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Study on online teaching and learning during Covid-19 pandemic – Teachers' Perspective

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Abstract

Introduction: The corona virus disease 2019 (COVID-19) pandemic, with requirements for social distancing, has interfered with bedside rounding and forced educators to find alternative practices and solutions. The Corona virus disease (COVID-19) pandemic has led to rapid changes in teaching systems across the world. Educators must plan to continue to provide medical education and patient care during the pandemic, and these services should be conducted in accordance with ethical frameworks that are based on beneficence and the professional virtues of courage and self-sacrifice.

Methods: A Google Form containing the study questionnaire was circulated among specific social media groups comprising medical teachers in the institutions of the Punjab and data analysed statistically.

Results: We collected a total of 106 responses, out of which 73% were from GMC Patiala followed by 7% from GGSMC Faridkot . Participants included 55.3% females and 55.7% males; with an age range of 27-65 years with a mean age of 46 years. Amongst the respondents, only 78.3% were assistant professors and 16% were associate professors. 50.9% accessed e-learning through laptops and 34.9%. 100% and 83% teachers have shown familiarity with Google Classroom and Zoom respectively. 93.4% teachers preferred offline in person mode of teaching and 6.6 % preferred online teaching. They found online tools easy to use and have gained new experience. They prefer to get training for conducting online lectures and their preparation of lectures. They found traditional/live classroom lectures learning more effective due to lack of direct contact with students in online teaching.

Conclusions: Beyond COVID-19, we anticipate further incorporation of online teaching methods within traditional medical education. This may accompany the observed shift in medical practice towards virtual consultations.

Keywords: Education; Internet; Lectures; Pandemics; Students; Teachers

Introduction

The corona virus disease 2019 (COVID-19) pandemic, with requirements for social distancing, has interfered with bedside rounding and forced educators to find alternative practices and solutions. The Corona virus disease (COVID-19) pandemic has led to rapid changes in teaching systems across the world. Teachers are given little time and limited support in navigating a transition that has altered, and, for many teachers also increased their job-related demands with detrimental effects on their wellbeing. There is also a dearth of scientific knowledge about the risk and protective factors associated with teachers' online teaching self-efficacy and compassion fatigue, both of which are important indicators of

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teachers' occupational wellbeing. To address these research gaps, we utilized the job demands–resources model.(1) Furthermore, all in-person educational activities, including simulation, were halted at our institution. With no clear endpoint in sight, we, like others in the medical education community, were required to adapt our existing curriculum for distance learning.(2) Online platforms, such as Zoom, have offered a way to transition in-person didactic teaching to an online and remote format in primary care training programs worldwide.(3) As more faculty and learners worked from home or were quarantined at home, online curricula were developed to facilitate remote teaching. Although video platforms allow didactic sessions to be delivered synchronously, online curricula allows learners to work at their own pace, asynchronously.(4) Overall, this infrastructure can also increase opportunities for learners to gain exposure while also facilitating remote collaboration between people from different institutions after the COVID-19 pandemic subsides. This infrastructure has made many teaching adaptations possible during this time, but new technologies—particularly videoconferencing technology—should be deployed thoughtfully to avoid "Zoom fatigue."(5) Educators must plan to continue to provide medical education and patient care during the pandemic, and these services should be conducted in accordance with ethical frameworks that are based on beneficence and the professional virtues of courage and self-sacrifice.(6)

Material and Methods

A descriptive cross-sectional study was conducted in October 2021, using a Google Form containing the study questionnaire was circulated among specific social media groups comprising medical teachers in the institutions of the Punjab and 106 responses collected.

The questionnaire was developed by conducting open-ended interviews with medical teachers. Before administering the questionnaire, it was reviewed for content validity by three experts in the faculty. Items in the questionnaire were then modified and new items were added based on the qualitative review. The predictive validation was determined by administering an initial questionnaire to two randomly selected students.

The self-administered online questionnaire was developed using Google form consisting of two sections with a total of 22 questions. At the beginning of the questionnaire, an introductory paragraph explained the objectives, the confidentiality of the responses and voluntary participation. The first section included 6 questions about the participants' demographic information, and the specific tools and devices used by undergraduates for online learning. The second section included 16 questions assessing perception toward online learning, using a five-point Likert scale. After receiving the responses, the data of this cross-sectional study was analysed.

Results and Discussion

We collected a total of 106 responses, out of which 73% were from GMC Patiala followed by 7% from GGSMC Faridkot (Table 1). Participants included 55.3% females and 55.7% males; with an age range of 27-65 years with a mean age of 46 years (Table 2). Amongst the respondents, only 78.3% were assistant professors and 16% were associate professors (Table 3). 50.9% accessed e-learning through laptops and 34.9% (Table 4). 100% and 83% teachers have shown familiarity with Google Classroom and Zoom respectively (Table 5). 93.4% teachers preferred offline in person mode of teaching and 6.6 % preferred online teaching (Table 6). Various questions were asked and the responses to them as a percentage of respondents making the given response on the Likert-scale are illustrated in Table 7. It was found out that most teachers have sufficient equipment and IT skills for online teaching. They prefer to get training for conducting online lectures and their preparation of lectures. They found online tools easy to use and have gained new experience, but want to give proper

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breaks so that the students will have the time to think about the topic and frame their questions as doubts.

Table 1: Distribution of teachers with reference to Institute in which teaching

Students	N Total %	
GMC Patiala	78	73
GGSMC Faridkot	7	6
GMC Amritsar	6	5
Others	15	14
Total	106	100

Table 2: Distribution of teachers in reference to age and sex

Age in Years	Total		Male		Female	
	N	%	N	%	N	%
21-30	12	11.3	5	10.6	7	11.5
31-40	22	20.8	9	19.1	13	22
41-50	38	35.8	18	38.3	20	33.9
50-60	28	26.4	12	25.5	16	27.1
Above 60	6	5.7	3	6.4	3	5
Total	106	100	47	44.3	59	55.7

Table 3: Distribution of teachers in reference to designation

Designation	Total		Male		Female	
	N	%	N	%	N	%
Assistant Professor	83	78.3	33	27.3	50	84.7
Associate Professor	16	15.1	10	72.7	6	10.2
Professor	7	6.6	4	44.0	3	5.1
Total	106	100	47	44.3	59	55.7

Table 4: Mode of doing the online teaching

Mode	Total		Male Gender Female			
	N	%	N	%	N	%
Desktop	15	14.2	6	12.8	9	15.3
Laptop	54	50.9	23	48.9	31	52.5
Mobile	37	34.9	18	38.3	19	32.2
Total	106	100	47	44.3	59	55.7

Table 5: Which tools are used in online teaching?

Designation	Google Classrooms		Zoom		Microsoft Teams		Others	
	N	%	N	%	N	%	N	%
Assistant Professor	83	100	78	94	12	14.5	15	18.1
Associate Professor	16	100	13	81.3	4	25	3	18.8
Professor	7	100	7	100	4	57.1	2	2.9
Total	106	100	98	92.4	20	18.8	20	18.8

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Table 6: Preferred mode of teaching

Mode of teaching		Total		Gender			
				Male		Female	
		N	%	N	%	N	%
Offline	On board	18	17	8	56.9	10	47.7
	On ppt	81	76.4	36	28.3	45	23.4
Online	Audio VC	2	1.9	0	1.8	2	2.3
	Premade ppt	5	4.7	3	7.1	2	17.5
	Video VC	0	0	0	0	0	0
Grand Total		106	100.0	47	56.0	59	44.0

Table 7: Questions and the responses as percentage of respondents making the response and the median response.

Question	Strongly Agree (1)	Agree (2)	Neither Agree nor Disagree (3)	Disagree (4)	Strongly Disagree (5)	Median
You have sufficient computer knowledge and IT skills to conduct your online teaching	14.2	41.8	40	2.4	1.6	4
Do you prefer to have a training on conducting online lectures	18.8	42.0	20.0	10.6	8.6	4
Do you prefer to have a training/guidelines on preparation of online lecture	25.1	42.1	19.9	9.7	3.2	4
During online sessions, give proper breaks so that the students will have the time to think about the topic and frame their questions as doubts	16.4	45.9	10.6	10.0	17.1	4
Online tools are easy to use when conducting lectures	22.7	20.3	26.7	20.3	10.0	3
Flexible hours of conducting online lectures	11.1	16.7	19.1	26.9	26.2	2
Gained experience of conducting online lectures	24.3	24.4	14.4	23.0	13.9	4
Online lectures are effective than traditional/live classroom lectures	19.7	22.6	21.0	29.3	17.4	3
Lack of direct contact with students	22.7	38.1	22.2	10.8	8.2	4
Students are motivated during online lectures	11.1	16.8	19	26.7	26	2
Are you happy about the student-teacher interaction during online teaching & learning	10.9	17	19	30	29.3	2
Students ask questions or clear doubts during online lectures	24.7	31.0	25.7	9.6	9.0	4
Difficulties of conducting practical sessions	24.3	24.4	23.0	14.4	13.9	4
Difficulties of teaching some subjects	13.3	21.0	23.7	22.3	19.7	3

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It is better to keep your class short or as a series of short sessions	17.3	33.0	21.8	13.9	14.0	4
It may be difficult to get an immediate feedback on what was being taught	28.3	38.3	19.0	8.1	6.3	4
Online environment simply takes more time than a face-to-face class to effectively	23	33.7	20.9	14.3	11.1	4
Home environment is suitable for conducting online lectures	17.4	23.0	19.3	15.9	24.4	3
Possibility of distractions from other family members during online lectures	30	38.3	20.7	8.1	6.3	4
Would you like to conduct online lectures with conventional lectures after COVID	25.4	24	22	18	10.6	4

They found traditional/live classroom lectures learning more effective due to lack of direct contact with students in online teaching and other reasons like distractions from other family members during online lectures, lack of student's motivation, difficulty in conducting practical sessions, lack of student-teacher interaction, difficulty in conducting practical sessions and lack of facility to get feedback.

Teachers perception of online teaching

Out of 16 questions, 10 were regarding the environment of online learning in which 4 are of positive sense and 6 are of negative sense, and 6 were regarding tools of online learning in which 4 are of positive sense while 2 are of negative sense. Most teachers had positive responses towards tools of online learning but have negative responses towards the environment of learning.

Student engagement with online teaching platforms

Overall, teachers did not find online teaching to be engaging or enjoyable, with limited opportunities of interaction and lack of training. Furthermore, they did not find it as effective as face-to-face teaching. Our results suggest that teachers would like online teaching sessions to be more interactive. This could be achieved via student response systems incorporating methods such as polls, quizzes or breakout rooms(7), which have been shown to encourage student participation(8), based on a previous model advising the use of synchronous learning. Synchronous learning is defined as a social learning environment alongside answering questions live. This active communication between lecturers and students allows ambiguous concepts to be addressed immediately to increase student involvement, creating a more active learning environment.(9)

Advantages of online teaching, with limitations

The main advantages of online teaching are the time and money saved from the lack of travel, its flexibility and the ability for students to learn at their own pace. Further benefits of live online lectures(10) include opportunities for students to anonymously ask and answer questions, potentially encouraging further engagement from those who would not otherwise participate in a live lecture, due to the less intimidating environment online.(11) However, these benefits may not be applicable to all forms of online teaching. For example, the limited synchronous aspects of pre-recorded content may deter students due to the lack of opportunities to interact with lecturers.

Limitations and future work

This is the study to look at the impact of COVID-19 on online teaching across the Punjab medical colleges. Furthermore, the recruitment of a variety of medical teachers for survey distribution minimised potential response bias. However, this study also had some limitations. Some medical schools may have been disproportionately represented with larger numbers of responses from some schools, for example, more participation from GMC Patiala

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in comparison to other medical colleges and most of the teachers participating are of assistant professor level. Thus, the results may not be generalisable to the medical teachers population. Further, some aspects of this survey depended on participants' memory perhaps influencing their reporting, introducing elements of recall bias. To truly measure the impact of COVID-19 on teachers utilisation of online teaching, a more in-depth, qualitative analysis such as focus groups conducted in collaboration with medical schools is required to gather more accurate results

Conclusions

Online teaching has enabled the continuation of medical education during these unprecedented times. Moving forward from this pandemic, in order to maximise the benefits of both face-to-face and online teaching and to improve the efficacy of medical education in the future, we suggest, medical colleges resort to teaching formats such as team-based/problem-based learning. More international collaboration may increase the quality and accessibility of online medical education. It has also been shown to be effective in terms of achieving learning outcomes. Beyond COVID-19, we anticipate further incorporation of online teaching methods within traditional medical education. This may accompany the observed shift in medical practice towards virtual consultations.

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