IMPACT AND COLLISION OF COVID-19 PANDEMIC ON PRIVATE EDUCATION SECTORS IN BANGLADESH.

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APPROVAL

This Project titled "**Impact and collision of covid-19 pandemic on private education sectors in Bangladesh**", submitted by **Sumaiya Mollika, ID No: 183-15-11818** and **Khaleda Akter Rupa, ID No: 183-15-11807**to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 11September 2021.

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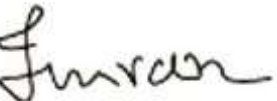Daffodil International University

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Mr. Narayan Ranjan Chakraborty,Assistant Professor, Department of CSE**Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

The main motive of our research is to highlight and measure the pandemic impact which our private education sector has been experiencing through this battle. Covid-19 is more likely nightmare to us as we know Bangladesh is a developing country so its major asset is depending on youth generation but the whole world is now under this disease. No one knows when this world would be free from this deadly virus. Our private education sector has suffered a lot through this pandemic battle. Our students and teachers have been doing their best to survive to keeps existence. Through this deadly journey, they have faced many problems such as Internet issues, uncertain careers, misinformation of social media, depression, stresses, abused, rural area's poor internet, negative attitude, suicidal thoughts, anxiety, lack of practical knowledge, commutation gap also proper judgmental issues, and so on. Because of this both teachers and students are being suffered simultaneously. We created a Google form to collect our essential information to measure their conditions. Therefore an online cross-sectional survey was conducted to evaluate the struggle and state of the mental conditions that happened during this pandemic. We collected their response via online and authors were assigned to share the link via different social sites and educational groups.We have created two individuals form for both student and teacher. We have used machine learning algorithms to measure those collected vital data and we tried our best to show up their battle throughout this pandemic. From this report, we can know their actual footage of the sufferings and mental issues which they have bearded. This study estimates the prevalence of their mental health and disrupted. Coronavirus is rapidly spreading and getting stronger day by day and our educational issues have been increasing as well.

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INTRODUCTION

1.1 Introduction

Coronavirus is currently a terrible and deadly disease all over the world. This deadly virus ismainly spreading many ways. It can betransmitted through droplets generated when an infected person do activities like coughs, exhales, sneezes. These droplets are too heavy so cannot hang in the air, and quickly fall on floors or surfaces. It can be infected by breathing in the virus if we are within close proximity of someone who has COVID-19, or by touching a contaminated surface and then your eyes, nose or mouth. The virus has spread to various parts of Asia and continues to spread to other nations as well. Because of the coronavirus, people are getting infected in different ways. The virus infects people of all ages, from children to the elderly. The coronavirus spreads more in human contact. So many people were starting to infected as a solution; the Bangladesh government announced a lockdown all over the districts like other countries did due to reduce its effect. The first coronavirus was detected in Bangladesh in 8th March 2020 and on 16[th]March all the educational institutions were declared closed. March 20, 2020, announced the Lockdown [12]. The spread of this virus is increasing day by day and it is becoming more and more powerful by changing its form. Strict lockdown is being observed as coronavirus spreads from person to person. This virus is constantly harming people. As a result, people are having an impact on everything from financial, social, and psychological education. Since Bangladesh is a developing country, it has to opened offices and businesses to keep the economy afloat, but not educational institutions. Online learning has been started to continue the education system. The student is an asset of every nation so that it's capable of breaking down and reshaping a state. Due to the lockdown, they are spending time at home instead of going to school, college, and university. Not only the lives of the students but also the lives of the teachers have changed drastically. Both teachers and students are constantly going through different kinds of challenges in their lives. In all cases, it affects people, but especially young people. Young people are suffering mentally as they are lagging in education. They are

suffering from depression because of uncertain future and victim of mental illnesses [13]. The suicide rate is increasing day by day due to mental problems [11]. A Chinese study has found that Miss Information of Social Media is playing a major role in increased anxiety, depression, and mental health problems [13]. The closure of educational institutions has had a profound effect on the knowledge and attitude of young people [10]. Since the lockdown educational institution is not being opened and the education system has to be continued, so online learning measures have been taken. Online learning is very challenging because teachers have to work very hard for this. Teachers record lessons and upload them to make learning maximum easier. Teachers are taking live classes with the help of various apps and trying their best to teach well to their students. The whole education system is dependent on the Internet now. The condition of the internet is not so good in all area of Bangladesh due to this many students and teachers had to faced various complications. There has also been a communication gap between students and teachers because of online education. Since the epidemic has not yet gonethat is why we could not collect our information directly. For reason we have created an online survey wheremany different private universities students and teachers have participated on these surveys and gave their valuable information[12]. These web based surveys are nothing but to compile their opinion and experiences about physical and mental. Coronavirus is a great disaster and Mankind will never forget this epidemic. This epidemic has blackened the chest of history because this epidemic has taken and is taking thousands of lives[11].

1.2 Motivation

The whole world is now going through a pandemic situation because of the novel coronavirus disease (COVID-19). This coronavirus has done a lot of damage to our nation and especially on the education sector has suffered most. During this time, students have faced many difficulties and problems and teachers also faced as well. Everything fell into an uncertain state;mainly their studies and accommodation fell into a great disaster. We have done some study based analysis on private education sector about their sufferings and problems that they have been facing. After that, we want to highlight their obstacles and sufferings during this situation based on their education and mental health.The recent COVID-19 pandemic has done great damage

on both physical and mental health since its outbreak to our nation [9]. Gradually it rushed on mankind and make their live miserable. It motivated us to analysis and measures their suffering and challenges just to reveal others about theirs situation. We can know their mental hearth and also can provide their experienced.

1.3 Rationale of the Study

The educational system of Bangladesh is developing as our prime minister has done many changes but due to pandemic, our educational system has suddenly changed from practical to virtual. This huge change all of in sudden made everything tough. When COVID-19 started to spreading, to reduce infection and save our lives our honorable Prime minister announced a strict lockdown. Our busy lives become isolate; our live classes become online classes [1]. Many students do not know about online learning so it becomes hard to capture. The young generation had to stay at home quarantine whereas they are supposed to explore the world. The thing gets hard to hardest as learning becomes online-based [2]. Teachers had to go through tough challenges as before pandemic a large number of teachers aren't used to teach on online basics. So they had to learn many things like make lectures more clear, make learning more interesting, make the question more creative, and so on. Mental illness is a major issue for both students and teachers. Mental health can be triggered by every tiny thing. Environment, the negative impact of surroundings, negative attitude [10], fear of losing position or career, families issue, sudden failure, lack of positive thoughts, lack of confidence and so on activities can trigger mental illness [14]. Our private education sector has suffered the most. This sector included many valuable lives. Coronavirus has done many disasters in this sector such as pandemic-related issues like social distancing, uncertain isolation, bored quarantine, fear of getting infected can also trigger mental health such as worried about an uncertain future, fear of position, excess rudeness, gets angry over a silly thing, loneliness, guilt, annoyance, nervousness, abused by society or family, helplessness, financial crisis, frustration, sudden loss of lives and so on [14]. When these things get out of control, it can lead to suicidal behaviors and we may lose many valuable lives [16]. So mental illness is not less important than anything and it is getting increasing day by day because of the pandemic, it is getting worst. Many teachers had lost their jobs because

of lockdown and their salaries have decreased [13]. New teachers are being faced with difficulties of getting the job and rural area teachers faced arduous using the internet. All of our respectable teachers also have a family, for the sake of this deadly pandemic drowned them into trouble and stresses, they are getting ended up with mental illness [17]. Therefore, this is Needless to say that, by study and analyze on these topics we can make others to know about their battle and by doing this we could know their life through this situation which they had lived and it would make others to aware of and could know bad effort of these mental illness, its impact, and losses[12].

1.4 Research Questions

Since the private institute's Students and teachers both have suffered simultaneously in this pandemic situation so, therefore:

1. What were the challenges and obstacles of online learning in the private education sector in Bangladesh of teachers and students perspective?

2. How much struggle and effect has occurred on their mental health cause of covid-19?

1.5 Expected Output

We want to find out through this research, what kind of problems the teachers and students of the private university have had for this coronavirus. We hope that through this research we will be able to know about the interest of students and teachers in online education and find out an average value of it[1].We will be able to know about the issues that are responsible for mental health due to the problems of teachers and students. It is possible to find out the age and age of the male student or female student who is facing more problems [12]. It is possible to find out which year or age students are facing more problems. Similarly, in the case of teachers, it can be found out what kind of problems teachers of which age and gender are facing. Social media exposure, fake news, increases of rape case, pre-suicidal thoughts etc [18].how much this news has affected their mental health [12]. It expected that more or less government and university could work together to fix academic delay, educational

problem to reduce mental health problem and learning problem among private university's student and teacher [20].

1.6 Project Management and Finance

The authors involved in this research project have no relationship with any other organization that would make their work inappropriate or otherwise affected. The research work of this project has been done without the help of any organization. So the research work of this project will not be biased by any organization.

1.7 Report Layout

Considering the impact and collision of the novel coronavirus (COVID-19) outbreak in Bangladesh, we have highlighted the impacts of private education sector and impact on their mental health. In our research based project we have organized and explained relative subject clearly. Furthermore we added necessary figure to make it clearer. From chapter one to six, we arranged and deeply explain each of them. In chapter one, we have explained introduction, motivation, rationale of the study, research question, expected outcome, project management and finance. Every step is important and plays vital role to make this paper more understandable. Chapter two is about background of our research. In this chapter we have explained terminologies, related works, comparative work and summary, scope of problem and challenges. Here explain related works and compare our papers difference and show up related problems and challenges. In chapter three we broadly explain the research methodology our study based analysis. Here we have explained what are our research subjects and the instruments we used for our study. We described how have collected data and how arranged them and how wisely we made our survey's question to know exact problems. We also clarify about the algorithms we used based on our data. We briefly wrote what mechanism we take and how analysis them. Chapter four is about Experimental Results and Discussion. This chapter plays a vital role for our research paper because in here we elaborate our work like how we simplify our data and how we applied algorithms and showed result on the data table. From this table we can easily understand their state. After that we wrote discussion about our research. We added figures to make better understanding. Then move to chapter five, this chapter

carries topic related to Impact on Society, Environment, and sustainability also Ethical Aspects of our study. Pandemic has been done so many disasters to our society and on our environment. Here we explained how it affects tour society and how it left impact on our environment. We also explained about the ethical aspect of our research papers, where we explain that our research-based study has received ethical approval from the authority committee of Daffodil International University, Bangladesh. Our research-based project has maintained a high standard by requiring the anonymity and confidentiality of the participants. This is immensely important to make a high standard research paper. Our participant should know there left no risk for them to fill up our survey. In the end we described our last chapter six. This chapter included Summary, Conclusion, Recommendation and Implication for Future Research. Here we added our research based analysis in short and write about the further more study for the future research. We have completed our papers by write the references. In references we write all the books, papers and other publications name correctly.

CHAPTER 2
BACKGROUND

2.1 Preliminaries/Terminologies

In our Research-based paper, we have used no short form of any words. We simplify our research with proper words.

2.2Related Works

We know that many verity's researchers are working on mental health and online learning under the influence of UGC, Doctors, and Psychology regarding the impact of Coronavirus (COVID-19)[4]. Many mental health agencies as well as the teacher also contribute to mitigating this context. WHO (World Health Organization) focuses on this and continuously works on it [4] [15].Origination) specially focus on this domain by surveying peoples and approximately generated statically data and share with us so many important insights that really helpful for us to be aware about that and save our self and our beloved family members or friends. Since Coronavirus was spread, it becomes main topic to analyze. So many organization or institute has been working on this disease just to make everyone aware of every details and impact of it.Many NGO's are also collecting information and keeps trying to console them. The whole world is now falling apart, every organization working on just to make it better [19].

2.3 Comparative Analysis and Summary

We have studied several research papers and those papers were related to online learning [2] and mental health. Those papers were all about depression, anxiety, suicide in Bangladesh [3]. We found out that their research perspective was based on only university students and we also found some papers that they have work on related to knowledge, attitude, and practice but their perspective is all about students [10]. They have also presented their analysis on online education, challenge, and opportunities in higher education but those papers also regarding the only students and those contexts were from the Philippines[2] and Pakistan but not in from

Bangladesh. Our research is related to online learning and mental health for not only the student but also for our honorable teachers [8]. Our papers basically represent the private education sector where we included both and we are going to analyze their mental health throughout this pandemic. Our research is all about knowing the impact of COVID-19 in the private education sector. So in this survey, we are going to find out the sufferings and difficulties caused by online learning and also how these issues are being triggered on their mental health [24]. Here we priories for both students and teachers. We have analyzed many research-based papers about mental health due to coronavirus but we found no papers which could be specific to the topic. We found no papers which could be related to teacher's sufferings. Where this is an extremely major subject to discuss and analyze. Researchers wrote and had analysis about the whole field like the average education system and for this reason; many of us can not specify the actual state of the private educational sector. From our research, we could be able to know about a specific sector as the private education sector. We are working on to know about their experience at online learning and their mental health. Considering to our view for this concept we can say that our research papers is unique.

2.4 Scope of the Problem

The scope of the study plays a vital role on research papers. Our research paper is based on mental health and online learning. Here we are going to highlight their suffering intends to pandemic situation and also going to measure their mental health state. We arranged age limit very wisely. For teacher we defined Age in percentages and for the university's student we tried to measure their suffering based on years such as 'first year student'. Due to strict lockdown and pandemic, we could not collect data direct so we had to collect data virtually. We have used their emails and social site to contact. We gave 3 months to complete that form. As coronavirus has spread on March in 2020 and we provide our online form on May in 2021. So they had already experienced enough to give their valuable information. From their experiences, they gave their live struggle about their online study and online study related problems like internet issues [23], communication gaps, lost interest, proper judgment and so on. They also gave information about their internal battle their

mental condition throughout this journey. Mental health is a major issue because this pandemic has increased their mental illness such as depression, anxiety [12], fear of career and position and so on. We made questionnaire based on their sufferings and gave them a blank space they can write extra problems, if they had any. Questionnaires were made wisely to evaluate their changes [11].

2.5 Challenges

We have gone through so many challenges. The main challenges that we have faced during our research are written below:

- Pandemic situation has made our work more challenges. Data collections weren't easy for us. We have tried our best to reach them through their emails, different social media and different groups [5].

- It was really tough to collect data from them. Because of pandemic we couldn't reach them directly so had to reach them virtually. We have faced difficulties to gather data especially from the teachers. It was not possible to collect data directly due to the pandemic situation as a result, we collect data through online surveys, and we did not get the expected response from teachers.

- Students' responses were relatively low and we had to remind them repeatedly to fill out the form. We interacted with them through different social media and different groups and email addresses. We have tried our best to collect information from students from different universities [5].

- We have used different data types in our online survey form just to explain in a simple way. Since we have done data classification, we have to convert a large amount of   different data type into the numeric and binary. We are using Multinomial and Binary logistic regression algorithm. In this algorithm we cannot use any kind of variant value except its form so that we have to covert those large data type into numerical value and binary. It was really tough and challenging too.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research Subject and Instrumentation

We focus on two vital subjects on our research papers. Considers the COVID-19 situation. There are

- Online learning on private educational sector [1].
- State of Mental Health of the students and the teachers.

 As we have collected information through online so these are the instrumentation that we have used:

- Goggle form[12]
- Social media and emails[12]
- SPSS, MS excel and Jupiter notebook.

3.2 Data Collection Procedure and Dataset Utilized

Some online question was developed on COVID-19. Those were pandemic-related and based on online education and mental health. We have gather data from the students and the teachers. The questionaries' was written in English. We have developed two different questions where one for the students and another for the teachers [12]. These surveys included a short overview of the study, purpose and confidentiality agreement. By clicking on the survey link they can participants directly. So access to these surveys was so easy. [4]

SURVEY CONTEXT:

Our survey was (for the teacher) consisted seventeen quires which take 5-6 minutes to complete. In this survey we have included seven questions related to online learning and five for mental health and participant characteristics has five questions like age, gender, department, institute, and designation [4] [25]. Here the age question is given as a group and we provide options such as '20-30', '30-40', '40-50' and '50+'. In online learning section we made easy, simple and more understandable questions added more state straight forward with option to choose for answer such as "How

much interest you have on online education?" with answer options like up to '50%', '50% to 70%', '70%-90%' , 'more than 90%'. Also contain some question with checkmark option (They can choose multiple options) such as, "What kinds of problem you have faced on provide proper judgment during online assessment?" [6]and the answers option was like:

- Unclear answer scripts
- Similar answer scripts
- Due to communication gap
- Internet issue
- None

In mental health section the questionnaires were based on mental counseling, stress, anxiety, fear and so on. Example "Do you gone through mental pressure because of undesirable news? If YES, what kind of news?" gave multiple answer options like:

- Sexual abused
- Physical abused
- Rape
- Domestic violence
- Suicide
- Negative economic effect
- Fake news
- Others

Here they can choose multiple answers. Another example is "Do you feel fear regarding of your career and position during this pandemic situation?" [8] with answer option 'YES', 'NO', and 'Maybe'.[4]

And another survey was (for the students) consisted nineteen quires which also take 5-6 minutes to complete. Here, participant characteristic has five items, online learning has ten items and mental health related four questions [21] [22]. In online education section queries depends on their online learning, online exams, their interest on online education such as "What kind of problem you faced because of online learning?" where they can choose multiple options to answer like:

- Lack of interest

- Hard to understand
- Poor internet connection
- Internet cost
- Proper judgment
- Unsuitable environment at home

An example of mental health section queries "Does social media exposure increase your stress or anxiety" with answer option 'YES', 'NO'.[12]

In our survey we also questioned for both like "If there was any aspect of online learning that you would have preferred to be different, what would it be?" [4].

3.3 Statistical Analysis

The descriptive statistics were based on all the responses we have got. All online education and mental health standards based on Covid-19 have been Chi-Square tested. Multivariate analysis was applied to highlight the struggle of them. The result are described using odds ratio (OR) and 95% confidence interval (Cl). SPSS was used to all the analysis with a 5% level of significance.[4]

3.4 Proposed Methodology/Applied Mechanism

After collecting our data, we imported those vital data into IBM SPSS. For proper analysis we have applied Multinomial logistic regression and Binary logistic regression [4]. We have also done crosstabs analysis and develop histogram on our data. In figure 3 we developed a flowchart of our methodology.
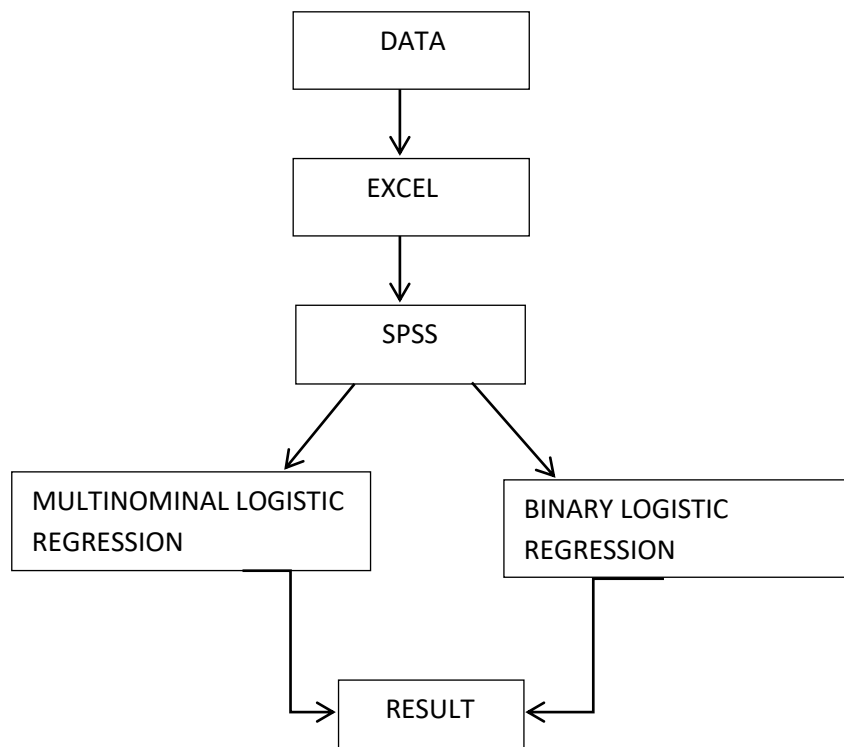
Figure 3: Flow chart of Methodology

3.5 Implementation Requirements

Since we are using the algorithm to analyze the data, we classified our data to find out the approximate correct values. For obtain accurate values we used multinomial logistic regression and binary logistic regression [4]. Multinomial logistic regression does not use any variant data types and binary logistic regression also did not support variant values. We know that for predict categories we used Multinomial logistic regression and also used in probability. Here used dependent variable and multiple independent variables. Binary logistic regression is also usedto predict the data. Since, we are using those algorithms so that we cannot use different data types. We have to use numerical and binary value for analysis and calculating. So based on our analysis our data required numeric values.

CHAPTER 4

EXPERIMENTAL RESULTS AND DISCUSSION

4.1 Experimental Setup

For analyze we haveconverted our data into numeric value. For both student and teacher data,

Male = 1 and Female = 2

YES = 1 and NO = 0

Always = 1, Often = 2, Sometimes = 3 and Never = 4

For interest on the online education up to 50% = 1, 50-70% =2, 70-90% = 3 and more than 90% = 4.

In teacher form Age group (20-30 = 1, 30-40 = 2, 40-50 = 3 and 50+ = 4) and for the student Age group (17-20 = 1, 21-24 = 2, 25-30 = 3, 30+ = 4)

In the teachers form, the approximate values of different performance of the students are

(Up to 30% = 1, 30 to 50 = 2, 50 to 70% = 3, 70 to 90% = 4 and more than 90% = 5)

In the students form, we have converted their values as,

1st year = 1, 2nd year = 2, 3rd year = 3 and Final year = 4.

In these ways we have arranged our data to evaluate.

In our survey we included some data like 'Multiple option' so that they can select multiple options, if they had any. We have created separate columns and levels for each option to analyze this data. We have converted the'selected' option to 1 and the 'unselected' option to 0. Since SPSS does not support any spaces or symbols in the column name, so each column name has to be converted to a variable name.

4.2 Experimental Results & Analysis

We have gathered the total 185 responses from the students and got 69 responses from our honorable teachers. For the teachers, the maximum values were from male (65.2%), age 30-40 years old (47.8%), 50% to 70% interest on online education (33.3%). Teachers think online sessions are more stressful than face-to-face classes because of "sitting a long time in front of the screen" (68.1%), "lack of visual presence" (49.3%), "lack of variation in class activities" (56.5%), "difficult to create a healthy" (65.2%). Figure 4.1 shows Student's education performance is 50% to 70% between online class and face-to-face class [6]. Maximum teachers faced problems to provide proper judgment during online assessment because of "unclear answer script" (56.5%), "similar answer script" (72.5%) and "internet issues" (76.8%), (73.9%) teacher's got online education training. We have got few responses about comfortable on online education [5]. Those result showed as "comfortable to take classes from home" (17%), "time saving" (19%) and "hectic journey from home to campus" (33%) [1]. The majority (59.4%) teacher did not get any mental health counseling from their Institute and 44.1% teacher feel fear for their career and position because of COVID-19 pandemic. 52.2 % teachers claim social media exposure to increase their   stress or anxiety. And teacher's gone through mental pressure because of "fake news" (60.9%), "negative economic effects" (52.9%)," suicide news" (39.1%) [16], "domestic violence" (50%), "Rape" (30.9%), "sexual abused" (30.9%) and "physical abused" (35.3%)

Pie Chart Count of Difference between face to face class and online class about student's educational performance?

Difference between face to face class and online class about student's educational performance?
- up to 30%
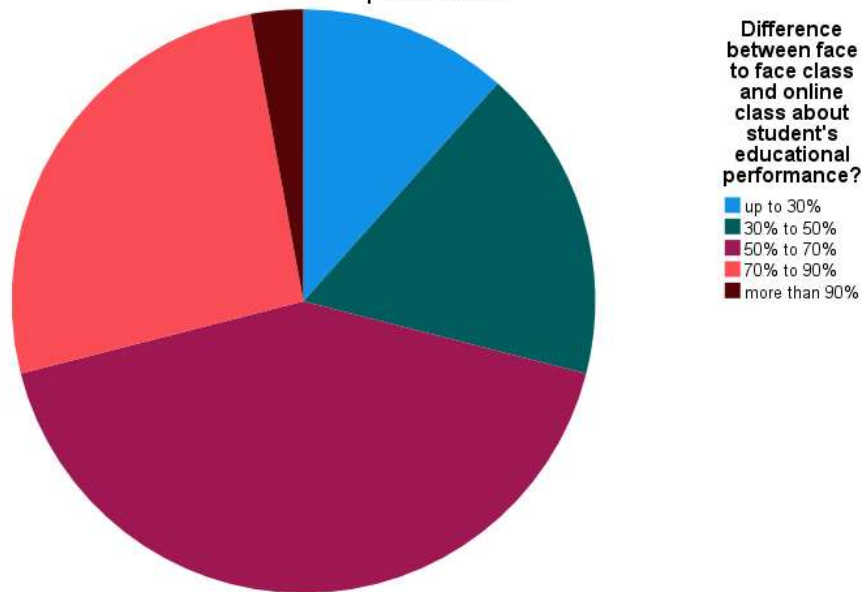- 30% to 50%
- 50% to 70%
- 70% to 90%
- more than 90%

Figure 4.1: pie Chart "Student performance Difference"

Binary logistic regression model between mental pressure and Age, gender, mental health counseling.

Here, physical abused (p-value 0.017), sexual abused (p-value 0.002), Rape (p-value 0.002), Domestic violence (p-value 0.0082), Suicide (p-value 0.063),Negative economic effect (p-value 0.055) and Fake news (p-value 0.003). Increased of anxiety or stress for social media exposure (p-value <0.001). That's indicate the model fits well. Binary logistic regression model between online education and Age, Gender, online education training [Online session are stressful because of; sitting long time in front of screen (p-value 0.03), Lack of variation in the class activity (p-value 0.131), Difficult to create healthy community (p-value 0.013)], [online session are comfortable because of, comfortable to take classes from home (p-value 0.9), time saving (p-value 0.06), No hectic journey (p-value 0.007)]

[Proper judgment problem because of, unclear answer script (p-value 0.280), Similar answer script (p-value 0.002), Due to communication gap (0.002), Internet issue (p-value 0.001) And None (p-value 0.709)]

That indicate the model is fit well. The multinational logistic regression model between online educations full filled the goodness of its criteria. This is goodness of fit criteria.

For the student's majority were male (62.7%), student of 2nd year (45.9%) and 21 to 24 years old (67%). Up to 50% interest on online education (53%). Majority face poor Internet connection problem during online learning (59.5%). Majority face submitting answer on during to time Problem during online exam (73.8%) maximum student always find their course material (40.5%) and students sometimes find their faculty to communicate (38.9%). A large number of student think online session are more stressful than face to face class because of sitting for a long time in front of screen (71%). Some student think online learning is comfortable because of time saving (30.1%). Majority student can't get any online education training (53.5%) [1] and mental health counseling and (58.3%) from their Institute, and maximum student gone through mental pressure because of the fake news (58.1%). Figure 4.2 shows a histogram between the student of and interest of online learning.
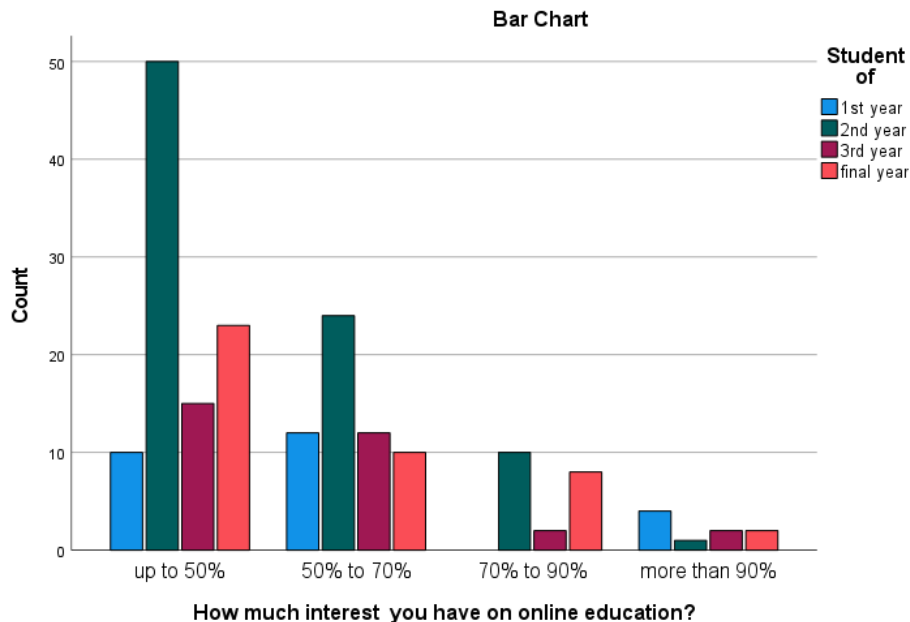

Figure 4.2: Interest on online education

Multinomial logistic regression model between interest of online education and independent variables were (student age, gender, find course material, find faculty and online education training) full filled the goodness of its criteria.

Binary logistic regression model between online education problem and independent variables [lack of interest (p-value 0.04), hard to understand (p-value 0.01), poor Internet connection (p-value 0.011), Internet cost (p-value 0.30), proper judgment (p-value 0.04), unsuitable environment at home (p-value 0.001)] that indicates fit well. Binary logistic regression model between exam problems and independent variables [Accessing the question (p-value 0.005), submitting answer on due time (p-value 0.016), understand question (p-value 0.001)] that indicates those fit well. Binary logistic regression model for stress of online session and comfortable [sitting for a long time in front of screen (p-value 0.001), lack of variation of the class activities (p-value 0.87), lack of visual presence (p-value 0.3), less interaction with classmates (p-value 0.034), Difficult to create healthy report with teacher (p-value 0.04), hectic class schedule (p-value 0.020)]

[Time saving (p-value 0.09), no hectic journey (p-value 0.075), flexibility doing task from home(p-value 0.023), flexibility class from home (p-value 0.021)]

Binary logistic regression model between mental health and participant classification,

[Social media exposure increase stress or anxiety (p-value 0.001)]

[Mental pressure because of news, physical abused (p-value 0.001, sexual abused (p-value 0.004), Rape (p-value 0.053), Domestic violence (p-value 0.05), suicide (p-value 0.048), Negative economic effect (p-value 0.173), fake news (p-value 0.003)]

That means this model fit well.[4]

TABLE 4.1: Model Fitting Information

Model Fitting Information

Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	300.804	310.465	294.804			
Final	292.686	350.653	256.686	38.118	15	.001

TABLE 4.2: goodness-of-fit

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	186.262	252	.009
Deviance	185.179	252	.999

Analyze:

Among all those values, which is p-value is less than 0.05 are called significant values, means because of those reasons teachers and students have faced more problems. Our model shows that students and teachers are going through more mental pressure for fake news. Due to social media exposure, the stress and anxiety of students and teachers is increasing.Both teachers and students feel that online sessions are too stressful compared to the face to face classes and sitting a long time in front of the screen made it more responsible. Because of the communication gap between the students and the teachers for online session made them stressful too. Maximum teachers have faced problem on providing proper judgment among to the students

because of their unclear answer scripts and similar answer scripts and internet issues. Figure 4.2.1 shows Teachers think that there is a difference in the performance of students in between 50% to 70%. At the other hand, the students have faced more problems during online exam because of understanding the questions and submitting the answer scripts on due time, this is the most challenging moment for every students. Besides that they have been facing difficulties due to poor internet connection. While the interest of online learning is 50% to 70% on the teachers and Figure 4.2.2 shows students have up to 50% interest on online learning. And most of the students are in between 21 and 24 years old. Maximum students did not get any online learning training and mental health counseling.

TABLE 4.3: percentage and P-value for teacher

Variable Name		percentage	p-value(sig)
Gender	Male	65.2%	0.057%
	Female	34.8%	
Age	20-30	33.3%	<0.001
	30-40	47.8%	
	40-50	13%	
	50+	5.8%	
OnlineEducationInterest	Up to 50%	26.1%	0.03
	50% to 70%	33.3%	
	70% to 90%	21.7%	

	More than 90%	18.8%	
StudentsPerformanceDifference	Up to 30%	11.6%	0.003
	30% to 50%	17.4%	
	50% to 70%	42%	
	70% to 90%	26.1%	
	More than 90%	2.9%	
SittingForALongTimeInFrontOfTheScreen	Yes	68.1%	0.03
LackOfVisualPresence	Yes	49.3%	0.170
LackOfVariationInClassActivities	Yes	56.5%	0.131
DifficultHealthyCommunication	Yes	65.2%	0.013
UnclearAnswerScripts	Yes	56.5%	0.280
SimilarAnsweredScripts	Yes	72.5%	0.002
DueToCommunicationGap	Yes	30.9%	0.002
InternetIssues	Yes	76.8%	0.001
None	Yes	2.9%	0.709
OnlineEducationTraining	Yes	73.9%	0.002

MentalHealthCounseling	Yes	40.6%	0.001
CarrierFear	Yes	44.1%	0.072
SocialMediaImpact	Yes	52.2%	<0.001
PhysicalAbused	Yes	35.3%	0.017
SexualAbused	Yes	30.9%	0.002
Rape	Yes	30.9%	0.002
DomesticViolence	Yes	50%	0.008
Suicide	Yes	39.1%	0.063
NegativeEconomicEffect	Yes	52.9%	0.055
FakeNews	Yes	60.9%	0.003

TABLE 4.4: percentage and p-value for student

Variable Name		percentage	P-Value(sig)
StudentOf	1^{St} year	14.1%	0.608
	2nd year	45.9%	
	3rd year	16.8%	
	4th year	23.2%	
Gender	male	62.7%	0.029
	female	37.3%	0.029

Age	17-20	25.9%	
	21-24	67%	0.049
	25-30	7%	
	30+	0	
OnlineEducationInterest	Up to 50%	53%	0.001
	50% to 70%	31.4%	
	70% to 90%	10.8%	
	More than 90%	4.9%	
LackofInterest	yes	49.2%	0.04
HardToUnderstand	yes	58.9%	0.01
PoorInternetConnection	yes	59.5%	0.011
InternetCost	yes	31.9%	0.30
ProperJudgment	yes	43.2%	0.04
UnsuitableEnvironmentAtHome	yes	40.5%	0.001
AccessingTheQuestion	yes	27%	0.005
SubmittingAnswerOnDueTime	yes	73.8%	0.016
EnvironmentAtHome	yes	48.6%	0.009
UnderstandQuestion	yes	37.8%	0.001

CourseMaterial	always	40.5%	0.012
	often	30.3%	
	sometimes	25.4%	
	never	3.8%	
AvailableFaculty	always	28.1%	
	often	28.6%	
	sometimes	38.9%	0.001
	never	4.3%	0.87
SittingForALongTimeInFrontOfTheScreen	yes	70.7`%	0.03
LackOfVariationInClassActivities	yes	48.6%	0.034
LackOfVisualPresence	yes	50.3%	0.04
LessInteractionWithClassmates	yes	57.8%	0.02
DifficultToCreateHealthyRapportWithInstructor	yes	42.7%	0.058
HecticClassSchedule	yes	27%	0.93
OnlineEducationTraining	yes	53.5%	0.001
MentalHealthCounseling	yes	58.3%	0.001
SocialMediaImpact	yes	64.9%	0.004
PhysicalAbused	yes	37.8%	0.053
SexualAbused	yes	39.5%	0.05

Rape	yes	44.9%	0.048
DomesticViolence	yes	43.8%	0.173
Suicide	yes	42.7%	0.003
NegativeEconomicEffect	yes	48.6%	0.004
FakeNews	yes	58.1%	0.002

4.3 Discussion

Bangladesh is now infected with a deadly virus known as coronavirus (COVID-19). This deadly virus was first confirmed in Bangladeshon 8th March 2020. On that day this nation tested 'Corona' positive infor the first time. Now there have been 1,353,695 positive cases and 22,652 death cases (Recorded from 9th August 2021). Day by day it's getting worst. Our prime minister declared lockdown nationwide. On 16th March, all the public and private educational institutions and offices remain off just to minimize its spread. Since educational sector was closed students and teachers became traumatize. This pandemic has left the negative impact on both. In this study we have tried to highlight and analyze about their mental health and also about private education sector. Well because of uncertain lockdown the students and teacher have gone through mental disaster. Many of them do not know how to deal with mental illness as in Bangladesh talking about mental illness consider as taboo, so no one is willing to open up about their state. In our survey we have included many questionnaires about their problem on the online learning and as well as mental issues. We gave importance on both sides. We have tried our best to find out how this online learning effects on them. Not everyone have suffered and faced the same problems, their battles may vary individuals. There might be so many issues that trends to mental illness. In our nation discussion about mental health becomes very complicated.Because of the pandemic, everyone is suffering and it has been affecting all aspects of ours live. Our daily life is becoming more dull causes of COVID-19. So it is very difficult to talk about mental issues and many people could not open up

about their mental illness because they feel embarrassed. As coronavirus has been changing it form and rapidly spreading, mental health also increasing. The teachers have suffered a lot because of online learning and they also gone through mental illness like depression, fear of position, fake news, and misinformation's made them so stressful [25]. The students also faced difficulties including online learning and mental health, this pandemic give a negative imposed effect on both. This unpredictable environment is the reason of trigger mental diseases such depression, sadness, anxiety, fear, stresses and so on. In this study we have analyzed what mostly trigger their mental illness and their experienced related to online learning. This mental illness is varying on age difference. In our survey, the result shows that in some particular area they have suffered more.In Figure 4.3 we see the relation map between age,gender student of and interest of online learning of students.
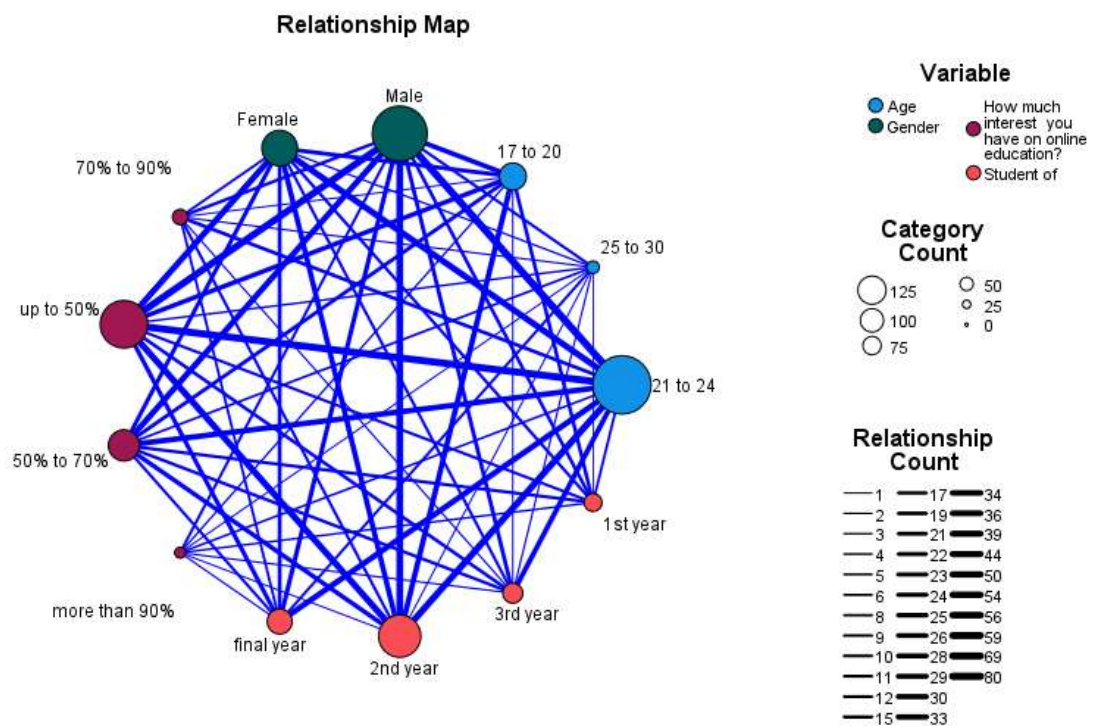

Figure 4.3: Relationship map

CHAPTER 5

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

5.1 Impact on society

This study can have beneficial for the impact on society. This study has highlighted the online education and mental health problem of the students and the teachers.By reading our research paper, teachers will be able to know what problems they face in Strained Online Education.This will enable the teachers to better understand their problems and also how to solve that problem as a result, they will be able to take action on how to control and handle those circumstances. And this might be helpful for the teachers to know their student mentality's state so they can be located their issues and may provide mental counseling. Since this epidemic is indefinite and online education is still ongoing. As a result, teachers will be able to take appropriate steps to increase their interest in online education and solve their problems easily.This will make them more focused on online education and will be able to explain their problems to teachers more easily. On the other hand the students will also understand what problems the teachers are facing so that the students will be more understandableand corporative towards the teachers. Students will be tried to focus more and polite with their faculty. Students will also know about their teacher's effort and their struggle and also the problems they have suffered. This will enable private universities authority to know the problems of students and teachers and they will be able to take appropriate steps to solve them.This will allow the authorities of the private universities to understand that how to give them proper and better mental health counseling and how online education can be easier and more understandable. Private institute will know what advice would be more appropriate for them and will give them necessary online training to learn more efficiently. Since here we have beautifully highlighted the mental state of teachers and students and their online learning problems, it will be easier for the government to know what kind of measures should be taken to minimize the suffering of teachers and students. It would so convenience for both of them.

5.2Impact on Environment

It is so much essential to keep our environment safe because humanity depends on environment. Due to pandemic our climate has been changing for various reasons. As our education system has become online due to this the using of the internet is getting increased. Used of the mobile phone have been increasing and a new study by analyst Juniper Research showed that smartphone charging could soon be a massive generator of carbon dioxide and it cloud increase global warming. According to their study, this greenhouse gas emission will be double due mobile devices. It is getting increase over the years and years. This would be massive change for our climate and terrible for our future. The used of electricity has been increased due to pandemic as people using more electrical devices. There are many kind of devices who's emits radiations. This radiation is very harmful for mankind.As people cannot go out due to lockdown, so they order many foods via different apps. These foods covered with polythene bags. These polies reduce the soil productivity. For livelihood people are cutting more trees as they are losing their jobs. As we can see how this pandemic slowly destroying our environmental activities, if this continues like that way then we may have to face a real disaster in future.

5.3Ethical Aspects

This research-based study has received ethical approval from the authority committee of Daffodil International University, Bangladesh [4]. Our research-based project has maintained a high standard by requiring the anonymity and confidentiality of the participants. Ethical measures were kept throughout the research period by taking permission from the responders through Google form so there left no exposed risks.[12]

5.4Sustainability Plan

We know, our education sector (school, collage,university) has been closed for a long time due to covid-19 pandemic.Our government said,educational institutions will not be opened until the situation under control.As this study is to address the impact of the

pandemic on education sector, it will help reduce the problems of educational institutions in the coming days [12].

CHAPTER 6

SUMMARY, CONCLUSION, RECOMMENDATION AND IMPLICATION FOR FUTURERESEARCH

6.1 Summary of the Study

All educational institutions have been closed for a long time due to the epidemic.The regular lives of students and teachers have changed. This has had a huge impact on their education and mental health. We conduct a survey to better understand and analyze their educational and mental health effects.Teachers and students of various private universities and private polytechnics have responded to our survey.Most of the respondents were men, with the teacher aged 30 to 40 and the students aged 21 to 24. We have used the SPSS software to analyze our collected data. Here we have used two algorithms; those are multinomial logistic regression and binary logistic regression algorithm. We have seen that teachers are interested in online education but students are not.Although teachers have received online educational training and mental health counseling from the private education sectorbut most of the students have been deprived of that facility. Students have faced many problems in online sessions and exams and there are more such as poor internet connection, sitting for a long time in front of the screen, submission due time and understanding the questions pattern on that restricted time as well, besides that the communication gap between the students and the teachers had made more complexity. Teachers feel that online education made their performance less compared to face-to-face classes. According to the students, they did not get enough availability whenever they needed any faculty. Both the students and the teachers have blamed the 'social media exposure' for increasing their anxiety or stress. The mental pressure has been increasing because of fake news, physical abuse, rape, suicide news, economic effect, domestic violence, and so on. Most of them blamed to the 'fake news' more cause of their depression and mental illness.

6.2 Conclusions

The novel coronavirus (COVID-19) has occur so many damaged on our lives. This pandemic had done undesirable situation on us. Our private education sector has been suffering from the first day of lockdown till now; our life is now surrounded by depression and anxiety. Lives become hopeless and that's triggered our mental health. In these papers we measure the suffering, obstacle and problems related to online learning on private education sector. These surveys were for the students and respectively for the teachers. The questionnaires were arranged well related to their problem and impacts of this pandemic. We have collected their responses and by doing analyzing we highlighted them. This article aimed is to know others about their struggle due to pandemic. This research-based project might help others to understand their pandemic impact. This article may help different authorities or universities or government, who has been trying to minimize the impact and collision related to online learning and mental health of the students and the teachers.

6.3 Implication for Further Study

The proper highlights pedagogical implications, educational institutes can be develop their tools and protocol based on their needs and mental health conditions by review our research papers. For arranging better online learning platform and for proper mental health managing this study may help them to know, what would be best for them. This article can be helped in future study as 'References' related to impact/effect/struggle of COVID-19 on educational purpose [4][7]. On the other hand, there remain numerous gaps in the scientific community as to the impact of COVID-19 TO education in our country. Further studies should be evaluate the impact of COVID-19 pandemic to the educational system and gather scientific evidences on how the educational institute can effectively respond to another future virus outbreak.[13]

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