

IMPACT OF COVID-19 ON ACADEMIC PERFORMANCE OF STUDENTS IN THE DISADVANTAGEOUS AGRICULTURAL WETLAND (HAOR) AREAS OF BANGLADESH

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Abstract

The pandemic COVID-19 has adverse impacts in almost every sector, including agriculture and education. As an agricultural country, Bangladesh Govt. have prioritized the livelihood, socio-economic condition, especially the education programs in the *haor* areas. This study aimed to assess the impact of COVID-19 on academic performances of primary to higher secondary students in the haor areas of Netrokona and Sunamganj districts. A total of 620 individuals took part in this study. All the participants thought their academic performance were affected by the COVID-19 pandemic in varying degrees. Half of the respondents had no opportunity to join online learning during school closures due to COVID-19 lockdown. The majority of online learners (61.54%) used software-based online classes, while a significant amount of students (39.74%) watched only government-provided Bangladesh Television (BTV) classes during the lockdown. Numerous problems regarding online learning, like financial crisis, lack of smart gadgets, expensive and slow internet, lack of training etc., were predominantly identified in haor areas. It is recommended that concerned authorities should take initiative to provide study loans, free or cheaper data packages, training to teachers and motivation to students and guardians to overcome the temporary loss of education in haor areas of Bangladesh. The findings of this study might help the educationists and policymakers to implement pandemic recovery programs for rural development in the agricultural region of the country.

Keywords: Academic performance, Education, COVID-19, Haor, Online learning

Introduction

In December 2019, a contagious epidemic caused by a novel coronavirus, popularly known as the COVID-19 pandemic, was initially identified in Wuhan, Hubei Province, China (WHO, 2020). COVID-19 has already wreaked havoc on global healthcare systems and impacted every element of human life (Repon *et al.*, 2021). Already, the flu strain has expanded to over 190 nations (UN, 2020). More than 300 million people have been infected with the COVID-19 virus worldwide, with over 5.5 million people causing death (WHO, 2022).

To protect the national healthcare system from this contagious disease, different governments have taken numerous preventive approaches by restricting social gatherings,

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including closures of all educational institutions (Lal *et al.*, 2021). Bangladesh confirmed the first cases of COVID-19 on 8 March 2020 in the capital city Dhaka (Dutta and Smita, 2020; Emon *et al.*, 2020; Paul *et al.*, 2021). The Government of Bangladesh, like that of most other nations, has chosen to close educational institutions as a precautionary step to prevent the virus from spreading across the country. Since 17 March 2020, the Bangladesh Government has closed all educational institutions and reopened from 12 September 2021 after almost 18 months, one of the world's longest coronavirus closures (Aljazeera, 2021; Li *et al.*, 2020). During writing this manuscript, the government closed all educational institutions countrywide from 22 January 2022 onwards due to the rapid transmission of the new COVID-19 variant (Daily Star, 2022). During closures, students from all over the country were physically detached from educational institutions (Ela *et al.*, 2021). However, the impact of COVID-19 on academic performance and other aspects of life varied on the basis of region, socio-economic condition and availability of modern facilities including digital devices and access of internet (Alam *et al.*, 2020; Li *et al.*, 2020; Paul *et al.*, 2021).

To reduce learning interruptions, the Bangladesh Government rapidly implemented mitigation plans that included the use of online educational paradigms (Shammi *et al.*, 2021). The government started broadcasting classes based on the national curriculum on BTV and internet platforms like Facebook and YouTube (Dutta and Smita, 2020). Though online platform helps continue to study, the system has many negative consequences. Nonetheless, it has detrimental effects on children's academic studies, notably cognitive interruptions and evaluation disruptions, and the impact is worsened for students from low-income families (Hossain, 2021a). As of now, educational establishments shutdown has impacted approximately 1.5 billion students worldwide (UN, 2020). The global shutdown of educational institutions during COVID-19 impacted almost 60% of the world's student population (UNESCO, 2022). Simulated data showed that about 31% of children worldwide could not be reached by digital devices and online platforms (World Bank, 2021). Only about 50% of poor secondary students in Bangladesh have access to a TV-based learning program (Dutta and Smita, 2020).

The vast bowl-shaped wetlands known as Haor areas are situated in the north-eastern region of Bangladesh. There are around 373 Haors in the Sunamganj, Habiganj, Netrokona, Kishoreganj, Sylhet, Maulavibazar, and Brahmanbaria districts (Jakariya and Islam, 2017). Low productivity, flash floods, and other natural disasters, a lack of communication and other infrastructure, and a lack of proper state intervention has resulted in poor socio-economic condition to the people of Haor areas (Kamruzzaman and Shaw, 2018; Kazal *et al.*, 2010). Although the precise figure of inhabitants in Haor regions living below the poverty line is unclear, it is presumed that a significant portion of the population in these places is extremely poor (Kazal *et al.*, 2010). The Haor regions lack suitable educational facilities for children and even adults for livelihood training. Because the Haor areas lack sufficient learning activities for students, literacy rates are very low (Sharma, 2010). Even though COVID-19 has a devastating impact on all aspects of life, the academic performance of students and teachers from vulnerable areas worsens due to the lack of proper facilities (Hossain, 2021a). Because most families live in poverty, virtual learning through reasonably priced devices is usually out of budget for many students. In addition, most school or college teachers do not have enough

technological know-how about digital devices. If the scenario persists, it will be a tremendous setback for many students and teachers across a large part of the state resulting in a socio-economic collapse in these areas.

The relation of COVID-19 to the academic performance of students was investigated in different studies (Marinoni *et al.*, 2020; Repon *et al.*, 2021; Tarkar, 2021). Studies highlighted that students from developing countries including Bangladesh (Dutta and Smita, 2020; Emon *et al.*, 2020), India (Jena, 2020), Pakistan (Mumtaz *et al.*, 2021; Zahra, *et al.*, 2020), Sri Lanka (Rameez *et al.*, 2020), Philippines (Toquero, 2020), and Indonesia (Putri *et al.*, 2020; Rahiem, 2021) experienced significant learning interruption due to COVID-19 interfere. Though there exist a few research papers on COVID-19 impacts on mental health and socio-economic condition (Islam *et al.*, 2020; Khan *et al.*, 2020; Sifat, 2021; Yeasmin *et al.*, 2020), to the best of our knowledge, no research has been done concerning corona pandemic effect on academic performance of students in the underprivileged Haor areas of Bangladesh. Therefore, this study aimed to explore the impact of COVID-19 on the academic performance of primary to higher secondary students (1 to 12 grades) in selected Haor areas of Bangladesh.

Materials and Methods

A draft questionnaire was created, and a preliminary test with 30 students and 10 teachers was conducted to confirm the comprehensiveness of the survey. The purpose of the survey was mentioned at the beginning of supplied papers. The qualitative and quantitative data were collected by providing an offline questionnaire. Students from randomly selected primary school (1-5 grade), secondary school (6-10 grade), and higher secondary school (11-12 grade) from selected upazilas (emphasized on disadvantageous area) of Netrokona and Sunamganj districts were asked to provide information. Data collection covers highly Haor prone upazilas of Netrokona (Kolmkakanda, Barhatta, Mohangonj, Khaliajuri) and Sunamganj (Madhyanagar, Tahirpur, Biswamvarpur, Dharampasha) districts. The data were collected from October to December 2021 by well-trained local data collectors.

Since people from rural areas usually have limited knowledge and access to the internet, we conducted the physical interview maintaining social distance or telephone conversation for primary data collection. Students and teachers from 64 educational institutions (24 primary schools+ 24 secondary schools + 16 higher secondary schools) across the selected upazilas were considered for qualitative and quantitative data collection. After primary data collection, a number of teachers (from three levels: primary, secondary, and higher secondary) from each upazila were interviewed in-depth for cross-checking of qualitative information collected from students.

Data analysis was performed using Microsoft Excel 2016 and IBM SPSS Statistics version 25.0. We applied descriptive statistics to analyze the characteristics of the respondents. The 5-Point Likert Scale (5= greatly affected, considerably affected =4, moderately affected =3, slightly affected=2, and 1= not affected) was used to assess the impact of the pandemic on academic performance, and a 10-Point Likert Scale (1 is the lowest score and 10 is the highest score) was used to assess online education system during lockdown (Mahdy, 2020). In addition to Likert scale questions, information from other close- and open-ended questions was ordered in excel for further analysis.

Results

Socio-demographic characteristics of participants

Six hundred twenty (620) interviews were recorded from eight different disadvantaged Haor prone upazilas of Netrokona and Sunamganj districts of Bangladesh. Among them, 412 (66.45%) were male, 208 (33.55%) were female, 504 (81.29%) were students, and 120 (19.35%) were teachers (Table 1). About 29.68% of the respondents were aged between 5-10 years, 28.39% were aged between 11-15 years, 20.81% were aged between 16-20 years, 5% were aged between 21-34 years, 9.68% were between 35-50 years, and the remaining 6.45% were aged over 50 years. Out of total 620 participants, highest 272 (43.87%) were from secondary schools, whereas primary schools and higher secondary schools comprised of 196 (31.61%) and 152(24.52%), respectively.

Table 1. Socio-demographic profile of participants (N=620)

Variables	Groups	Percentage
Gender	Male	66.45
	Female	33.55
Participants type	Student	81.29
	Teacher	19.35
Age of participants (Years)	5-10	29.68
	11-15	28.39
	16-20	20.81
	21-34	5.00
	35-50	9.68
	Above 50	6.45
Institution level	Primary	31.61
	Secondary	43.87
	Higher secondary	24.52

Assessment of COVID-19 impact on education

This study revealed that the impact of COVID-19 pandemic academic performance varied in different degrees. It was found that more than half of the participants (54.48%, n=340) was greatly affected, whereas the amount of considerably affected, moderately, and slightly affected participants were 38.71% (n=240), 7.10% (n=44), and 1.29% (n=8), respectively (Table 2). Unfortunately, no participant was found in the interview whose academic performance was not affected by the COVID-19. Most importantly, data showed that nearly half of the participants (49.68%, n= 308) had no opportunity to join online learning during the COVID-19 lockdown. However, data showed that overall 50.32% (n=312) participants have participated in online learning.

Table 2. Assessment of the COVID-19 impact on academic performance of participants

Variable	Response	Percentage
The level of impacts of COVID-19 on participants	Greatly affected	54.84
	Considerably affected	38.71
	Moderately affected	7.10
	Slightly affected	1.29
	Not affected	0.00
Participation of online learning during lockdown	Yes	50.32
	No	49.68

Assessment of online education in Haor areas

COVID-19 lockdown has varying degrees of impact on online learning of primary to higher secondary students of Haor areas. Among online learners, smartphone was the highest used device (48%) followed by television (45%), laptop (4%), and personal computer (3%) (Fig.1A). The most followed platform was live online classes (62%), followed by BTV (40%), whereas the least used platform was YouTube (17%) (Fig. 1B). Apart from government-provided BTV classes, Facebook live was the highest (43%) used online learning tool followed by YouTube videos (27%), zoom (17%), Facebook messenger (9%), and Whatsapp (4%), respectively (Fig. 1C). The time spent on online learning ranged between 1 and 4 hours. Out of 312 online learning participants, only about 7.69% spent 4 hours, 35.90% spent 3 hours, 33.33% spent 2 hours, while 24.36% participants spent only 1 hour (Fig. 1D).

The mean assessment score of the online learning was 4.43 ± 1.40 for theory classes and 1.23 ± 0.54 for practical classes. The highest, 34.62% participants were given 5 points to online theory classes, while 19.23% of participants were given 4, and the same amount (2.56%) of participants were given points 2 and 8 on 10 points Likert scale (Fig. 2). Study showed that most of the participants (73.17%) evaluated online practical classes with point 1 out of 10 points, while 19.51% of participants marked 2, and 7.32% of participants marked 3. However, none of the participants has given more than 3 based on 10 points Likert scale.

Identified problems with online learning in Haor areas

- Lack of electronic devices due to economic problems
- Watched BTV classes on neighbor's TV
- Dropout from online class due to slow internet
- Expensive mobile data
- Teachers were not skilled enough to deliver effective online lectures
- Dishonesty (present in online class but doing something else e.g., using social media, playing online games, doing household chores etc.)

- Lack of immediate feedback and group discussion
- Lack of self and guardian motivation
- Very few practical classes were conducted in online
- Load shading
- Monotonous learning

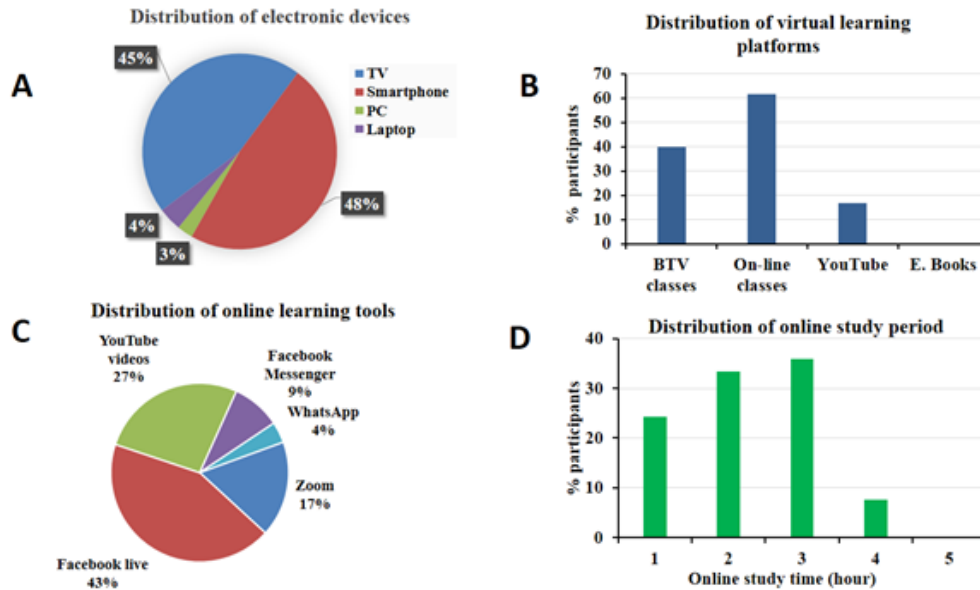


Fig. 1. A. Distribution of electronic devices used by participants for online study; B. Distribution of virtual learning platforms used by participants during COVID-19 lockdown; C. Distribution of online learning tools used by participants during COVID-19 lockdown; D. Distribution of daily online study hours during COVID-19 lockdown

Participants' opinions to improve online education

Participants' suggestions for the improvement of online education were collected and summarized carefully. The listed points were also cross-checked with in-depth interviewees. The most frequent suggestions are listed below:

- Provide electronic devices from government/ institution
- Provide need-based student grants
- Free/low-cost internet packages
- Training to teachers
- Motivate self-paced studies such as uploading recorded videos and other study materials on an easily accessible online site

- Provide shortened syllabus
- Student and guardian counseling
- Class assessment by online quizzes, such as google form
- Animated video for practical lessons
- Online group discussion

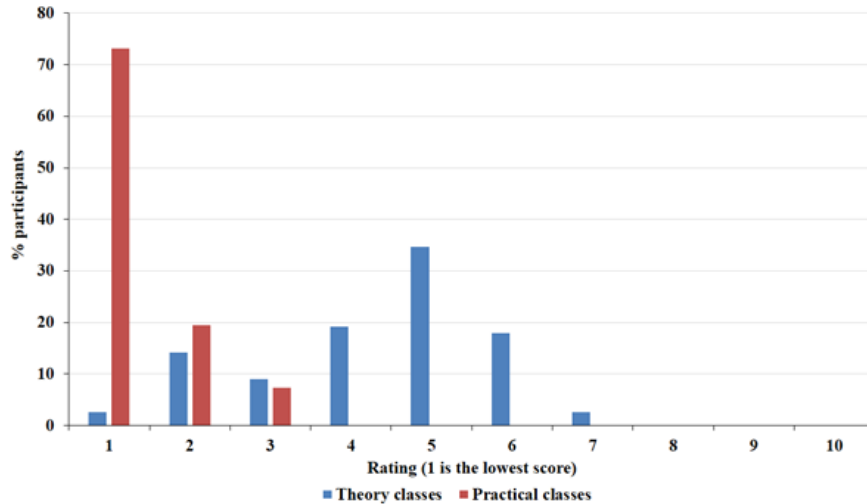


Fig. 2. Evaluation of online education system during COVID-19 lockdown by participants

Discussion

The novel coronavirus, first discovered in Wuhan, China, was quickly spreading in China and throughout the world. COVID-19 has impacted the teaching-learning process from kindergarten to university levels in Bangladesh, as it has in other countries. Many social distancing measures implemented by the state's authorities to prevent the disease's spread, such as the closing of educational establishments and the transition to online education, have substantially impacted the education sector. The government of Bangladesh has taken several steps to ensure non-disrupted education throughout the epidemic (Li *et al.*, 2020). The influence of the COVID-19 pandemic on the academic performance of the learners from disadvantaged wetland (locally known as Haor) communities was underlined in this research.

This study collected total of 620 responses of which 66.45% were male and 33.55% female. The majority of the participants were students (81.29%), whereas primary, secondary, and higher secondary school comprised of 31.61%, 43.87%, and 24.52%, respectively. This study revealed that almost all respondents were affected by the covid-19 pandemic in different degrees, while 54.84% believed this pandemic greatly affected their academic performances. This finding aligned with previous studies (Ela *et*

al., 2021; Emon *et al.*, 2020; Khan *et al.*, 2020; Li *et al.*, 2020; Sifat, 2021) which revealed that Covid-19 had a great influence on the education from primary to tertiary level in Bangladesh. Our study showed that about 49.68% did not attend online learning. According to a previous study (Li *et al.*, 2020), about 46% of students from disadvantaged areas had no access to online study. A slightly higher figure in our study might be due to geographical variation and poor socio-economic conditions.

The most frequent answers regarding online education problems are lack of digital devices, very slow internet speed, cost of internet, lack of training, frequent power cut, lack of guardian motivation, hostile family environment, and financial crisis. According to many participants, poverty due to COVID-19 hit increased in their families drastically affecting their livelihoods, mental and physical health and education. Previous studies reported that COVID-19 has increased poverty in disadvantaged areas impacting all aspects of human life (Hossain, 2021b; Kabir *et al.*, 2021; Li *et al.*, 2020; Mottaleb *et al.*, 2020). As COVID-19 decreased guardian's income, they could not provide smart gadgets to their children. Moreover, regularly buying internet packages was an unbearable burden to many parents. Internet speed is slowest in disadvantaged Haor areas of Bangladesh (Emon *et al.*, 2020). A recent study showed that Bangladesh has the slowest internet (7.8Mbps) speed among 42 countries, whereas the highest internet speed was recorded in Canada (63 Mbps) (Emon *et al.*, 2020). Many participants acknowledged their lack of digital devices for online learning. Many participants said that their teachers were not trained enough to conduct smooth online classes even though they had smart devices. From in-depth interviews of teachers, it was known that female students in Haor areas were in more stress as they were continuously pressurized to get married. In addition to child marriage, child labor also increased alarmingly as many families were compelled to send their children to child labor. Participants also said they felt drowsy and less motivated due to less feedback during online classes. Moreover, the family environment was not favorable for online classes in many participants. Participants said they experienced severe interference by children and elderly family members as it was very difficult to convince them.

To overcome online learning-related problems in Haor areas, it is suggested to make appropriate plans and strategies. Government should provide financial support and education loans for students. It is highly recommended to take the necessary steps to reduce load shedding, improve internet speed, provide free or cheaper data packages, train teachers, and provide proper guardian counseling. However, the Government, Ministry of Education, different national and international agencies and local communities must come forward to reduce the COVID-19 derived problems associated with online learning. The Ministry of Education should provide helping hands to those in vulnerable situations. Moreover, school teachers and family members have to play a vital role in motivating students for online study. Mass awareness must be assured to save the education system in Haor areas; otherwise, the system might be ruined in the near future.

Conclusion

This study outlined the impacts of the COVID-19 pandemic on online learning to primary to higher secondary school level students of Haor areas of Bangladesh. COVID-19 lockdown affected different participants in varying degrees. A significant amount of students had no opportunity to join online learning during COVID-19 lockdown. Online learning of students from Haor areas had faced several problems, including lack of digital devices, high internet price but low speed, lack of skills, lack of motivation, etc. It was recommended to provide financial supports to students, training to teachers, and ensure internet facilities to facilitate online learning. The findings of this study would help educationists and concerned authorities to take necessary steps to overcome the loss of education in Haor areas of Bangladesh.

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