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Impact of COVID-19 on Higher Education System: University Student's Perspective

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ARTICLE INFO	ABSTRACT

Using a qualitative research approach, the current analysis aimed to investigate the COVID-19 pandemic's effect on Bangladesh's higher education from the viewpoint of students. The report comprises a survey of 300 students from higher education institutions. The Convenience sampling method is used to pick fifty university students for the study to collect enough data to answer the test query. They were students from Bangladesh's eight universities (five public universities and three private universities) and three other universities. The pandemic of COVID-19 has wreaked havoc on all facets of human life, including education. It has culminated in learning experiences that have never been seen before. Many schools and universities have shut their doors and moved their teaching and learning to the internet. This study found that there has an effect of COVID-19 on the higher education system in Bangladesh. Both the government and private universities are required to work together to resolve the academic delays as fast as possible, such as the closing of educational schools and the transition to online schooling, which have a serious impact on the education sector and students' lives. This is the first study of Bangladesh. This study tries to find out the problem of education systems and solving the problem of Bangladesh which will be a great effect on the education system of Bangladesh and the economy.

1. Introduction

The COVID-19 pandemic has become the world's worst fear in 2020. COVID-19 disease outbreaks were first detected in Wuhan, Hubei Province, China in December 2019 [a]. COVID-19 has now wreaked havoc on global healthcare services and impacted every part of human life. Breathing secretions and other organs such as the hands, nose, and mouth will transmit this virus from one person to the next. On March 8, 2020, the first COVID-19 outbreak was discovered in Bangladesh, and on March 26, 2020, the Bangladesh government announced a national lockdown after 17 days. Unlike several other countries, such as India and Pakistan, this lockdown was announced well in advance in the hopes of preventing the infection from spreading [o]. Many policymakers have stressed taking some extraordinary prevention steps, such as improving health centers, closing educational schools, workplaces, stores, restaurants, libraries, and movie theaters, prohibiting social events, closing borders, and imposing travel bans, to reduce the transmission of the disease infection. Education, housing, manufacturing, travel, and other sectors are also affected by these social

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exclusionary policies [3, 4, 19, 24, 25].

After March 17, 2020, Bangladesh's educational institutions have all been closed. To retain social distance, students from primary to tertiary levels are forced to sit at home rather than attend classes in educational institutions. According to various news outlets, Bangladesh has about 30 million students in all types of institutions and close to a million teachers and education staff. Closing educational institutions have previously been shown to be a successful tactic for disrupting the pandemic's vital communication chain [10, 12, 21, 27]. Nonetheless, it has adverse effects on students' academic studies, such as learning disruptions and assessment disruptions, and the effect is exacerbated for students from marginalized communities [b]. The global shutdown of schools, colleges, universities, and other educational facilities for the COVID-19, according to [c], has a negative effect across over 60% of the world's student population. Such extended closures are not only impacting these students' academic careers, but they are also damaging their mental health [16]. The pandemic had a profound impact on higher education students' social lives, as they couldn't catch up with their peers and family [7] monetary conditions, as they lost part-time work, mental health, as they experienced increased anger, anxiety, and dissatisfaction and academic life as they were concerned about their future schooling and career [6]. The government requested that Universities, both public and private maintain their education by online classes and begin their academic activities online on April 30, 2020. According to the University Grants Commission, the number of students studying in higher education in the country is roughly 4.1 million (UGC). There are about 0.3 million students in 44 public universities and 0.4 million students in 103 private universities. A large number of students, almost 3.4 million, are pursuing higher education at National University's multiple colleges. According to the UGC regulations, 63 private universities and 7 public universities are now undertaking online research operations. For certain people, distance-learning or online learning has become a beneficial step during this global pandemic crisis. Owing to the lack of internet access in rural and underprivileged communities, the percentage of unmet student demand has increased to some extent. Different groups of students have limited access to educational opportunities, which creates obstacles to their success. While there are several types of opportunities for using information services in the digital model of education, not all students have easy access to the internet and other instructional materials. As a result, the online learning process affects a country's student's cumulative outcomes.

To combat this situation in Bangladesh in the long run, we need to concentrate more on handling the post-Covid-19 Bangladesh by ensuring that the learning process continues smoothly. Different modes of learning and complementary learning systems, along with effective student population participation, can be a fantastic solution for Bangladesh's educational sector. To determine the educational disturbances caused by COVID-19, longitudinal evidence on the impact of COVID-19 on the higher education sector in Bangladesh and its students is urgently required. As a result, the current study sought to investigate the effect of COVID-19 on higher education in Bangladesh from the perspective of university students.

Using a qualitative research approach, the current analysis aimed to investigate the COVID-19 pandemic's effect on Bangladesh's higher education from the viewpoint of students. The pandemic of Covid-19 has wreaked havoc on all facets of human life, including education. It has culminated in learning experiences that have never been seen before. Many schools and universities have shut their doors and moved their teaching and learning to the internet. This study found that there has an effect of COVID-19 on the higher education system in Bangladesh [20].

The remaining sections of this study are the following: 2. the education system in Bangladesh, 3. Literature review, 4. Research Methodology, 5. Result Discussion, 6. the suggestion of the improvement of the quality of education system in Bangladesh, 7. Policy implications, 8. Limitations of the study and 9. Conclusion.

2. The education system in Bangladesh

During the British rule in Bangladesh, the educational system's plans were drawn. There are three tiers of schooling in the system: basic, intermediate, and higher education. While both primary and secondary education is needed, universal enrollment has remained more of an aspiration than a reality. Primary education is eight years long, and secondary education is four years long. Secondary education is split into two levels: a lower level and a higher level, with public exams at the end of each level [d]. In general, schools in cities and towns are more maintained and funded than those in rural areas. Hundreds of colleges exist, the majority of which are aligned with one of the larger universities, such as the University of Dhaka (1921), the University of Rajshahi (1953), and others. Several medical colleges and a postgraduate medical institute in Dhaka offer medical education. A full-fledged hospital is attached to each college or institute [n].

Regardless of their family's financial situation, German public education requires qualifying students to continue

their education up to the university level. In Germany, the whole educational system is open [e]. There is none in my Golden Bengal. Children from low-income households are unable to attend school. In my point of view, Bangladesh's administration should ensure that everyone, regardless of social or economic status, has access to the same educational opportunities. The entire school system must be free, just as it is in Germany, and funded by the taxpayer.

2. (A) Socio-demographic comparison between Bangladesh and Japan

The Density [+] of Bangladesh is 1,104 and the Density [+] of Japan is 334, the Population of Bangladesh and Japan is respectively 163,046,161 and 126,190,000 (2019). As of 2020, the average life expectancy in Bangladesh is 74 years (72 years for males, 76 years for women). As of 2020, that quantity in Japan is 86 years (83 years for men, 90 years for women). As of 2020, there are roughly 18.1 infants per 1,000 inhabitants in Bangladesh [j]. As of 2020, there are 7.3 infants per 1,000 inhabitants in Japan. As of 2013, around 76 percent of Bangladesh's population have access to electricity. As of 2016, 100 percent of the Japanese people did. As of 2018, roughly 15.0 percent of Bangladesh's population have access to the internet. As of 2018, roughly 84.6 percent of Japanese people do. As of 2018, Bangladesh invests 2.0% of its total GDP on education. As of 2016, Japan spent 3.5 percent of its entire GDP on education [h].

2. (B) Economic comparison between Bangladesh and Japan

Bangladesh has a GDP per capita of $4,200 in 2017, but Japan has a GDP per capita of $42,900. In 2017, 4.4 percent of adults in Bangladesh were jobless. As of 2017, the figure in Japan was 2.9 percent. As of 2016, 24.3 percent of Bangladeshis were living in poverty. In Japan, however, the percentage is 16.1% as of 2013. As of 2016, Bangladesh's highest tax rate was 30.0 percent. As of 2016, Japan's highest tax rate is 56.0 percent. In Bangladesh, youth unemployment rate is 12.8% and in Japan, 3.6% [i].

2. (C) Cultural comparison between Bangladesh and Japan

Japan's culture has been impacted by its neighbors. In Asia, Japanese music has the greatest market. In Japan, there are two main types of music: Japanese Pop and traditional music. Painting, sculpture, Ukiyo-e (floating world prints), and Ikebana are examples of Japanese visual arts (Japanese flower arrangement) [k].

Bangladesh's culture has been affected by its surroundings. Photography, painting, architecture, folk art, modern art, and sculpture are the most popular forms of art in Bangladesh. Playacting, dancing, and singing are among Bangladesh's performing arts. Bengali dancing is frequently performed to tell a narrative from the past, with dancers wearing heavy make-up and sarees [l].

2.1 Differences between Bangladeshi and Japanese educational system

2.1 (i) Economic difference

Bangladesh devotes barely 2% of its GDP to education, and as a result, it is unable to adequately support its programs and policies. According to the 2015 Education at a Glance report, state spending on education in Japan was 3.5 percent of GDP. According to 2017, Germany spent 4.9% of its GDP to education, Australia spent 5.1% of its GDP, and Canada spend 5.3% of its GDP (2011). France spent 5.5% of its GDP (2017). Malaysia spent 4.2% of its GDP (2019) [q]. In 2021-22 Budget of Bangladesh, TK 94,778 crore have been allocated in the field of education sector [w].

2.1 (ii) Socio-cultural difference

Another distinction between the two nations' educational systems is the relevancy of the quality delivered. Curriculum serves as a link between the educational system and public-sector social and political events. Japan has systems that examine the curriculum on a regular basis, therefore the educational system is typically up to date. Bangladeshi curriculum plans, on the other hand, are not evaluated on a regular basis; as a result, the education system is disconnected from current events in the country [5].

Bangladesh's education system lacks an effective employment program for school personnel due to a poor human resource system [8]. As a result of this flaw, the educational system suffers. Japan, on the other hand, has a strong human resource system, with merit-based hiring. Higher-quality education results from a labor system that hires people based on their qualifications [22].

Bangladesh's colleges do not fulfill international standards for educational institutions. Japan's colleges and universities, on the other hand, are supervised by worldwide educational standards. The regulations that regulate the behavior of teachers and the school employees in Bangladesh are not sufficiently defined. Furthermore, the regulating organizations that are in charge of supervising teacher behavior are inactive. This

flaw permits instructors to engage in unethical activity, such as absence [15]. The Japanese government, on the other hand, has very strong laws about teacher behavior. As a result of this element, absenteeism is quite low, and students get a lot of value for their time in class.

The Bangladeshi educational system believes that students should pursue an education primarily dependent on the country's cultural and religious values resulting in the formation of socially responsible individuals [14]. The Japanese education system, on the other hand, is centered on current global events. Students, for example, get experience in the construction of IT systems as well as the application of technical knowledge in the production and industrial sectors, among other things.

2.1 (iii) Demographic difference

Japanese kids attend school for 240 days each year, 60 days longer than their American counterparts [18]. On weekdays, the average school day is 6 hours long. Drills and other assignments keep students occupied beyond school hours. All pupils finish primary school, more than 90% graduate from high school, and 40% complete college. But in Bangladesh, The poor performance of children in primary school is also a source of concern. The number of students dropping out of school and repeating grades is significant. Low levels of learning accomplishment are caused by poor attendance and a lack of interaction time in school [m]. Education is becoming increasingly expensive, and many students are unable to pay it. According to one survey, 15.5 percent of primary school teachers are absent. That is why less than 70% students are unable to complete the primary level. Bangladeshi kids attend school almost for 228 days each year, less than 12 days than Japanese kids and the average school day is 8 hours long and less than 10% of the students completing higher secondary education [u].

All educational institutions in Bangladesh are closed from 16 March 2020 to 6 June 2021 due to COVID-19 pandemic. In Japan, on February 27, 2020, Abe proposed that all elementary, junior, and senior high schools nationwide close from March 2 through the conclusion of their spring holidays, which usually expire in early April, forcing many students to study at home. A government panel modified the recommendations on Wednesday, dividing Japan into three categories: regions where illnesses are spreading, regions where illnesses have been proven, and places where no illnesses have been verified, enabling schools to reopen in the latter two [p]. But in Bangladesh, all types of educational institutions are still (14 June, 2021) closed even though Corona virus is increasing at decreasing rate.

According to Global Teacher Status Index 2018, the top five countries are China (100), Malaysia (93.3), Taiwan(70.2), Russia (65), and Indonesia (62.1) where the teachers are valued most. At the bottom of the scale are Argentina (23.6), Ghana (18.9), Italy (13.6), and Brazil (1) where the teachers are valued least. The United States was 16th with a ranking of 39.7 [s]. Switzerland and Germany have the highest wages, while Latin America and Africa have the lowest. Surprisingly, teachers in the United States believe their profession has a lesser standing than the general community. In China, India, Ghana, and Malaysia, more than half of parents give "positive support," compared to fewer than 8% in Russia. Despite the fact that Americans believe teachers are underpaid, 42% of parents in the United States would urge their children to pursue a career as a teacher [r]. But In Bangladesh, Private teachers get one time scale in their lifetime, while government employees get three while private school teachers play a key role in secondary education and teachers do not get equal respect for their profession. There are various types of reasons for the low quality of teaching profession in Bangladesh:

(a) Most meritorious student in this country do not usually come to teaching.

(b) At the top of their list of preferences are administration, foreign affairs, taxes etc.

(c) They think that their merits in this profession are not properly evaluated [u].

But maximum international schools are doing great for the teachers than others [t].

But now is the moment for all of us to focus on this issue. The topic of quality education is ranked fourth in the United Nations Global Development Framework 2030, or Sustainable Development Goals (SDGs), which indicates that increasing the quality of teachers, as in other nations where teachers are highly valued, is a requirement for quality education. Without any question, in order to improve teacher quality, the subject of their social and economic dignity must be given equal consideration; otherwise, the targeted aim will never be achieved [v].

Bangladesh is short on scientists and engineers. More people who work in industries are needed in the region [g]. Via enthralling appropriate phases, all departments and universities will improve their appearance and standing in the country and worldwide. Collaboration with other universities for interactions, consulting, case study competitions, pharmaceutical or industry carnivals, and combined study plans should be welcomed. Strategic management based on vision, purpose, aim, and goal-driven delivery should be planned for the national educational context [f].

2.2 Some of the main factors behind our failure to provide quality education:

Three major shortcomings are similar to all of our educational institutions. First is the standard of teachers. Every year, thousands of teachers are hired and sent to classrooms without any preparation. In most other nations, this does not occur. Some government school teachers work in Dhaka solely to find a job. Although private schools are not always good, they are usually the best in countries with excellent educational institutions.

The second issue is institutional governance. At the primary level, maybe not so much, but certainly at the secondary and higher levels. The financial community and government forces are rapidly taking over school management committees. Few members of the political elite are ever involved in enhancing educational standards, even after becoming decision-makers in educational institutions. But for a few, the majority of them are there for personal reasons and financial gain.

Infrastructure comes in third. Thousands of calls for school repairs are sent each year. Many of these are often overlooked. Ministers and lawmakers sometimes come forward and blame it on greed, which is partially true.

3. Literature review

Jena, P. K. (2020), in his article "Impact of Covid-19 on higher education in India" focused that In India, approximately 32 crore students were unable to move schools or universities, and all educational operations were halted. Despite these obstacles, HEIs (Higher Education Institutions) often react positively and have been able to maintain teaching-learning, science, and societal service with the help of certain methods and techniques during the pandemic [17].

Emon, E. K. H., Alif, A. R., & Islam, M. S. (2020), in their article "Impact of COVID-19 on the Institutional Education System and its Associated Students in Bangladesh" differs from the article of "Pravat Kumar Jena (2020)", because they point out that The most immediate effect of the Covid-19 on Bangladeshi students is a reduction in learning opportunities, as well as a variety of other factors. Despite the government's best efforts, COVID-19 is harming Bangladeshi students for a variety of factors [13].

Ahmed, I., Bhuiyan, M. E. M., Helal, M. S. A., Banik, N., Ahmed, I., Bhuiyan, M. E. M., ... & Banik, N. (2020), in their article "Hybrid Instruction: Post COVID-19 Solution for Higher Education in Bangladesh" differs from the article of "Pravat Kumar Jena (2020)", because this article points out that the abrupt closing of sine die has brought the method of teaching and studying process to a halt, resulting in a significant setback for the educational system. Conducting courses electronically will easily compensate for this deficit. As a result, hybrid teaching must be used for teachers and students to retain mutual isolation while continuing to engage in instructional practices [1].

Upoalkpajor, J. L. N., & Upoalkpajor, C. B. (2020), in their article "The impact of COVID-19 on education in Ghana" shows that comparison from the previous article of "Pravat Kumar Jena (2020)", this paper completely shows that the negative impact of COVID-19 on education in Ghana. As a result, schools are seeking funding to help them recover from the educational losses caused by the outbreak [26]. And similarly, Owusu-Fordjour, C., Koomson, C. K., & Hanson, D. (2020), in their article "The impact of Covid-19 on the learning-the perspective of the Ghanaian student" shows the same result. That means a negative impact on education. Since most Ghanaian students have insufficient access to the internet and lack technical knowledge of these technological devices, the e-learning systems that have been implemented pose a threat to the majority of students [23]. Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020), in their report "Impacts of the COVID-19 pandemic on the life of higher education students: A global perspective" defines that teaching staff and university public relations provided the most vital service to students at the university during the pandemic. Students, on the other hand, we're unable to accept a higher level of success when transitioning to the 'new standard,' namely, distance education, due to a shortage of computing knowledge and the impression of a higher workload [2]. Dutta, S., & Smita, M. K. (2020), in their paper "The impact of COVID-19 pandemic on tertiary education in Bangladesh: students' perspectives" differs from previous articles because it nicely points out that numerous, previously unheard-of changes in students' studying, as well as a drop in enthusiasm and research hours, have resulted in several of the physical, psychological, and financial issues relating to academic studies. As COVID-19 continues, the study results on online education, such as the lack of electronic devices, restricted internet connectivity, high internet costs, low internet speed, and challenges in using online platforms, have offered useful insights into the current state of online higher education in Bangladesh [11].

4. Research Methodology

This segment consists of the following sections: 4.1 Study Area and Sampling Method, 4.2 Sample size, 4.3

Research Instruments, 4.4 Materials and Model, 4.5 Research Model and 4.6 Hypothesis.

4.1 Study Area and Sampling Method:

Students of higher education who were at least 18 years old were the target demographic. The Convenience sampling method is used to attract respondents in the target demographics. To obtain information from the target sample, the researcher uses Google Forms to produce the questionnaire, which was then circulated using email and social media platforms.

4.2 Sample size:

The report comprises a survey of 300 students from higher education institutions. The Convenience sampling method is used to pick fifty university students for the study to collect enough data to answer the test query. They were students from Bangladesh's eight universities and three other institutions, including five public universities and three private universities.

4.3 Research Instruments:

The information was gathered using a web-based structured questionnaire that included 34 mostly closed-ended questions about socio-demographic, other characteristics, as well as various facets and elements of student life in university education, such as educational online work and life, social life, mental life, personal situations, habit reform, institutional responsibilities and initiatives, and personal thoughts on COVID-19. Originally, the questionnaire was split into four parts. The first part defines the socio-demographic and academic characteristics of the students. The second part defines the mental condition of the students. The third part defines the learning condition of the university students and finally, the fourth part defines the economic condition. The data was collected from 10 March to 25 March 2021.IBM Statistical Package for Social Science (SPSS) has been used for systematic analyzes of the collected results.

4.4 Materials and Model:

The research model (Figure 1) used in this analysis contains frameworks that have shown support in the literature and are based on a body of research conducted in different countries in this field.
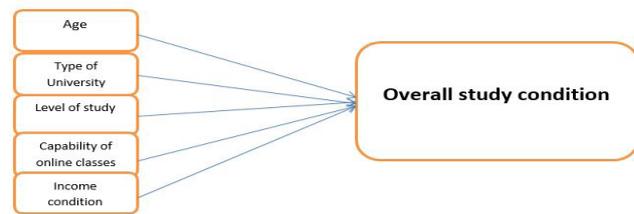

Figure1. Proposed Research Model

4.5 Research Model:

The block diagram of the research model above shows the relationship between the dependent and independent variables. Overall study condition is the Categorical dependent variable in this research which expresses the student's academic performance during COVID-19. Meanwhile, the Qualitative or Categorical independent variables in this research are H1 (Age in the year), H2 (Type of University), H3 (Level of study), H4 (Capability of online classes), H5 (Income condition). The independent variables are believed to be the variables that influence the dependent variable in either a positive or a negative way. The research that is conducted is split into various parts for the detailed outlook. Firstly, the author can test Multinomial logistic regression test statistic [9] by using Model fitting information, Test of Goodness of Fit, Pseudo R square test, Likelihood ratio test, and finally Parameter estimate test on the sample profile for analysis. Then a detailed debate on the processing of study results will be studied. As part of the research, a hypothesis test is established.

4.6 Hypothesis

The following hypotheses were developed from the proposed research model:

Null (H_0): There is no effect of Age (in the year) on the Overall study condition.

Alternative (H_1): There is an effect of Age (in the year) on the Overall study condition.

Null (H_0): There is no effect of the Level of study on the Overall study condition.

Alternative (H_2): There is an effect of the Level of study on the Overall study condition.

Null (H_0): There is no effect of Type of University on the Overall study condition.

Alternative (H_3): There is an effect of Type of university on Overall study condition.

Null (H_0): There is no effect of the Capability of online classes on the Overall study condition.

Alternative (H_4): There is an effect of the Capability of online classes on Overall study conditions.

Null (H$_0$): There is no effect of Income condition on the Overall study condition.

Alternative (H$_5$): There is an effect of Income condition on Overall study condition.

5. Result Discussion

The Chi-square statistic was used to test the model's fitness (table 1). The p-value is less than 0.05, and the Chi-square is 231.538. This demonstrates that the dependent variable and independent variables in the final model have a significant relationship.

Table 1. Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	572.471			
Final	340.933	231.538	72	.000

Table 2. Goodness-of-Fit

	Chi-Square	Df	Sig.
Pearson	454.298	428	.183
Deviance	279.226	428	1.000

The Pearson (454.298) and Deviance (279.226) statistics prove that the model is fit. The test is not statistically significant because the p-value is greater than 0.05 (table 1).

Table 3. Pseudo R-Square

Cox and Snell	.538
Nagelkerke	.595
McFadden	.330

Cox and Snell (0.538), Nagelkerke (0.595), and McFadden (0.330) are the Pseudo R-Square scales. Table 3 describes 33 percent to 59.5 percent of the variation and reflects results of meaningful scale.

Table 4. Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	340.933[a]	.000	0	.
H1	383.225	42.292	16	.000
H2	368.166	27.233	8	.001
H3	377.974	37.041	16	.002
H4	387.910[b]	46.977	16	.000
H5	399.771	58.839	16	.000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

b. Unexpected singularities in the Hessian matrix are encountered. This indicates that either some predictor variables should be excluded or some categories should be merged.

The Likelihood ratio test in table 4 establishes that the respondents' predictor variables like H1= Age (in the year), H2= Type of university, H3= Level of study, H4= Capability of online classes, H5= Income condition of the respondents are significant, indicating that these variables have a major impact on the final model. This study rejected all null hypotheses. So, this study accepted all alternative hypotheses.

The ordinal order of H1= Age (in year), less than 20 = 0 and Between 20 and 23 = 1, Between 24 and 27 = 3, Between 28 and 31 = 4, Above 31= 5 the comparison will be made to less than 20. The first portion of the table 5 has the outcome of "Good study condition" compared to "same as before study condition" – Between 20 and 23 = 1 compared to less than 20 = 0 are less likely to be "Good study condition", p=0.021, Between 24 and 27 = 3 compared to less than 20 = 0 are less likely to be "Good study condition", p=0.067, Between 28 and 31 = 4 compared to less than 20 = 0 are more likely to be "Good study condition", p=0.652, Above 31 = 5 compared to less than 20 = 0 are more likely to be "Good study condition". Now, we can say that the person who is less than 20 is more biased to be "Good study condition", p=0.310. Similarly, the outcome of ''very good study condition'' compared to same as before condition, all categories of age compared to benchmark category and also benchmark

Table 5. Parameter Estimates

Study Conditions	Good		Very good		Bad		Very bad	
	B	Sig.	B	Sig.	B	Sig.	B	Sig.
Intercept	.177	.939	-16.663	.995	-1.155	.610	-.267	.903
[H1=0]	3.251	.310	-7.085	.106	3.216	.277	-.475	.872
[H1=1]	7.079	.021	-6.208	.177	5.723	.051	4.299	.133
[H1=3]	4.943	.067	-2.557	.477	5.128	.053	3.443	.176
[H1=4]	-.744	.652	-21.754	.995	1.347	.451	-.981	.539
[H1=5]	0b	.	0b	.	0b	.	0b	.
[H2=0]	.650	.693	-.667	.777	1.227	.451	1.623	.328
[H2=1]	-3.486	.003	.596	.650	.212	.824	-.269	.790
[H2=2]	0b	.	0b	.	0b	.	0b	.
[H3=0]	-2.959	.243	2.421	.456	-2.035	.371	-.746	.750
[H3=1]	-5.441	.029	4.213	.245	-3.462	.117	-3.439	.134
[H3=2]	-5.137	.056	1.064	.736	-2.879	.217	-2.705	.255
[H3=3]	-3.179	.104	-1.025	.647	-1.800	.305	-3.100	.086
[H3=4]	0b	.	0b	.	0b	.	0b	.
[H4=0]	.730	.604	3.581	.073	-2.365	.136	.247	.872
[H4=1]	20.217	.994	23.330	.993	19.986	.994	21.778	.993
[H4=2]	-.342	.797	2.254	.189	1.125	.291	2.117	.085
[H4=3]	1.067	.452	1.392	.462	1.141	.337	2.605	.050
[H4=4]	0b	.	0b	.	0b	.	0b	.
[H5=0]	-.808	.641	20.007	.993	-.129	.922	-.190	.889
[H5=1]	-.916	.452	15.777	.995	-.517	.568	-1.549	.104
[H5=2]	18.522	.998	38.825	.996	18.435	.998	17.093	.998
[H5=3]	-.687	.628	-7.541	.	-3.347	.008	-3.581	.007
[H5=4]	0b	.	0b	.	0b	.	0b	.

a. The reference category is the same as before.

b. This parameter is set to zero because it is redundant.

c. Floating-point overflow occurred while computing this statistic. Its value is therefore set to system missing.

category are insignificant. The outcome of "Bad study condition", age categories (H1=1, 3) compared to benchmark are significant but others are non-significant. Outcome of "Very bad study condition", all categories of age compared to benchmark category and also benchmark category are insignificant.

The Nominal order of H2= Type of University, Other institution= 0 and Public University=1, Private university=2 the comparison will be made to other institution. The first portion of the table 5 has the outcome of "Good study condition" compared to "same as before study condition". Public university and private university compared to other institution are less likely and more likely to be "Good study condition" respectively, p=0.003. Now, we can say that the person who studies in other institution are more biased to be "Good study condition", p=0.693. Similarly, the outcome of ''very good study condition'' compared to same as before condition, all categories of H2 compared to benchmark category and also benchmark category are insignificant. The outcome of "Bad study condition", all H2 categories compared to benchmark is insignificant. The outcome of "Very bad study condition", all categories of this variable compared to benchmark category and also benchmark category are insignificant.

The Nominal order of H3 =Level of study, Master's degree or equivalent= 0, Benchmark category. The first portion of table 5 has the outcome of "Good study condition" compared to "same as before study condition" –1st year, 2nd year compared to other institution are less likely to be "Good study condition" respectively, p<0.05 but 2nd year and 3rd year are more likely. Now, we can say that the person who studies in other institution are more biased to be "Good study condition", p=0.243. Similarly, the outcome of ''very good study condition'' compared to the same as before condition, all categories of H3 compared to benchmark category and also benchmark category are insignificant. The outcome of "Bad study condition", all categories of H3 compared to benchmark is insignificant. The outcome of "Very bad study condition", H3 categories of age compared to benchmark category and also benchmark category are insignificant without (H3= 3) category, it is significant.

The Nominal order of H4 = Capability of online classes, above 52% = 0, Benchmark category. The first portion of the table 5 has the outcome of "Good study condition" compared to "same as before study condition" – less than 20%, between 20 and 30%, between 31 and 41%, between 42 and 52% compared to benchmark category are more likely to be "Good study condition" respectively, p>0.05. And benchmark category is more

biased to be "Good study condition". Similarly, the outcome of ''very good study condition'' compared to same as before condition, all categories of H4 compared to benchmark category are insignificant, but benchmark category is significant. The outcome of ''Bad study condition'', all H4 categories compared to benchmark are insignificant and also benchmark category. Outcome of "Very bad study condition", categories of this variable (H4=2, 3) compared to benchmark category is significant but others are non-significant, and benchmark category is insignificant.

The Nominal order of H5 =Income condition, Not applicable= 0, Benchmark category. The first portion of the table 5 has the outcome of "Good study condition" compared to "same as before study condition" – income decreased from before, increased from before, same as before, much less than before compared to benchmark category are more likely to be "Good study condition" respectively, p>0.05. And benchmark category is more biased to be "Good study condition". Similarly, the outcome of ''very good study condition'' compared to same as before condition, all categories of H5 compared to benchmark category and also benchmark category are insignificant. The outcome of "Bad study condition", H5 categories compared to benchmark are insignificant but only one category (H5=3) is significant. Outcome of "Very bad study condition", categories of this variable compared to benchmark category and also benchmark category are insignificant but only one category (H5=3) is significant.

6. Suggestion of the improvement of the quality of the education system in Bangladesh

I) To avoid rote memorization, limit the use of test guides. Increase the number of hours of contact with teachers and students to meet international expectations.

II) Due to the COVID-19 epidemic, the present educational system is in a very horrible state. If professors are cautious while conducting online lessons, students will be able to enjoy their online lessons as if they were offline classes, and the poor study situation would be alleviated to some extent.

III) Upper-level students are having a difficult time studying because many of them are trapped in examinations or were meant to sit for examinations but couldn't due to COVID-19. For this, the UGC must act quickly and effectively to take their exams through online system if they want so.

IV) The condition of students in other institutions is worse than in public or private universities. Educational institutions should arrange online classes for them, so that

they can continue their studies and complete their courses.

V) Teachers Portal will be used to improve teacher instruction. Scholarships for children from very low-income backgrounds. More science and technology universities, as well as planetariums, libraries, labs, and scientific equipment, should be built. Introduce ICT courses in all Bangladeshi post-graduate colleges. Complete the Bangladesh Research Network. Connect national curricula to international benchmarks such as PISA. Teachers are monitored using the multimedia classroom (MMC) dashboard.

VI) Convey the relevance of female education to the general public. Ensure all female students get special financial assistance. More programs can be implemented under the Higher Education Quality Enhancement Project (HEQEP) (2009-2018). The Department of Education and the Ministry of Finance, appoint education professionals to director positions. The University Grants Commission (UGC) and related Parliamentary Committees conduct administrative oversight of universities' operations.

7. Policy implications

COVID-19 has had a widespread effect on Bangladesh's primary, secondary, and tertiary education systems. Various unforeseen social distancing steps were taken by the country's government to deter the diseases from spreading, such as the closing of educational schools and the transition to online schooling, which have had a major impact on the education sector and students' lives. The current qualitative research examines the effect of the COVID-19 pandemic on Bangladesh's higher education system from the perspective of university students.

The current research demonstrates that there is a significant association between students' age, level of study, and overall study condition. Many who are younger have improved study conditions because they are in their first, second, or third year and are not concerned with learning, while those who are older have worse study conditions because they are in their final year, master's degree, or higher study stage. For this, the UGC must act quickly and effectively so that upper-level students do not fall behind and their academic health is not jeopardized. And they must complete the course to progress.

There is a significant association between the type of university and the overall study condition of the students. The students of public universities indicate that their overall study condition is better than other institutions because many public universities have already taken their classes in the online system. And the private university students indicate that their study condition is the same as before. Other institutions have not yet taken any steps to take the class. This disparity in access to technological devices and the internet will obstruct the true goal of active learning by online courses, resulting in a digital divide in education. So, educational institutions should provide all staff members with instruction on how to use multimedia resources to educate students. The university may also find a way to provide eligible students with laptops or desktop computers on a soft loan basis. The availability of Model-based learning management system servers could be increased, or a different server for each university professor could be installed, and network coverage problems could be addressed at the faculty level.

This study also shows that there is a significant association between income condition and overall study condition. This means that those who have good income conditions also have good study conditions. Because they don't have to worry about their income. Those have bad income condition also have bad study condition because financial considerations had a major impact on student's mental health and academic performance: loss of tuitions or part-time work, inability to cover the costs of new online courses, a decrease of parents' income owing to the COVID-19 pandemic, and drop-out of the academic year or semester due to a shortage of funds. Bangladesh's government should alleviate the ongoing lockdown imposed by the COVID-19. So that people's income levels improve, allowing them to continue their children study condition. In addition, the institution must formulate a backup plan to ensure that instructional programs are not disrupted during a disaster.

8. Limitations of the study

This study conducts a Multinomial logistic approach. This is the main limitation of this study. Most of the students are so stressed that they refuse to fill out the questionnaire and have to be coerced into doing so. That is why some of the outcomes are insufficient.

9. Conclusion

The post-COVID situation for Bangladesh's higher education sector is difficult because this is the country's first experience with such a pandemic, and the education system relies on face-to-face onsite contact. The abrupt closing of sine die has brought the system of teaching and study to a halt, resulting in a significant setback for the educational system. Since COVID-19 does not completely vanish immediately, this loss may be easily offset by taking classes online. Other institutions have not yet taken any steps to take the class. So, educational institutions should provide all staff members with instruction on

how to use multimedia resources to educate students. To solve the crisis and reshape the education system, this study suggests some special hygiene and health-related interventions, as well as some socio-economic and technological measures. Since poor economic conditions have also harmed university students' ability to learn. Bangladesh's government should lift the lockout as soon as possible. So that students at advanced levels of education can continue their education. Students' social, economic, emotional, and intellectual disturbances may be minimized with the help of families, colleagues, and the community. In this crisis time of the COVID-19 pandemic, it is recommended that immediate measures must be taken to provide technological services and develop internet connections to ensure uninterrupted online education in Bangladesh to meet the educational needs of higher education students. Universities can provide all-inclusive online-based educational services to reach out to students living in rural areas with or without computers, in collaboration with internet service providers, by offering scholarships or student loans, to ensure students' continued participation in educational processes. Finally, this study provide a guide for improving overall quality of education systems of Bangladesh. 1. Government should increase more budget for research and education purposes. 2. In addition to financial benefits, the dignity and respect of teachers must be ensured. Every research and educational institution must ensure the supply of quality individuals and ensure transparency and accountability of the teachers in each organization. 3. The government of Bangladesh should emphasize on technique/knowledge-based education instead of memorized-based education. 4. Method of job examination should be needed to be changed as early as possible. 5. Job exams should be arranged according to job fields and questions would be made according to specific related fields. 6. The value of each job field would be equally treated, for an equal level of educational qualification. 7. Government should more emphasis on research-oriented knowledge instead of bookish knowledge. 8. The government should create a better environment for education and research sectors so that teachers and students have more opportunities for research activities. In this case, the government should provide more research software and have an agreement with international organizations so that Bangladeshi researchers can get access to more convenient data access from international organizations.

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Appendix

1. Your age (in year) is-
o   Less than 20
o   Between 20 and 23
o   Between 24 and 27
o   Between 28 and 31
o   Above 31

2. What level of study you are enrolled in?
o   Bachelor's degree (1st year/equivalent semester to 1st year)
o   Bachelor's degree (2nd year/equivalent semester to 2nd year)
o   Bachelor's degree (3rd year/equivalent semester to 3rd year)
o   Bachelor's degree (4th year/equivalent semester to 4th year)
o   Master's degree or equivalent, or MBBS, or MPhil or PhD

3. What kind of university do you attend?
o   Public
o   Private
o   Other institution

4. What do you think, In comparison to a face-to-face lesson, how much will online classes cover?
o   Below 20%
o   Between 20 and 30%
o   Between 31 and 41%
o   Between 42 and 52%
o   Above 52%

5. Is your income the same as before or has it changed?
o   Decreased from before
o   Increased from before
o   Same as before
o   Much less than before
o   Not applicable

Impact of COVID-19 pandemic on higher education system in Bangladesh:
University student's perspectives
Common questions
1. What is your gender?
o   Male
o   Female

2. Your age (in year) is-
o   Less than 20
o   Between 20 and 23
o   Between 24 and 27
o   Between 28 and 31
o   Above 31

3. What kind of university do you attend?
o   Public Private

o   Other institution

4. During the most COVID-19 period, where long have you been living?
o   Urban
o   Rural

5. Has the COVID-19 pandemic impacted your family's financial situation?
o   Yes
o   No
o   Not willing to say
Questions about mental condition
1. What kind of stress has risen the most as a result of the COVID-19 pandemic?
o   Psychological stress
o   Mental and economical stress
o   Physical   stress
o   None
o   Other

2. What causes your frustration to increase?
o   Due to the closure of educational institutions for a long time, I am worried about my future career
o   Reasons for declining family income
o   Many in the family were affected by Corona and I was sick myself Myself own income has also decreased due to Corona
o   Others

3. Has it ever occurred to you to commit suicide out of frustration?
o   Yes
o   No
o   Sometimes
o   Not at all
o   Not willing to say

4. If the online class started, did it start on time?
o   Yes
o   No
o   May be
o   Not applicable

5. If online classes have not started, what is the reason?
o   Neglect of teachers
o   Students are reluctant to take online classes Lack of proper device
o   High cost of internet and low speed of internet
o   Lack of proper teaching experience of teachers, or others

6. What do you think, In comparison to a face-to-face lesson, how much will online classes cover?
o   Below 20%
o   Between 20 and 30%
o   Between 31 and 41%
o   Between 42 and 52%

o   Above 52%

7. Your online classes have been disrupted mainly because of-

o   Lack of internet connection

o   Lack of proper device (smart mobile, laptop, desktop etc.)

o   Lack of internet connection but still having proper device Surrounding environment or family problem

o   Others

8. Which device you use to take your online class?

o   Smart mobile phone

o   Laptop

o   Desktop

o   Traditional devices

o   Others

9. Is it simple to locate any information from your institution through online?

o   Yes

o   No

o   Sometimes Very difficult

o   Not applicable

10. Which do you prefer, your offline class or online class?

o   Offline class

o   Online class

o   Both offline and online class

o   None of them

o   Not applicable

11. Can you fully understand the teacher's teaching in the online class?

o   Yes

o   No

o   Sometimes

o   A little

o   Not applicable

12. Do you agree to begin the face-to-face class in classroom even now, in light of the presence COVID-19 situation?

o   Strongly disagree

o   disagree

o   Neutral

o   agree

o   Strongly agree

13. Do you think, the authority should open the residential halls with adequate health safeguards in current COVID-19 situation?

o   Strongly disagree

o   disagree

o   Neutral

o   agree

o   Strongly agree

14. Did the COVID-19 cause any exams to be postponed, which was supposed to happen?

o   Yes

o   No

15. Did that exam take place in 3 to 4 months?

o   Yes

o   No

o   Likely to happen

o   Not likely to happen

o   Not applicable

16. If the exam is done, is it done offline or online?

o   Offline

o   Online

o   Not applicable

17. How was your exam?

o   Good

o   Bad

o   Very bad

o   Average

o   Not applicable

18. If your exam is average or bad, what is the reason?

o   Lack of adequate communication due to closure of halls and long absence of study

o   Suddenly the preparation for the exam was bad and I did not understand the online class properly

o   Lack of group study and class test

o   Other reasons

o   Not applicable

19. During the COVID-19 pandemic, have you done any online learning course (academic or non-academic, IELTS, TOEFL, GRE, and GMAT etc.)?

o   Yes

o   No

o   I wanted to but I could not

20. What is the overall study condition due to COVID-19?

o   Good

o   Very Good Bad

o   Very bad

o   Same as before

Questions about economic condition

1. Has your internet usage increased for online class?

o   Yes No

o   Sometimes Not at all

o   Not applicable

2. How much has the cost of using the internet increased due to COVID-19?

o   Below 40%

o   Between 40 to 60%

o   Between 61 to 81%

o   Above 81%

o   Not applicable

3. Were you related to tuition or part time job before this pandemic, which is bothering you during pandemic?

o   Yes
o   No
o   I am suffering a lot
o   Not very much
o   Not applicable

4. Is your income the same as before or has it changed?

o   Decreased from before
o   Increased from before
o   Same as before
o   Much less than before
o   Not applicable

5. Has the decline in income had any effect on education?

o   Yes
o   No
o   Not very much
o   Same as before
o   Not applicable