Original Article

Perceived Barriers of Managing Teaching–Learning during COVID-19 Pandemic: A Descriptive Observational Study among Medical Educators in West Bengal

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Abstract

Introduction: The COVID-19 pandemic led to a paradigm shift in the landscape of medical education, necessitating a transition from traditional pedagogical methods to digital learning platforms. This study aims to find out the barriers faced by medical educators in West Bengal during the pandemic. **Materials and Methods:** This descriptive type of observational study with a cross-sectional design was conducted between December 2022 and February 2023 with a reference period of March 2020 to December 2020. The study population was the medical educators working during the reference period in the various departments of Government Medical Colleges in West Bengal. One hundred and twenty medical educators were selected using simple random sampling and responses were collected through a predesigned and pretested Google Forms. Collected data were checked for consistency and analyzed in GNU PSPP (v 1.4.2). Quantitative data were expressed as mean (±standard deviation) or median (±interquartile range), and qualitative data were expressed in frequency and percentage. **Results:** Out of the 120 sample population, 100 responded within the stipulated 7 days with a response rate of 83%. Most of the respondents had opined that they did not have a dedicated e-classroom facility for online education (87, 87%) and web camera (63, 63%). The majority had a prevailing teacher-centric approach to education including a lack of incorporating student feedback in deciding mode of communication. **Conclusion:** The study identifies the deficiency of logistical support and identifies the importance of capacity building of medical educators for tiding over similar situations in future.

Keywords: Barriers, COVID-19, India, medical education, revised course of basic medical education, West Bengal

Introduction

Medical education in India traditionally relies on in-person lectures, hands-on clinical training, and direct student–teacher interactions to cultivate aspiring physicians.[1] However, the emergence of the COVID-19 pandemic necessitated an unprecedented shift in educational modalities, prompting a pronounced transition from physical classrooms to virtual platforms.[2,3] This shift was driven by lockdowns and social distancing measures aimed at curbing the virus's spread.[2,4] Medical educators suddenly found themselves navigating the complexities of online instruction while simultaneously managing COVID-19 patients. The abruptness of this transition allowed little time for training or preparation, thrusting educators into unfamiliar territory with the expectation of maintaining rigorous standards. The lack of advanced technology training was exacerbated by inadequate logistical support from institutions, which were also grappling with pandemic-related challenges.[2] In response, many educators turned to free services (Zoom, Google Classroom, Webex, etc.) provided by multinational corporations to ensure educational continuity.[5] Research studies during this period on medical education highlighted challenges faced by medical educators worldwide, including the steep learning curve of different

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services, effective communication with students, assessing participation and performance, ensuring quality teaching environments including receiving and providing feedback to students, and managing schedules.[2,5-10]

While the pandemic has receded and medical education has largely returned to predominantly in-person teaching methods, a retrospective analysis of this period holds significant value. Chronicling the challenges faced by medical educators during that time particularly within the under-researched context of West Bengal, can provide valuable insights for future preparedness in the event of similar disruptions. This study aims to address this gap with the objective of finding out the barriers faced by medical educators in West Bengal during the pandemic.

Materials and Methods

Study type and design

This descriptive type of observational study with a cross-sectional design was conducted from December 2022 to February 2023.

Study population

The study population included medical educators of West Bengal Medical Education Services who were working from March 2020 to December 2020. The exclusion criteria included individuals who were seriously ill during the study period and thus were not associated with medical education during the period and who did not provide consent.

Sample size

Due to the paucity of information on the barriers faced by the medical educators, it was assumed that at least 50% of the medical educators would face at least one barrier while educating the medical students. Taking this value with 5% alpha error and 10% absolute precision, the minimum required sample size was 96. Due to the pandemic-associated additional responsibilities, it was assumed that nonresponse rate would be 20%. The final sample size was 120.

Sampling technique

A list of all medical educators along with their e-mail addresses was collected from the medical education department, Government of West Bengal. From this, 120 respondents were selected through simple random sampling using computer-generated random numbers.

Study tools and technique

Data were collected through a predesigned and pretested online questionnaire hosted on the Google Forms platform. It was divided into four sections. Section 1 contained a participant information sheet explaining the research's scope and objectives. Following this, informed consent for participation was electronically obtained. To maintain anonymity and encourage forthright responses, data were collected without any direct participant identifiers. This strategy was intended to alleviate potential apprehensions related to logistical deficiencies, which could otherwise invite scrutiny from regulatory authorities. Section 2 contained questions related to the demographic and professional characteristics of the respondents (completed age, gender, designation, and place of posting during the reference period). Earlier literature had revealed that faculty development programs usually improve the teaching outcome.[11-13] According to the National Medical Commission (NMC), all medical educators are to be trained at least in the revised Course of Basic Medical Education (rBCW).[1] Hence, an additional query was made regarding the respondents' training status related to medical education during the reference period. Responses were clubbed together into three groups – no training received, training received only on rBCW, and received training on rBCW and advanced courses (ACME or FAIMER).

Section 3 contained 12 five-point (ranging from strongly disagree to strongly agree) Likert scale questions intended to find out the barriers faced by medical educators. These questions covered four important areas – online class management, feedback mechanisms, teaching modes, and assessment strategies. These areas were identified through an exhaustive review of pertinent literature on global challenges encountered by medical educators.[2-7,9,10] Following statements were used to assess their response – "I am fairly organized in planning of online classes," "I can attract the concentration of the students throughout the online session," "I can communicate easily with students through online mode," "I keep up with the recent advances in digital technology," "I usually select the communication method during online session that students preferred," "I'm aware of the challenges that students face during online classes," "I'm flexible to prioritize the content in an online class according to audience and time," "I do include student's perspective in deciding the gadget required for online classes," "I do include student's perspective while deciding mode of teaching for taking online classes," "I give regular feedback to the students during online sessions," "I take regular feedback from students for online sessions," and "I usually ask students to complete a task during the online classes for checking their understanding." Section 3 was sent to five experts of medical education to assess content validity and the content validity index for each item was found to be >0.88. Section 4 contained a checklist asking them to mark various facilities available in their institute.

Data analysis plan

Collected data in the Google Forms were checked for consistency. For further analysis, it was imported into n GNU PSPP, version 1.4.2 (MA, Boston [USA]: Free Software Foundation, Inc. 2020), an open-source statistical software.[14] Quantitative data were expressed in mean (±standard deviation)/ median (±interquartile range), depending on their distribution. Categorical data were expressed in frequency and percentage.

Ethical consideration

After explaining the purpose and procedure of the study to each participant, written consent was taken from each one of them. Anonymity and confidentiality of the data were maintained

strictly throughout the study period. The study received ethical approval from the Institutional Ethics Committee, College of Medicine and Sagore Dutta Hospital (vide memo no CMSDH/IEC/257/11-2021 dated November 15, 2021). The research followed all the ethical standards of descriptive epidemiological study as per the Declaration of Helsinki, updated in 2013.

Results

Out of the 120 educators approached, 100 responded within the stipulated 7 day with a response rate of 83%. Majority of the respondents belonged to the age group of 41–50 years (59, 59%), were male (65, 65%), associate professor (36, 36%), and had only rBCW training (51, 51%) [Table 1]. Respondents were either expressed agreement or strong agreement to the following statements – "I am fairly organized in planning of online classes" (69, 69%), "I'm aware of the challenges that students face during online classes" (86, 86%), and "I'm flexible to prioritize the content in an online class according to audience and time" (86, 86%). However, they either remained neutral, disagreed, or strongly disagreed with "I can attract the concentration of the students throughout the online session" (88, 88%) and "I take regular feedback from students for online sessions" (75, 75%) [Table 2]. The majority of the respondents had opined that they did not have a dedicated e-classroom facility for online education (87, 87%) and web-camera (63, 63%) [Table 3].

Discussion

The COVID-19 pandemic instigated a significant shift in the landscape of medical education, necessitating a transition from traditional pedagogical methods to digital learning platforms.[2,5-10] The abrupt onset of the pandemic precluded the opportunity for comprehensive documentation of the challenges faced by medical educators during this period. This cross-sectional investigation was designed to retrospectively document the obstacles encountered by medical educators in West Bengal during the pandemic.

Table 1: Background characteristics of respondents (*n*=100)

Variable	Frequency, *n* (%)
Age group (years)	
31–40	20 (20)
41–50	59 (59)
51–60	14 (14)
>60	7 (7)
Gender	
Female	35 (35)
Male	65 (65)
Designation	
Tutor/demonstrator/senior resident	11 (11)
Assistant professor	29 (29)
Associate professor	36 (36)
Professor	24 (24)
Received training in medical education	
Nothing	34 (34)
rBCW	51 (51)
ACME/FAIMER/MHPE	15 (15)

The NMC initiated a competency-based medical education program in 2019, underscoring the importance of formal training for medical educators.[1] However, the data from this study revealed that approximately one-third of the participants had not undergone any formal pedagogical training before the pandemic. Despite this apparent lack of preparation, the educators reported a predominantly positive experience, indicating effective communication with their students – a sentiment echoed by most respondents. This observation contrasts sharply with findings from other regional and international studies, highlighting the need for additional research to elucidate the underlying causes of this discrepancy.[5,6,8,9]

Conversely, only a negligible 2% of respondents agreed or strongly agreed that they considered the students' perspective when determining the instructional modality for online classes. Moreover, only a quarter of the respondents reported consistently soliciting feedback from their students. These findings suggest a prevailing teacher-centric approach to education, a method that was prevalent in India until recently.[1] This could be attributed to the absence of formal training in medical education among the educators before the COVID-19 pandemic.[9] Furthermore, even those who had received training may not have had sufficient time and logistical support to integrate the new pedagogical methods. Existing scientific literature indicates that the initial phase following training may paradoxically be associated with suboptimal educational outcomes until the newly acquired skills are fully assimilated.[11] However, the current study was not designed to address these questions, and further investigations are warranted.

Another significant concern was the lack of training in the use of work management and video editing software, coupled with insufficient logistical support from employers, such as the provision of dedicated webcams or DSLRs. This underscores the need for capacity building among medical educators in West Bengal, with potential future research focusing on the development of a training module for this purpose, as well as ensuring the provision of adequate training for teachers.

Despite the researchers' diligent efforts, certain limitations of the study could not be ignored. The study was conducted approximately 18 months post the onset of the pandemic, implying that respondents' answers were reliant on recall, which could introduce recall bias. Social desirability bias may also have been a factor, as respondents may have been inclined to portray themselves favorably to the researchers. The potential for selection bias also exists, as the survey was conducted online, potentially excluding those less familiar with contemporary technology. The latter was more likely to face difficulty during the reference period. This could have resulted in an overestimation of the positive response rate in the survey. However, it is noteworthy that the

Table 2: Distribution of the responses to the statements delineating various challenges (*n*=100)

	Strongly disagree, *n* (%)	Disagree, *n* (%)	Neutral, *n* (%)	Agree, *n* (%)	Strongly agree, *n* (%)
I am fairly organized in planning of online classes	4 (4)	9 (9)	18 (18)	59 (59)	10 (10)
I can attract the concentration of the students throughout the online session	8 (8)	5 (5)	75 (75)	6 (6)	6 (6)
I can communicate easily with students through online mode	6 (6)	18 (18)	26 (26)	48 (48)	2 (2)
I keep up with the recent advances in digital technology	5 (5)	14 (14)	35 (35)	41 (41)	5 (5)
I usually select the communication method during the online session that students preferred	6 (6)	14 (14)	25 (25)	53 (53)	2 (2)
I'm aware of the challenges that students face during online classes	2 (2)	3 (3)	9 (9)	61 (61)	25 (25)
I'm flexible to prioritize the content in an online class according to audience and time	3 (3)	4 (4)	7 (7)	67 (67)	19 (19)
I do include student's perspective in deciding the gadget required for online classes	1 (1)	8 (8)	82 (82)	7 (7)	2 (2)
I do include student's perspective while deciding mode of teaching for taking online classes	1 (1)	25 (25)	72 (72)	1 (1)	1 (1)
I give regular feedback to the students during online sessions	1 (1)	15 (15)	29 (29)	51 (51)	4 (4)
I take regular feedback from students for online sessions	12 (12)	6 (6)	57 (57)	9 (9)	16 (16)
I usually ask students to complete a task during the online classes for checking their understanding	12 (12)	5 (5)	52 (52)	13 (13)	18 (18)

Table 3: Distribution of the responses delineating the various logistical difficulties faced (*n*=100)

Variable	Frequency, *n* (%)
Have you received any training in using communication software for medical education?	
No	18 (18)
Yes	82 (82)
Have you received any training in using collaborating software for medical education?	
No	45 (45)
Yes	55 (55)
Have you received any training in using Microsoft Office suite software for medical education?	
No	9 (9)
Yes	91 (91)
Have you received any training in using video creation software for medical education?	
No	87 (87)
Yes	13 (13)
Have you received any training in using work management software for medical education?	
No	90 (90)
Yes	10 (10)
Does your institute have a dedicated e-classroom facility for online education?	
No	87 (87)
Yes	13 (13)
Does your institute have a dedicated audiovisual facility for online education?	
No	99 (99)
Yes	1 (1)
Does your institute have a dedicated desktop computer for online education?	
No	32 (32)
Yes	68 (68)
Does your institute have a dedicated DSLR camera for online education?	
No	98 (98)
Yes	2 (2)
Does your institute have a dedicated laptop for online education?	
No	28 (28)
Yes	72 (72)
Does your institute have a dedicated LCD projector for online education?	
No	99 (99)
Yes	1 (1)

Contd...

Table 3: Contd...

Variable	Frequency, *n* (%)
Does your institute have a dedicated smart board for online education?	
No	87 (87)
Yes	13 (13)
Does your institute have a dedicated web camera for online education?	
No	63 (63)
Yes	37 (37)
Does your institute have a dedicated wireless connection for online education?	
No	33 (33)
Yes	67 (67)
Does your institute have a dedicated wired broadband connection for online education?	
No	53 (35)
Yes	47 (47)
Does your institute provide a collaborating software for online education?	
No	71 (71)
Yes	29 (29)
Does your institute provide a communication software for online education?	
No	29 (29)
Yes	71 (71)
Does your institute provide Microsoft Office suite for online education?	
No	26 (26)
Yes	74 (74)
Does your institute provide a work management software for online education?	
No	97 (97)
Yes	3 (3)
Does your institute provide access to dedicated video creating software for online education?	
No	98 (98)
Yes	2 (2)

survey response rate was nearly 83% among randomly selected respondents, suggesting that while the external generalizability of the study may be limited, the findings are nonetheless valuable. In addition, to the best of the researchers' knowledge, this is the first study of its kind involving faculty members from across West Bengal in documenting the challenges of online education, which may be considered the strength of the study.

Conclusion

The COVID-19 pandemic has undeniably catalyzed a paradigm shift in medical education, compelling educators to adapt to digital platforms. The study provides valuable insights into the challenges faced by medical educators in West Bengal during this transition. The findings underscore the lack of formal training and logistical support among the educators for providing online teaching. The study, while limited in its scope and subject to potential biases, offers a valuable starting point for further research. Future investigations could focus on developing comprehensive training modules and strategies to enhance the digital competency of educators, thereby fostering an effective and engaging online learning environment. This study serves as a testament to the resilience of the medical education community in West Bengal during unprecedented times and a reminder of the continuous evolution and adaptation that education entails.

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Conflicts of interest

There are no conflicts of interest.

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