

## Online learning experiences among the post-graduate learners during the COVID-19 pandemic in a higher medical educational institution in Bangladesh

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### Abstract

The COVID-19 pandemic had substantial effects on education. As a result, online education has gained popularity among postgraduate medical students. The aim of this study was to explore postgraduate learners' experiences regarding online classes. This study was carried out in the Department of Neonatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh, from March 2020 to September 2020. A questionnaire was sent to neonatology and pediatrics allied residents and students of FCPS paediatrics. Qualitative data were collected and using likert scales to assess satisfaction regarding online learning experience. The study included 79 participants. Of them, 71 (89.9%) responded, 12 (16.9%) attended online classes before the COVID-19 situation. Thirty-four (47.9%) residents opined that online classes provided the right amount of theory. Eighteen (25.4%) disagreed that high-quality learning can be accomplished without face-to-face contact. Twenty-four respondents (33.8%) disagreed that studying online was more motivating than attending a regular classes. Forty-two (59.2%) concluded that online class was really beneficial, and 50 (70.4%) were satisfied with online education. More than half of them (57.7%) preferred online theoretical classes compelling situation. Though students prefer online education as an alternative to classroom education, both face-to-face and online teachings are necessary.

**Keywords:** Online learning, Post-graduate learners, Covid-19 pandemic, Classroom education

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### Introduction

Amid the COVID-19 pandemic, to avoid the spread of infection, most of the higher educational institutions worldwide had to precipitously close in late March 2020. For this closure, educational institutions had to adopt a digital approach for student learning, regardless of students' and teachers' level of

expertise. Rapid evolution in technology has made distance education easily available.<sup>1</sup> Online teaching is no longer an option; it is a necessity during this pandemic crisis. With the help of the internet, students can now learn with ease at home by listening live, interacting with the teacher and solving problems without having to be

physically in a classroom.<sup>2</sup> Nowadays, distance education has been adopted as a practice for "anywhere" and "anytime" education delivery methods.<sup>3</sup>

Though the online teaching method has been used for many years in various fields, there is still a lack of proficiency in implementing online learning platforms. Some questions have been raised about distance learning, whether it has the same value as learning in a classroom and whether it helps students enhance their knowledge similarly if they were in a classroom. A recent systematic review found that there is no difference between offline teaching and online teaching in terms of the outcomes of examinations.<sup>4</sup>

Though the concept of online learning has been growing fast over the last decade in developed countries, it is still relatively new to the majority of learners in Bangladesh. Many educational institutions in Bangladesh have implemented this online education as an education delivery method due to the COVID-19 pandemic situation.

Medical schools have not been spared either, with concerns about academic continuity and maintenance of the efficiency of the health care system, with most medical education also adopting online education. The Department of Neonatology, Bangabandhu Sheikh Mujib Medical University (BSMMU) also started to conduct online academic events such as lectures, journal clubs, seminars, and clinical meetings through paid Zoom. To improve future learning strategies, Student's feedback could provide important information for the evaluation of distance learning. The purpose of this study is to explore learners' perceptions of online learning delivery, problems faced in participating in online education and the teaching quality during the COVID-19 pandemic.

## Methods

This study design was carried out in the department of neonatology at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh, from March 2020 to September 2020. MD neonatology residents, residents of MD pediatrics allied, and trainees of the Fellow of the College of Physicians and Surgeons (FCPS) paediatrics were enrolled. All participants were placed in the Department of Neonatology during the

study period. The residency program at BSMMU is divided into two phases, named Phase A and Phase B. Residents of Phase A of all disciplines are placed for three months in every department named Block Placement during Phase A and for 36 months during Phase B in the Parent's Department. Trainees in the FCPS pediatrics course spend one and a half months in the neonatology department. The data were originally obtained from a prospective audit, which was initially performed to understand the "impact of online-based educational programs to improve knowledge and service among doctors in the neonatal intensive care unit (NICU)" in order to improve the quality of future teaching and patient care. These data were collected prior to approval by the Institutional Review Board (IRB) of BSMMU. However, approval was obtained from the IRB after the completion of the audit to analyze the data and publish it in peer-reviewed journals (IRB No. BSMMU/2020/9861).

To perform this survey, a questionnaire was developed in Google Form and sent to all participants by email, maintaining their anonymity. A mixed methods study was chosen as the design for this research to enable an in-depth exploration to assess their views, experience and acceptability with the ongoing online academic activities via Zoom link. Mixed methods research design implicates merging or incorporating qualitative and quantitative research and data in a single study.<sup>5</sup> Participants' email addresses and phone numbers were retrieved from the respective month's ward managers. After sending the questionnaire to participants, a reminder was given through telegram, a Facebook messenger group, and then via bulk SMS. Subsequently, all data were collected and analyzed. Quantitative data were presented as frequency distribution (percentage). Qualitative data were collected and Likert scales was used to assess satisfaction.

## Results

A total of 79 postgraduate participants were included in the study. Out of 79, 36 (45.5%) responded at first. A reminder was sent three days later via Telegram and a Facebook messenger group. Then another 20 participants replied. Total responders were 56 (70.9%) at the end of first reminder. Second and 3<sup>rd</sup> reminders were given 3 days intervals to all participants through

bulk messaging. After sending reminders via bulk messaging 15 more participants responded. Finally, 71 (89.9%) responses were collected and analyzed.

The background characteristics of the studied residents are presented in **Table 1**. Among the participants, 56.3% were female. Age distribution showed three fourth (54, 76.05%) of residents were from 25-35 years age group. Among the responders, 12 (16.9%) attended online classes before COVID-19 pandemic (**Table 1**).

**TABLE 1 Background characteristics and ICT tools (n=71)**

Variables	Number (%)
Age in year	
25-35	54 (76.0)
35-45	17 (23.9)
Sex	
Male	31 (43.7)
Female	40 (56.3)
Disciplines	
Neonatology	38 (53.5)
Residents of MD pediatrics allied (other than Neonatology)	29 (40.8)
FCPS course student	04 (5.6)
Online class exposure before the COVID-19 situation	
Yes	12 (16.9)
No	59 (83.1)
Device used by the participants	
Hand set	62 (87.3)
Laptop	06 (8.4)
Desktop	-
Tab	03 (4.2)
Ability of easy access to attending academic activities?	
Yes	60 (84.5)
No	11 (15.5)
Comfort during use of electronic device	
Yes	62 (87.3)
No	09 (12.7)
Type of connection used	
Broadband	51 (71.9)
Mobile data	20 (28.1)

Online classes were preferable to the residents for providing theoretical knowledge. However, physical classes were preferred for motivational and skill-building points of view (**Table 2**). Network disruption was the commonest problem (77.5%) encountered by the students. Otherwise, more than half (57.7%) preferred online classes (**Table 3**). Three-quarter of them (74.6%) found internet-based classes very helpful and extremely useful.

## Discussion

This study investigated the novel exposure to online education for postgraduate residents during the COVID-19 pandemic. It provided insight into the strengths and weaknesses of the online teaching quality at a post-graduate institute and student satisfaction with it. In the present study, the response rate was 89.9%. A study conducted among Saudi undergraduate medical students found that student satisfaction with video conferencing teaching quality during the COVID-19 pandemic response rate was 82%.<sup>6</sup> In this study, residents agreed with the statements given on distance learning. Only 34 (47.9%) residents accepted that online classes provided the right amount of theory, but 26 (36.6%) respondents somewhat disagreed that online classes provided the right amount of practical experience. Online learning in medical education is very challenging because the students have to learn and work directly with the patients (especially for the practical part). There are recommendations that some portion of practical and clinical classes be started through demonstration and presentation of related cases with simulation. It is evident in various studies that course materials prepared by instructors considering students' learning styles and learning methodologies impact the greatest amount of learner satisfaction.<sup>7-8</sup>

Regarding organizing the online class, 33-46% of residents were happy. Academic faculties have to use the Internet and technology for their daily teaching and research activities. Moreover, around a quarter (25.4%) of respondents disagreed with the notion that high-quality learning can be accomplished without face-to-face contact. A similar result was found in a study that suggested most residents prefer face-to-face teaching.<sup>9</sup> This is because as students compare their current experiences to previous face-to-face teaching, post-graduate students need to learn more clinical science, which involves both theory and procedural knowledge and skills. Due to the pandemic, the execution of academic works and practical assignments was reduced, resulting in a lack of motor skills experiences, fewer opportunities for direct consultation with instructors, and fewer practical assignments, which is why students prefer more face-to-face interactions.<sup>8</sup>

**TABLE 2 Resident's perception of online teaching environment (n= 71), results are n (%)**

Statements	Likert Score				
	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Do you think the online class provided the right amount of theory?	02 (2.8)	05 (7.0)	06 (8.5)	34 (47.9)	24 (33.8)
Do you think the online class provided the right amount of practical experience?	13 (18.3)	26 (36.6)	15 (21.1)	17 (23.9)	-
The online class was very well organized like –					
Joining in class	-	5 (7.0)	17 (23.9)	30 (42.3)	19 (26.8)
Sound system	1 (1.4)	18 (25.4)	14 (19.7)	32 (45.1)	6 (8.5)
PowerPoint presentation	-	3 (4.2)	11 (15.5)	33 (46.5)	24 (33.8)
Interaction with instructor	5 (7.0)	8 (11.3)	22 (31)	24 (33.8)	12 (16.9)
The teaching environment at the online class helped in better learning compared to conventional teaching	1 (1.4)	8 (11.3)	14 (19.7)	32 (45.1)	16 (22.5)
Do you believe that effective learning can take place without face-to-face interaction?	13 (18.3)	18 (25.4)	15 (21.1)	17 (23.9)	8 (11.3)
Do you feel that face-to-face contact with your instructor is necessary to learn?	-	5 (7.0)	8 (11.3)	30 (42.3)	28 (39.4)
Learning is the same in class and at home on the Internet?	14 (19.7)	24 (33.8)	19 (26.8)	10 (14.1)	4 (5.6)
Do you believe that learning on the Internet outside of class is more motivating than a regular course?	15 (21.1)	24 (33.8)	15 (21.1)	12 (16.9)	5 (7.0)

Among the responders, about one-third of residents (33.8%) disagreed that studying on the Internet was more motivating than attending a regular class. Amir et al. found a similar finding in their analysis in 2020. Their survey showed only 44.2% of respondents preferred distance learning over classroom learning.<sup>10</sup> This result was lower than other studies comparing online and traditional learning methods, which reported a higher preference toward e-learning compared to traditional classroom methods.<sup>11-13</sup>

Among the responders, 38 (52.7%) liked the online class mostly because they joined it from a home environment. During this pandemic, when most of the educational institutes shut down their facilities, e-learning helps the student stay at home and continue their courses. In such cases, online learning helps the student to organize themselves during this stressful situation.

According to the residents, 42 (59.2%) concluded that online class was beneficial, and 50 (70.4%) were satisfied with online education. Nowadays, students are

accepting e-learning more positively. Some studies have shown satisfaction rates as high as 93.4%.<sup>14,15</sup> On the contrary, a systematic review has reported an extremely low level of satisfaction (14.0%) among health profession students (e.g. medicine, dentistry, pharmacy, and allied medical sciences) towards online learning compared to traditional learning.<sup>16</sup> The possible reasons could be that students are more familiar with the traditional learning environment and students may feel that they are more isolated in the virtual learning environment.

Various studies on student satisfaction with online learning have found the following factors: instructor interaction, communication, active learning, student's ability to initiate and control their actions in the learning environment, efficient assessment of academic progress, technology, and the learning environment.<sup>17-18</sup> In a study conducted in 2020, Sharma et al. observed that students' satisfaction with online classes tends to be high.<sup>19</sup>

**TABLE 3 Online learning satisfaction among respondents (n=71)**

Statements	Number (%)
What do you like most about the online classes?	
Joining class from home environment	38 (52.7)
Watching recorded version later	16 (21.9)
Have more clear view of presentation	19 (26.0)
What do you dislike about the online classes?	
The home environment is not suitable for class	14 (20.0)
No face-to-face contact with the instructor	42 (60.0)
Not comfortable in using software /app	02 (2.9)
No meeting with course mates	12 (17.1)
How difficult was the online class for you?	
Very difficult	-
Difficult	03 (4.2)
Neutral	24 (33.8)
Easy	40 (56.3)
Very easy	04 (5.6)
Please set your level of satisfaction with the online classes	
Very dissatisfied	03 (4.2)
Dissatisfied	-
Neutral	09 (12.7)
Satisfied	50 (70.4)
Very satisfied	09 (12.7)
How helpful were the classes?	
Extremely helpful	11 (15.5)
Very helpful	42 (59.2)
Somewhat helpful	18 (25.4)

Online theoretical classes, rather than in-person formats during this pandemic, were preferred by 41(57.7%) residents. The current pandemic caused a sudden shift towards the use of online teaching on a large scale, allowing for the digitalization of medical teaching that could play a significant role in the future of medical schools. Allowing users to tailor their learning and acquire new skills through the chaotic nature of the amplitude of resources could halt the development of medical students.

A recent systematic review and meta-analysis regarding "Does online learning work better than offline learning in undergraduate medical education?" shows no evidence that offline learning works better. Online learning, in contrast to offline learning, has benefits in terms of enhancing undergraduates' knowledge and skills and therefore can be viewed as a possible tool in undergraduate medical education.<sup>4</sup>

### Limitation

The limitation of the study was the small sample size of participants. Another limitation was in the specifications of the survey. The online survey did not collect IP addresses, names, or any other identifying information of its participants. Although follow-up research invitations were sent out at one-week intervals, it was impossible to personalize each follow-up invitation due to the anonymity of the survey data collected.

### Conclusion

Online education allows post-graduate learners to continue their education during this unprecedented situation. Though, students prefer online education as an alternative to classroom education, both face-to-face and online teaching is essentially important to improve the efficacy of medical education. To enhance students' discernment and level of satisfaction, academic institutions may focus on improving the e-platform and incorporate online teaching methods within traditional medical education. Farther research is necessary to know how e-learning can be used more effectively.

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### Authors Contribution

Sanjoy Kumer Dey conceptualized the work, guided data analysis, revised the manuscript critically. Mosammad Alpana Jahan developed the data collection tools, and wrote the initial version of the manuscript. Tareq Rahman analysed data, reviewed the literature and contributed writing initial draft. Ismat Jahan finalize data collection tool, contributed in design and methodology and interpreted results. Mohammad Kamrul Hassan Shabuj guided data analysis, monitored data collection and interpreted results and revised the manuscript. Mohammad Jobayer Chisti and Mohammad Shahidullah reviewed the manuscript critically. All authors have approved the submission.

### Conflict of Interest

The authors declare no conflict of interest.

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