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Impact of COVID-19 pandemic on teaching learning process in pre clinical medical education in selective medical college in Bangladesh

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Abstract

Background: The corona virus disease (COVID-19) pandemic has caused major disruption in educational sector including medical education. This disease outbreak has changed the medical education curriculum from traditional platform to e-learning for students including Bangladesh. **Objective:** To observe the impact of COVID-19 pandemic on teaching learning process in medical education in Bangladesh. **Methods:** This qualitative survey was done among the 68 pre-clinical students aged 19 to 23years, of a non-government medical college in Bangladesh, from march to December 2021. All study participants were first year undergraduate MBBS students from anatomy, biochemistry and physiology. Data was collected by administering pre-tested questionnaires through Google form. **Results:** About 75% of the participants agreed that online classes were helpful during the home stay period of COVID pandemic, but about 92.2% of them were skeptical about the success of this online system for their future medical education. About 80.9% had difficulty in keeping their concentration during online class. About 94% found difficulty to follow online practical classes. Majority of the students (82.4%) feel anxious whether they were capable of doing their job properly since this method needs technical knowledge. About 50% students had limited access to internet, there were technical issues like power cut (76.5%), and poor network of internet (69.1%) also reduced the effectiveness of online education. Online class also disrupt teacher-student relationship.

Conclusion: The internet based classes served the purpose of continuation of academic activity in medical education during adverse condition of COVID . But due to uneven use of technology it had some obstacles also. Student's ability to learning in medical education was also hampered in the absence of physical classes. This online method of education system needs much improvement to be effective in medical education.

Key words: COVID-19, medical education, Bangladesh.

Introduction

The COVID-19 is an extremely contagious disease caused by the SARS-CoV-2 virus. It is part of a family of viruses called corona viruses that infect both animals and people.¹ SARS-CoV-2 is one of seven types of corona virus, including the ones that cause severe diseases like Middle East respiratory syndrome (MERS) and sudden acute respiratory syndrome (SARS). The first known case was identified in Wuhan, Hubei province, December 2019 in China, manifested as viral respiratory tract infections. The symptoms of COVID-19 are variable, ranging from mild symptoms to critical and possibly fatal illness.^{2,3} Common symptoms include cough, fever, anosmia and ageusia, diarrhea, and in moderate to severe cases dyspnoea.^{1,4}

The virus spread drastically resulting in an extensive outbreak throughout China and spread all over the world^{2,3}. World Health Organization (WHO) declared it as a worldwide pandemic on March 11, 2020.²

Bangladesh reported the first three confirmed cases of corona virus disease on March 8, 2020. By the month of May, COVID-19 patients were found in all 64 districts of Bangladesh, but Dhaka, Narayanganj, Gazipur and Chittagong were worstly affected.⁵ Bangladesh is the second most affected country in South Asia .¹

The government of Bangladesh adopted necessary steps such as “lockdown”

throughout the country, travel restrictions, closed all educational institutions etc. in an attempt to halt the spread of this deadly virus.⁴ Despite government's intense effort isolation policy could not be implemented in proper way. According to IEDCR (Institute of Epidemiology, Disease Control and Research) Bangladesh, 68% of COVID-19 positive cases were observed between 21 to 50 years of age. On the other side, infected patients aged >50 years constituted 21% of the total infected people. The children and youths aged <20 years comprised 11% of total infected cases.⁶

COVID-19 outbreak had a great impact on more than 120 crore of students and youth across the world.⁷ By 16th March 2020, government of Bangladesh decided to keep all the educational institutions closed.⁸ This COVID pandemic has led to unprecedented levels of disruption to education, affecting over 90% of the world's student population, according to an UNESCO report. As isolation and avoidance of any kind of gathering was the main stay of prevention COVID-19, almost all the countries implemented various kinds of isolation and lockdown strategies.⁹ This quarantine protocol involved education system by closing all kinds of institutions ranging from schools, medical colleges and universities.⁸

To face this reality, various novel teaching methodologies was developed to run the education system. Most commonly used method of classroom teaching was to switch over to

online classes. Since medical education needs interaction between teachers, students and patients it was a challenge to adopt a proper method which will involve all these stakeholders.¹⁰⁻¹²

In Bangladesh, total 112 medical colleges (36 government, 70 nongovernment and 6 medical colleges run by Bangladesh Armed Forces) are assigned to provide the formal Medical education with the aim of making graduates competent under the guidance of Bangladesh Medical & Dental Council (BMDC).¹³ Medical educations differ from others education system in that it involves pre-clinical and clinical teaching to build a strong knowledge foundation and clinical experience for the medical students. Bangladesh government switched on to online education from conventional face-to-face education to all these institutions. As virtual teaching being a new experience, sudden shifting of teaching methodology has imposed challenges to both the faculty and students.¹⁰

Medical education involves pre-clinical (basic science) and clinical teaching to build a strong knowledge foundation and clinical experience for the medical students. During Covid modification of medical curriculum has also been tried like decreasing the basic science curriculum to 12 or 18 months while integrating clinical medicine within this time frame and revisiting the basic sciences later in medical school.¹⁴

A study conducted in Libya by Ahmed Alsoufi et al¹⁵ revealed that 54.1% of the respondents were benefited by means of e-learning. However, only 21.1% agreed that e-learning could be used for clinical aspects, as compared with 54.8% who disagreed with this statement and 24% who were neutral. Only 27.7% of the respondents had participated in online medical educational programs during the COVID-19 pandemic, while 65% reportedly using the internet for participating in study groups and discussions.

At this above back ground, it is important to survey student's perception about this new online classes in preclinical subjects during the long home stay period during the COVID pandemic in the perspective of Bangladesh. Therefore, the purpose of this online opinion survey through questionnaire was to find out various aspects student's acceptability and perception about this new method of exchange knowledge among medical preclinical students of Bangladesh.

Methods

Study design & setting

This qualitative survey, conducted in a non-government medical college from March to December 2021 in Dhaka city.

Study participants

Sixty eight (68) first year medical students, aged 19 to 23 years participated in this survey. Among the participants, 38 were from Bangladesh and the rest (30) were from India & Nepal. And there were 43 female & 25 male students.

Data collection

Data was collected by administering pre-tested questionnaire. A survey questionnaire prepared in Google form focusing the different aspect of distant online learning system on different discipline of phase one (anatomy, biochemistry & physiology). The survey questions were designed in a mixed method style, including dichotomous yes/no or true / false answers. And also contained two open ended question about merits and demerits of online education. The questions for the survey instrument were sent to the students who uploaded the answers into Google forms, the online platform that was chosen to deliver the self-administered survey questionnaire.

Participation in the surveys responses was voluntary and they were allowed to complete the proceedings of survey within 7 days after uploading the questionnaire.

Data analysis

A descriptive method for data analysis was considered. The responses of close ended questions were tabulated and expressed in frequency percentages.

Results

A total 100 students were approached and only 68% participated. A total 68 students participate in the survey (25 male and 43 female (Figure 1) of whom 44% were foreign students from India and Nepal (Figure 2). Majority (84%) students are from high socioeconomic condition and 13% belonged middle socioeconomic condition and only 3% were from low socioeconomic condition (Figure 3). About 79% students used smart phone for online learning system while laptop is used by 19% students and only 1 student used iPod (Figure 4).

Table I and II showed students view regarding online classes. Though majority (75%) agreed that online classes were helpful during this COVID pandemic, but most of them (92.2%) were not optimistic about the success of this online education system for their future medical education. About 80.9% students found difficult to sustain their concentration and attention to follow the online classes. In addition 82.4% students expressed their opinion about demotivation, lack of interest (86.8%) and difficulty to understand (83%). Since this method needs

technical knowledge about internet, majority of the students (82.4%) feel anxious whether they were capable of doing it properly.

In the context of practical classes through online demonstration and histology of anatomy and lab practical classes in physiology and biochemistry, students (94%) were really disappointed and found it was very difficult to follow these classes.

Facilitating factors for teaching learning such as for maintaining the continuation of the topic (83.8%), clarifying doubts (83%), discussion about topics with fellow partners (94%), teacher-student interaction (85.3%) were crucial for medical education often disrupted through online classes. These factors reduced the effectiveness of online education.

In terms of technical aspect, the students expressed difference in their experience. Table III showed that unavailability of internet could hamper online study (76.5%). Many students (50%) had limited access to internet. Heterogeneity of the devices used like smart phone (79.4%), laptop (19.12%) may create a social division among students. There are technical issues like power cut (76.5%), poor network of internet (69.1%) often interrupt the online education. Students from rural parts of Bangladesh and part of India suffered most.

The economic aspect of the COVID-19 also affected the students learning process. Thirteen percent students viewed reduced family income was related to the interruption in their study process.

Table I: Student's perception about online classes: (N=68)

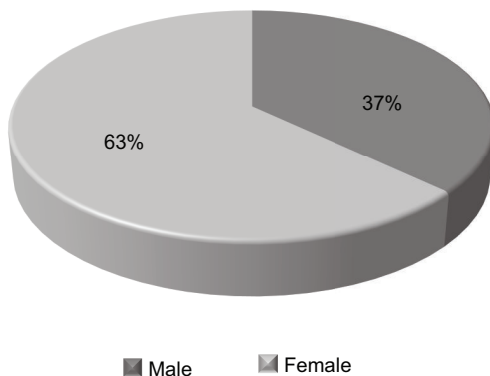
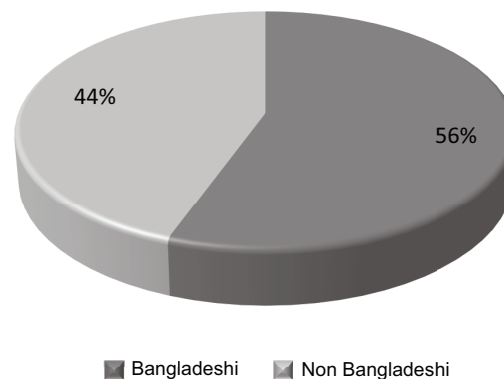
Responses	True n (%)	False n (%)
Students do not take online class seriously	52 (76.5%)	16 (23.5%)
Students make lots of excuses for not attending online class	43 (63.2%)	25 (36.8%)
Students show lack of interest and involvement during online class	56 (82.4%)	12 (17.6%)
Students feel lazy and disinterested during online class	59 (86.8%)	9 (13.2%)
Students get easily distracted and have difficulty in communicating during Online classes	57 (83.8%)	11 (16.2%)
Students feel anxious in online class	56 (82.4%)	12 (17.6%)
Student feels difficulty in following a topic in subsequent classes in online	57 (83.8%)	11 (16.2%)
Student feels difficulty to concentrate during online class	55 (80.9%)	13 (19.1%)

Table II: Student's perception regarding online versus classroom teaching method (N=68)

Responses	Yes	No
	n (%)	n (%)
Do you think online class is helpful during Covid pandemic?	51 (75%)	17 (25%)
Do you feel difficulty to follow online practical classes?	64 (94%)	4 (6%)
Do you think the education you received during Covid adequate for your future?	6 (8.8%)	62 (91.2%)
Do you think the discussion you can't do during Covid with other fellow partners has an impact on your future education in next phase?	64 (94%)	4 (6%)
Does online classroom are more effective from regular class room?	5 (7.4%)	63 (92.6%)
Do online classes are more convenient than traditional classroom method?	12 (17.6%)	56 (82.4%)
Does student feel more comfortable to participate in online class discussion compared to class room method	22 (32.4%)	46 (67.6%)
Does the online class have an impact on student –teacher's interaction?	58 (85.3%)	10 (14.7%)

Table III: Factors related to e-learning (N=68)

Responses	Yes	No
	n (%)	n (%)
Does power supply affect your online learning?	52 (76.5%)	16 (23.5%)
Is internet connection satisfactory?	47 (69.1%)	21 (30.9%)
Is price of internet package affordable?	34 (50%)	34 (50%)
Is online class appearing more expensive than regular classroom?	36 (52.9%)	32 (47.1%)
Do resources from internet enhance your learning ability?	61 (89.7%)	7 (10.3%)
Technical issues disrupt the flow and pace of online class?	47 (68.8%)	21 (31.2%)
Lack of computer skill makes you uncomfortable during online class?	28 (41.2%)	40 (58.8%)
Is Lack of computer skill makes it difficult to use online class effectively?	35 (51.5%)	33 (48.5%)

**Figure 1:** Frequency distribution of male & female participants (n=68)**Figure 2:** Frequency distribution of nationality of the participants (n=68)

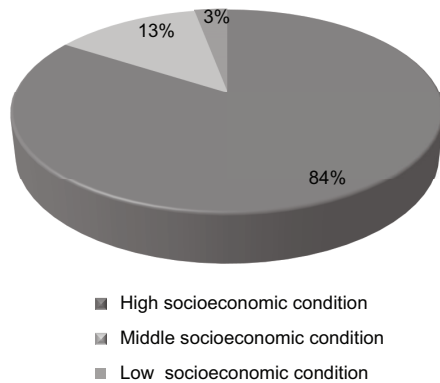


Figure 3: Frequency distribution of Socio-economic condition of the participants (n=68)

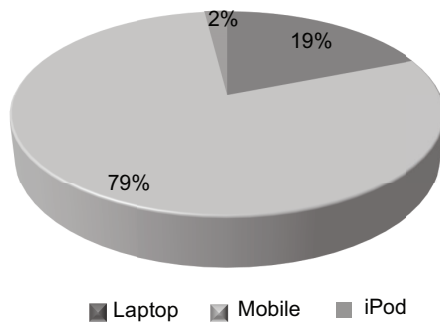


Figure 4: Devices used by participants (N=68)

Discussion

The main purpose of the study is to understand the experience and perception of the students about online learning method. The aim of the study was to observe the impact of COVID-19 on medical education in preclinical subjects in Bangladesh. During pandemic there was a sudden and complete shift of the in person, “face to face” learning to remote learning process. This observational study showed that medical students prefer regular classroom method more than online classes. Face to face learning was considered more effective than online learning in term of interaction, communication, satisfaction and overall quality; similar effect was also shown by other researchers.¹⁶ Proper dissemination of knowledge needs a dialogue which is possible only in physical presence.

Students agreed that although online classroom is time saving and helpful to continue their study during lockdown but they perceived offline class is more effective and structured in medical education. They suffered from lack of interest, de-motivated during online class. Technical issue was also a huge impact on dissatisfaction of students with their online classes. Similar findings also had reported by Yang and Cornelius.¹⁷ It was also observed that students were discontented regarding online education. This dissatisfaction also further discouraged online learning process. Zhang and Perris also reported similar observation.¹⁸

Moreover, due to lockdown, students missed few months of the full academic year of 2020-2021, which further deteriorated their condition. They were scared of year loss and there was additional economic burden on their family. A considerable percentage of students reported about the challenge of internet cost due to financial hardship. In terms of the e-learning platform, these financial and social factors may impose barriers for the development and effective implementation of online learning programs. Similar observation was reported by other researchers.¹⁹ Moreover, most of the students suffered from anxiety and depression due to uncertainty of lockdown, deadly outbreak of COVID-19 and parent’s financial crisis due to lockdown. All these factors cause a profound psychological impact on medical students which agreed others.^{15, 20}

This study also revealed that during online education, teacher-student’s relationship had greatly interrupted. However, this study has many limitations. The selection of participants from a single medical institute may not reflect the scenario of the majority medical students of Bangladesh. The outcome of student’s response provides a general opinion how medical students in Bangladesh view e learning system.

Conclusion

From the result of this study, it can be concluded that, online classes appears to be an alternative way of teaching learning technique during COVID-19 pandemic. But due to various obstacle it appears to be not very effective method for medical education. Technological disadvantages like limited access to internet, poor power supply etc. were few of them. Student's psychological rapport with the teachers is also hampered due to absence of physical communication.

Authorities should improve the internet facilities in every aspect. More studies are needed to explore effectiveness of this method of education. The result may be helpful for future development of e-learning curriculum in medical colleges of Bangladesh.

Conflict of interest

Authors declare no conflict of interest

Ethical approval

This study was approved by ethical committee of Bangladesh Medical College

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