujalli L, Aljaeed R, Altuwaijiri S, *et al*. Assessment of physician's knowledge, perception and willingness of telemedicine in Riyadh region, Saudi Arabia. J Infec Public Health. 2021;14:97-102.
4. Ashfaq A, Memon SF, Zehra A, Barry S, Jawed H, Akhtar M, *et al*. Knowledge and attitude regarding telemedicine among doctors in Karachi. Cureus 2020;12:e6927.
5. Acharya RV, Rai JJ. Evaluation of patient and doctor perception toward the use of telemedicine in Apollo Tele health services, India. J Family Med Prim Care 2016;5:798-803.
6. Ayatollahi H, Sarabi FZ, Langarizadeh M. Clinicians' knowledge and perception of telemedicine technology. Perspect Health Inf Manag 2015;12:1c.
7. Lu W, Wang XP, Zhao J, Zhai YK. Research on teleconsultation service quality based on multi-granularity linguistic information: The perspective of regional doctors. BMC Med Inform Decis Mak 2020;20:113.
8. Deldar K, Bahaadinbeigy K, Tara SM. Teleconsultation and clinical decision making: A systematic review. Acta Inform Med 2016;24:286-92.
9. Bajpai N, Wadhwa M. National Teleconsultation Service in India: eSanjeevani OPD. ICT India Working Paper; 2021.
10. Mansoor H, Khan SA, Afghani T, Assir MZ, Ali M, Khan WA. Utility of teleconsultation in accessing eye care in a developing country during COVID-19 pandemic. PLoS One 2021;16:e0245343.
11. Ministry of Health and Family Welfare. Augmenting Human Resources for COVID-19 (File No.Z.20015/43/2021-ME-1) Vol. 10. New Delhi, India; 2021. Available from: https://www.mohfw.gov.in/pdf/LettertoStatesUTsonHealthWorkForce.pdf. [Last accessed on 2023 Aug 10].
12. Balaji A, Clever SL. Incorporating medical students into primary care telehealth visits: Tutorial. JMIR Med Educ 2021;7:e24300.
13. Iancu AM, Kemp MT, Alam HB. Unmuting medical students' education: Utilizing telemedicine during the COVID-19 pandemic and beyond. J Med Internet Res 2020;22:e19667.
14. Pit SW, Velovski S, Cockrell K, Bailey J. A qualitative exploration of medical students' placement experiences with telehealth during COVID-19 and recommendations to prepare our future medical workforce. BMC Med Educ 2021;21:431.
15. Associate Dean for Graduate Medical Education, DIO. The George Washington University; Washington, DC; 2020. Available from: https://smhs.gwu.edu/sites/default/files/GWU%20GME%20POLICY%20ON%20TELEMEDICINE%20AND%20TELE%20-%20FINAL-1.pdf. [Last accessed on 2023 Jul 05].