STATISTICAL ANALYSIS OF BANGLADESH EDUCATION SYSTEM BEFORE AND AFTER COVID 19

Mohammad Mizanur Rahman

2035010660, Business Statistics (BUS-511), Department of Master of Business Administration, North-south University

ABSTRACT

Our Bangladesh education system has been worse after the covid 19 pandemics as today's world is highly interconnected. The severe risk is the outbreak of this virus is not limited to the national border rather worldwide. It has created extreme unfavorable pressure regardless of education level, gender or income. In this research paper, our main objective was to discover the condition of the Bangladesh education system before and after the pandemic. In our country, after the surge of covid 19, the outcome of the unemployment problem, Cost of education, academic performance, Quality of teaching, has been altered undoubtedly. The data was collected from students of Dhaka and Chittagong cities. In our study, 52% of respondents were male, and 48% were male. The age proportion of the majority of the students (57%) is from 20-30. The education level of 85% of respondents is Graduation and Post-graduation. 48% of respondents are satisfied current education system of Bangladesh, but 40% of respondents are not satisfied as they perceive that the current education system of Bangladesh needs to be changed. Independent variables have been selected for this research. Our prominent was to identify how the variables impacted Bangladesh education system In Chittagong city, 57% of respondents believe that after the COVID pandemic, the Cost of education has been decreased.

On the other hand, in Dhaka city, 67% of respondents convince that the Cost of education was declined. In the lockdown period, 50% of students of Chittagong city had spent most of the valuable time developing skills, whereas 34% of students in Dhaka city spent their time developing skills.

For descriptive statistics, Bar chart, column chart, pie chart, etc., was used. For inferential statistics, Minitab and Excel were used. All of the three variables are categorical. A Chi-square test was performed to estimate the relationship between variables Bangladesh education systems.

KEYWORDS: *Worse, COVID 19 pandemic, Unemployment, Unethical*

INTRODUCTION

After the outbreak of the COVID pandemic, the education system of Bangladesh has also been disrupted; the rural areas of Bangladesh are facing severe trouble because of internet access and connectivity. The HSC candidates of 2020 observed an unexpected scenario. Most of the students have not been achieved the expected result. Most of the students have been facing uncertainty about their prospects because of the lockdown of international universities by which they are not allowed to go abroad for higher studies. According to this study, around 80% of students apply unethical practices during the time of exams. Approximately 60% of people believe that the online teaching evaluation method is not practical. Because of long days, confinement students might get intimidated for study as around 40% of students are despite studying properly passing their time on entertainment.

Suppose, the government of Bangladesh takes the initiative for educational institutions to remain open. In that case, students will be able to participate in numerous extra-curricular activities and get the opportunity to do class interactively. On the other hand, lower-level-income families are going through a massive challenge because of the economic downturn in Bangladesh. The students who belong to those families might get dropout from the study because of a lack of financial solvency.

OBJECTIVES
Primary Objective

The primary objective of our report is to study Statistical analysis of Bangladesh educational system before & after the Covid pandemic situation. Considering the pandemic situation, we have a drastic change in our educational system & here. This

pandemic situation is the primary variable that hit the education system directly, such as:

- Traditional class method
- Lack of proper funding in private educational institutions
- Regular salary & layoff the teachers & staffs
- Facing difficulties in exam methods & time
- The Quality of education is low etc.

Secondary Objective
This report can also be used,

a) To understand the whole educational system to identify & differentiate before & after the COVID situation.
b) To understand the updated educational system.
c) To measure the Quality of our present educational system
d) To know all the variables affected to the educational sector

BACKGROUND INFORMATION
Chittagong: Chittagong city is the port city of Bangladesh and the second-largest city in the country. The population of Chittagong City is more than 8.6 million. The city is situated on the banks of the Karnaphuli River between the Chittagong Hill Tracts and the Bay of Bengal.

Dhaka: The capital city of Bangladesh is Dhaka, and a densely populated city, around 8.9 million residents are currently living here. Dhaka city is famous for the economic, political, cultural center of Bangladesh and also the most numerous cities among the Bay of Bengal countries. The town is enclosed by the Buriganga River, Turag River, Dhaleshwari River, and Shitalakshya River.

DATA COLLECTION TECHNIQUE AND PROCEDURE
To investigate the current education system of Bangladesh and students adaptability with online class moreover, what kind of problems students are facing in the online education system and how way students are passing their valuable moment in the closure of educational institutions, the Google questionnaire form was used which was delivered to 60 random sample people of Dhaka and Chittagong cities, 30 sample size from each town.

For the data analysis procedure, the data was presented in two ways:

Descriptive statistics: For giving and analyzing data into graphs, several graphs such as pie charts, bar charts, column charts were used.

Inferential statistics: According to the objective of the study, the inferential statistics was completed.

Here six independent variables were used. The Bangladesh education system was the dependent variable. The dependent and independent variables were categorical. That is why for the hypothesis test Chi-square test was performed at a 0.05 significance level.

Main variable
Dependent Variable
 Bangladesh education system

Independent Variable
Independent variables are not altered or impacted by other variables; we will utilize six independent variables here. Those are enlisted below:
1. Cost of education
2. Academic Performance
4. Quality of education

METHODOLOGY
We will use numerous methods and statistical techniques to analyze the results of our study. We are going to select inferential statistics to administer our research project. Pie charts, bar charts, histogram line charts, and lots of statistical techniques will be utilized to analyze the data in our studies. One Dependent variable and six independent variables will be included to carry out the research.

Primary source
For collecting our primary level data, we need to undergo an inferential cross-sectional survey; In order to conduct a cross-sectional survey, we will pick at least 60 randomly selected people from different areas of Chittagong and Dhaka city. The viewpoint and vision will be accumulated through questionnaires by applying a Google form. Our questionnaire will be segmented into two sections:

- The first section will search for information on respondents' age, gender, education level, student satisfaction, and adaptability with online classes.
- The second section will interpret the Bangladesh education system before and after the COVID 19 pandemic and critical factors.

Secondary Source
We will examine a few published documents on appropriate topics as our secondary sources of data collection. We will have to undergo some websites, journals, relevant articles, and e-books to accumulate our secondary data for the research studies.

RESULTS
We have collected data from random people from different areas of Dhaka and Chittagong cities. The data was analyzed, edited, and prepared by using Excel, the Minitab software. Several graphs, such as

pie chart bar chart frequency distribution tables, have   been used to present the analysis of data.

Gender of the respondent

Table 1: Gender of the respondent

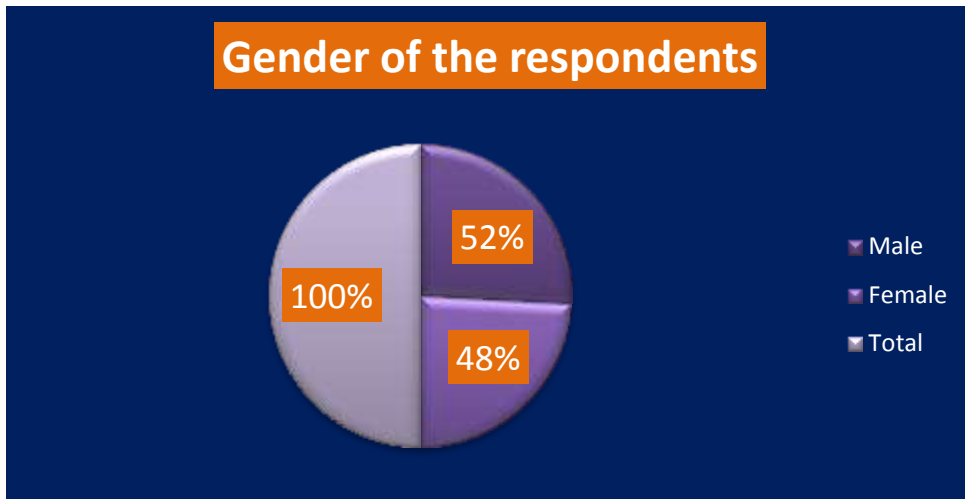| Gender	Frequency	cumulative frequency	percentage
Male	31	31	52%
Female	29	60	48%
Total	60		100%

Figure 1: Gender of the respondent

Here the above graph shows that male respondents who were participated in the survey are 48%, alongside 52% are female.

Age of the respondent

The table below is illustrated the frequency distribution of respondent's ages from the class 20-30 to 50-60. The percentage of the participant is shown in the pie chart.

Table 2: Respondent Age

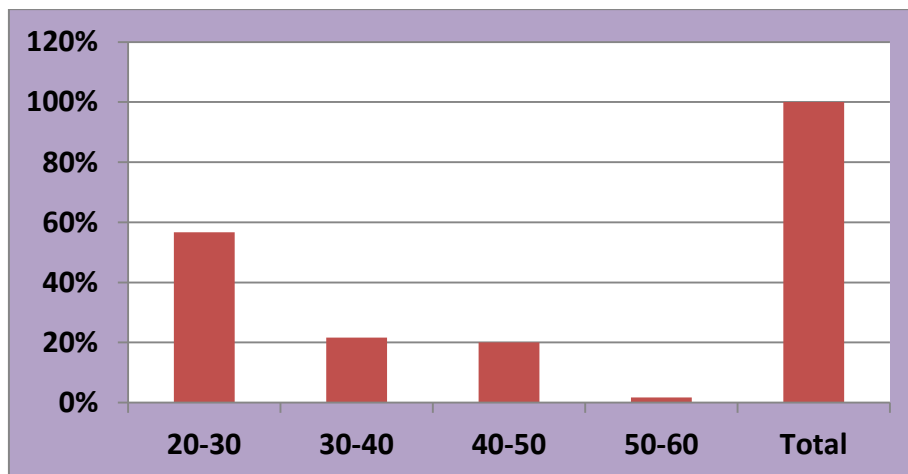| Age	Frequency	cumulative frequency	percentage
20-30	34	34	57%
30-40	13	47	22%
40-50	12	59	20%
50-60	1	60	2%
Total	**60**		**100%**

Figure 2: Age of respondents

The Academic Level of the Respondents

The majority percentage of respondents belongs to Graduation, which is around 45%, approximately 40% respondents were graduated students, and the rest of the participants are the highest education level of SSC and HSC. The proportion is 0.2, 0.13.

Table 3: Academic level of the respondents

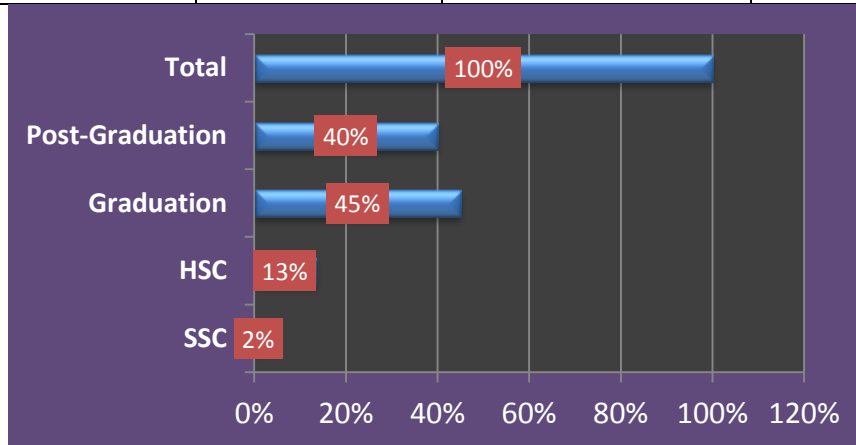| Education Level	Frequency	cumulative frequency	percentage
SSC	1	1	**2%**
HSC	8	9	**13%**
Graduation	27	36	**45%**
Post-Graduation	24	60	**40%**
Total	60		**100%**

Figure 3: Academic level of the respondents

Satisfaction of Bangladesh Education System

Table 4: Responses about the satisfaction of Bangladesh education system

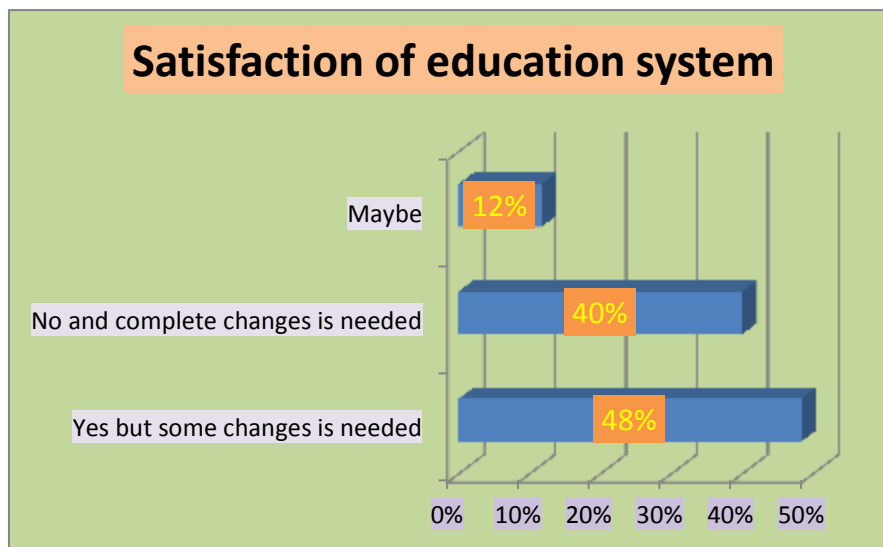| Student Satisfaction	Frequency	Cumulative Frequency	Percentage
Yes, but some changes are needed	29	29	48%
No, and complete changes are needed	24	53	40%
Maybe	7	60	12%
Total	60	142	100%

Figure 4: Responses about the satisfaction of Bangladesh Education System

Interpretation: Here, 48% of respondents are satisfied with the current education system of Bangladesh, but they expect some changes are needed. 40% of respondents are not satisfied with the current education system of Bangladesh. They demand complete changes.

Questionnaire from variable "cost of education."
Do you think after covid 19 the CostCost of education has been decreased?
Answer: Yes/no

Table: 5 Respondents from Chittagong city about CostCost of education

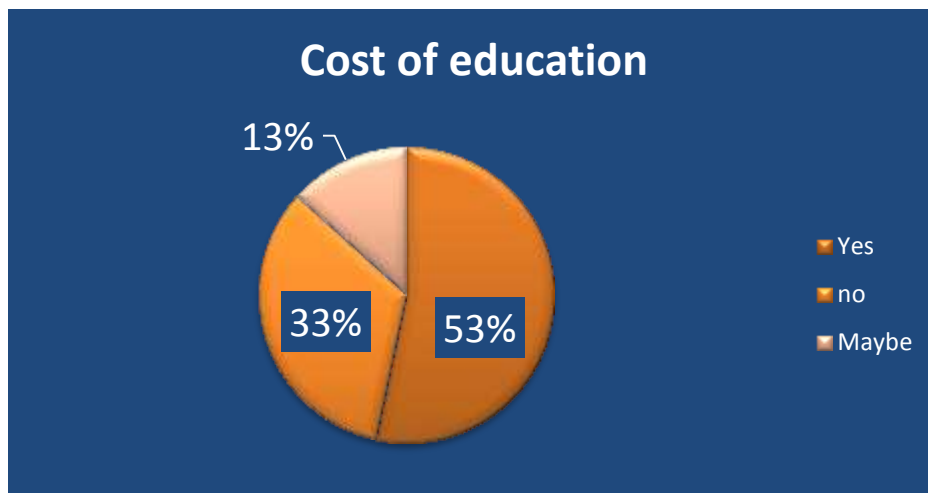| question	Yes	No	Maybe
Q1	16	10	4
Percentage	53%	33%	13%

Figure 5: Respondents from Chittagong City about Cost Cost of Education

Interpretation: 53% of respondents perceive that the CostCost of education has decreased after the covid pandemic, on the other hand, 33% of respondents consider that CostCost of schooling has remained the same as before. 13% think that they are not certain about the CostCost of education and 50% sure and 50% not sure.

Table 6: Respondent from Dhaka city about Cost of education

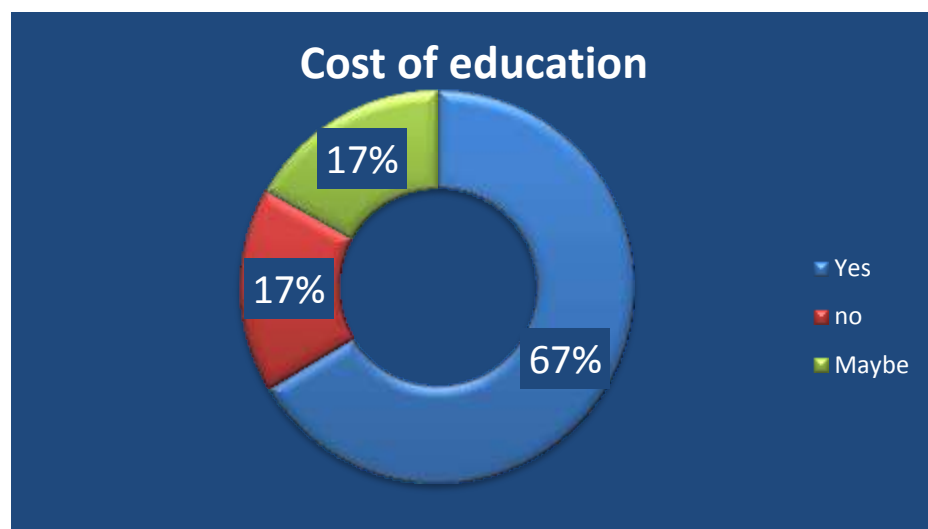| question	Yes	No	Maybe
Q1	20	5	5
Percentage	67%	17%	17%

Figure 6: Respondents from Dhaka city about CostCost of education

Interpretation: 67% of respondents in Dhaka city think that CostCost of education has been increased after the covid 19, but 17% believe that CostCost of education has not been changing .moreover, an equal proportion of people has considered it may be.

Questionnaire for variable "Academic performance."
During the lockdown period, how did you spend most of your valuable time?
Answer: 1. Academic study 2. Developing skills 3.Watching movies 4. None

Table:7 Response from Chittagong City

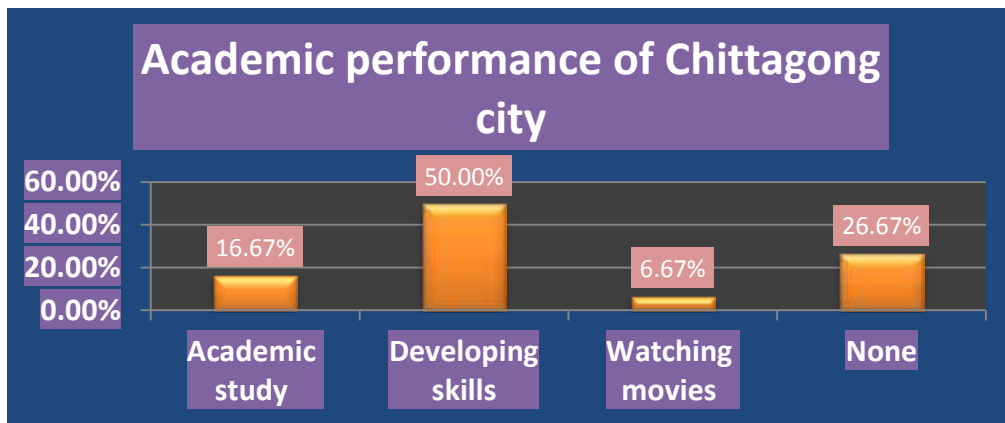| Questions	Academic study	Developing skills	Watching movies	None
Q1	5	15	2	8
Percentage	16.67%	50.00%	6.67%	26.67%

Figure 7: Academic performance of Chittagong city academic performance

Interpretation: 50% of students of Chittagong city spent most of their valuable time developing skills. Whereas about 16.67% of respondents are spent their time during the lockdown period by Academic study, approximately 6.67% by watching movies, 26.67% of students had not done anything special.

Table: 8 Responses from Dhaka City

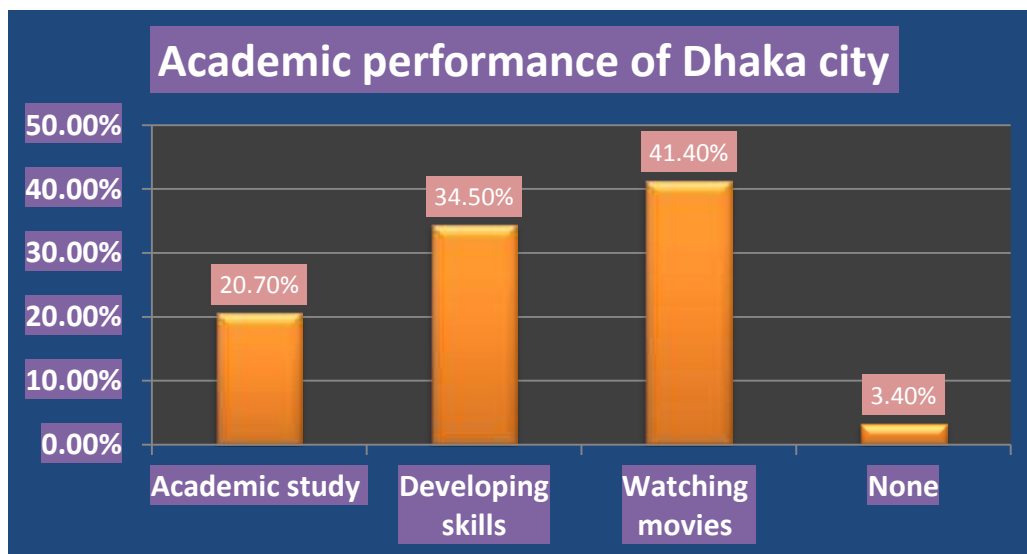| Questions	Academic study	Developing skills	Watching movies	None
Q1	6	10	12	1
Percentage	20.70%	34.50%	41.40%	3.40%

Figure 8: Responses from Dhaka City about Academic Performance

Interpretation: In Dhaka city, 41.40% of respondents spend their time during the lockdown period watching movies. On the other hand, 34.50% of respondents had spent Developing skills, 20.70% spent by academic study, 3,40% of respondents had not done anything.

Questionnaire for Variable "Quality of education"
The Quality of education has been badly affected after the covid pandemic.
Answer: Strongly
Agree/Agree/Neutral/Disagree/Strongly disagree

Table13: Respondents from Chittagong city about Quality of education

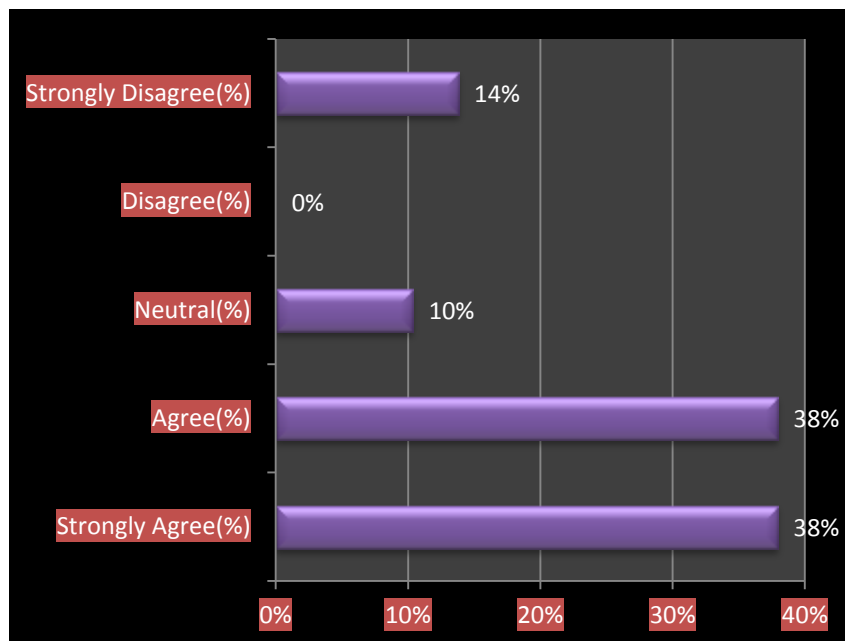| Questions	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Total
q1	11	11	3	0	5	30
Percentage	38%	38%	10%	0%	14%	100%

Figure13: Respondents from Chittagong city about Quality of Education

Interpretation: Approximately 76% of students are agree that the Quality of education after the covid pandemic badly affected.10% responded with neutral, and 14% does not agree that the Quality of education has been affected badly.

Respondents from Dhaka city:
Table14: Respondents from Dhaka city about Quality of education

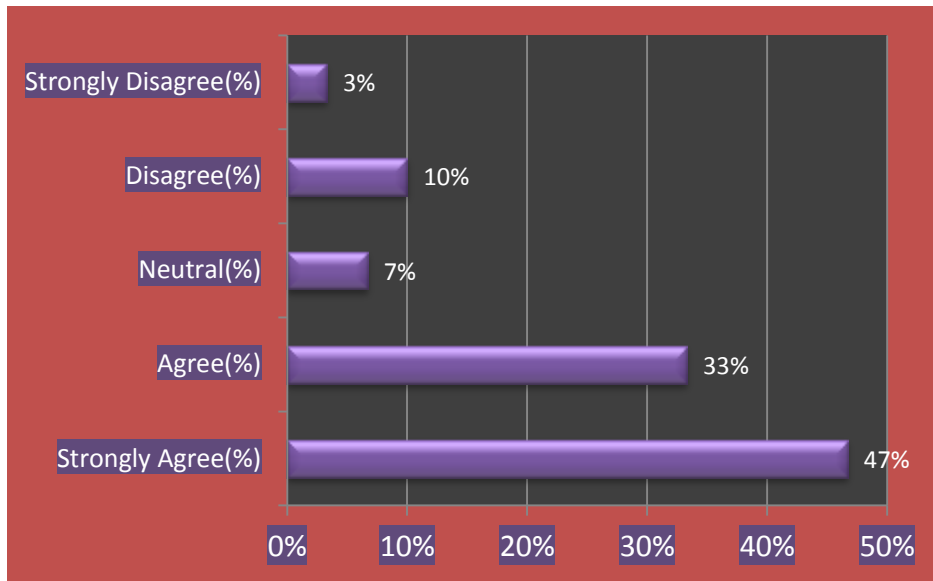| questions	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Total
Q1	14	10	2	3	1	30
Percentage	47%	33%	7%	10%	3%	100%

Figure 14: Respondents from Dhaka city about Quality of education

Interpretation: In Dhaka city, most students, 80%, agree that the Quality of education has been hampered badly. On the other hand, 7% responded with neutral, Around 13% disagrees with the statement.

ANALYSIS
As the dependent and independent variable is categorical, for that reason, the chi-square test was utilized to find out the relationship between factors and Bangladesh education system

Null and alternative hypothesis
H0: Cost of education is not affected to Bangladesh education system
H1: Cost of education is affected to Bangladesh education system

H0: Academic performance is not affected to Bangladesh education system
H1: Academic performance is affected to Bangladesh education system
H0: Quality of education is not affected to Bangladesh education system
H1: Quality of education is affected to Bangladesh education system

Cost of Education & Bangladesh Education System
Here, the Chi-square test method was used at α 0.05. The statistic value is greater than critical value ($\varkappa^2$ <critical value) and p<0.329 by which we can state the decision that the Null hypothesis is not rejected, Cost of education is not affected Bangladesh education system.

Rows: City   Columns: Cost of education

City	Yes	No	Maybe	All
Chittagong	16	10	4	30
	18	7.5	4.5	
Dhaka	20	5	5	30
	18	7.5	4.5	
All	36	15	9	60

Cell
Contents

Count

Expected count

Chi-Square Test			
	Chi-Square	**DF**	**P-Value**
Pearson	2.222	2	0.329
Likelihood Ratio	2.256	2	0.324

Academic Performance & Bangladesh Education System

Here, the Chi-square test method was used at α 0.05. The statistic value is greater than critical value (x^2 >critical value) and p>0.003 by which we can state the decision that the Null hypothesis is rejected, so, Academic performance is affected Bangladesh education system.

Rows: City   Columns: Academic performance

City	Academic study	Developing skills	Watching movies	None	All
Chittagong	5	15	2	8	30
	5.593	12.712	7.119	4.576	
Dhaka	6	10	12	1	29
	5.407	12.288	6.881	4.424	
All	11	25	14	9	59

Cell Contents

Count

Expected count

Chi-Square Test			
	Chi-Square	**DF**	**P-Value**
Pearson	13.665	3	0.003
Likelihood Ratio	15.203	3	0.002

Quality of Education & Bangladesh Education System:

Here, the Chi-square test method was used at α 0.05 the statistic value is lower than critical value (x^2 <critical value) and p<0.18 by which we can state the decision that the Null hypothesis is not rejected, so Quality of education is not affected Bangladesh education system.

Rows: City   Columns: Quality of education

City	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	All
Chittagong	11	11	3	0	5	30
	12.5	10.5	2.5	1.5	3	
Dhaka	14	10	2	3	1	30
	12.5	10.5	2.5	1.5	3	
All	25	21	5	3	6	60

Cell Contents

Count
Expected count

Chi-Square Test			
	Chi-Square	DF	P-Value
Pearson	6.274	4	0.18
Likelihood Ratio	7.68	4	0.104

CONCLUSION

The academics have tremendously messed up, and students are too disappointed to ponder their studies and career because of severe lockdown. Some of the students and teachers are facing some problems in conducting the online class. The study was carried out all-inclusive conditions and perception, challenges of online teaching of SSC, HSC, Graduation, post-graduation level. The situation has been deprived for rural areas students because of financial instability and internet accessibility. The government of Bangladesh comes up with new ideas to handle the current scenario. The paper has not included a broad range of statistical analyses on COVID 19 on the education system and its affected student teachers in Bangladesh. The study tried to gather information about the current situation of education in Bangladesh. Because of the pandemic, the collection of a large amount of data was not possible.

ACKNOWLEDGMENT

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