

Anxiety and Depression among Tertiary Level Students in Bangladesh during COVID-19 Outbreak

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Abstract

Objective: This study aimed to find out the anxiety and depression level among tertiary students in Bangladesh during COVID-19 outbreak.

Method: The online survey design was used in this study. To measure anxiety and depression, the Generalized Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9) scales were used. Binary logistic regression was performed to assess the impact of several factors on the likelihood of reporting anxiety and depression by respondents.

Results: The strongest predictor of binary logistic regression of reporting anxiety was gender (OR: 2.848; 95% CI; 1.836-4.417; $p < .001$), indicating that female students had about 2.9 times more likely to report anxiety than male students. The duration of using social media (OR: 0.567; 95% CI; 0.329-0.978; $p < 0.05$) was also affecting the level of anxiety of the students. Depression was reported to be affected by the present living place (OR: 0.507; 95% CI; 0.316-0.814; $p = .005$).

Conclusion: This study showed that students had different levels of anxiety and depression. Gender, the present living place, and the duration of using social media were the significant factors for anxiety disorder. Depression was also getting affected by the present living place and the duration of using social media.

Introduction

The severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) epidemic in China is a global health threat and it is the largest outbreak of a typical pneumonia since the severe acute respiratory syndrome (SARS) outbreak in 2003 (Wang et al., 2020). The COVID-19 outbreak was first revealed in the late December 2019 in China. Within weeks of the initial outbreak, the total number of cases and deaths exceeded the cases of SARS (Huang et al., 2020). Since 7 July 2020, there have been more than 110 million confirmed cases of COVID-19 globally

(WHO, 2020). Like other countries, Bangladesh has also been affected by this novel Corona virus. Since July 2020, the total cases in Bangladesh were about 165,618, with 2,096 deaths (Worldometer, 2020) from the very first case in the country on 8 March, 2020. Bangladesh is having an increasing curve of infection day by day.

The clusters of pneumonia cases of unknown etiology were found to be associated with epidemiologically linked exposure to a seafood market and untraced exposures in the city of Wuhan of Hubei Province (Dehkordi et al., 2020). COVID-19 can be spread to humans through intermediate hosts such as bats, though the actual route of transmission is still debatable. Human-to-human transmission has been observed via virus-laden respiratory droplets with symptoms or sometimes without symptoms.

The symptoms of COVID-19 include: fever, chills, cough, sore throat, breathing difficulty, myalgia,

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nausea, vomiting, and diarrhea (Chen et al., 2020). Older men with medical co-morbidities are more likely to get infected with worse consequences (Chen et al., 2020). Although people are infected regardless of their age, gender and race, severe cases can lead to cardiac injury, respiratory failure, acute respiratory distress syndrome, and death (Chen et al., 2020). Rather than these issues, the SARS-CoV-2 creates some psychological problems due to lockdown, quarantine and isolation (Ahorsu et al., 2020; Fardin, 2020; Kang et al., 2020; Kar et al., 2020; Moghanibashi-Mansourieh, 2020; Shammi et al., 2020; Shanafelt et al., 2020) worries, and anxiety among individuals worldwide. The present study developed the Fear of COVID-19 Scale (FCV-19S).

The psychological disorders and diseases during the pandemic hour had been found in many studies (Dehkordi et al., 2020; Ebrahim et al., 2020; Goyal et al., 2020; Greenhalgh et al., 2020) and the fact that healthcare facilities could be sources of contagion, has focused attention on new models of care that avoid face-to-face contact between clinician and patient. There has been particular interest in video consultations, which are already being rolled out in many countries as part of national digital health strategies.¹²³ How appropriate are video consultations for dealing with the coronavirus crisis—and what are the challenges of scaling up this model at speed? \n\nRandomised trials (most of which were underpowered. During the SARS outbreak, many studies investigated the psychological impact on the non-infected community, revealing significant psychiatric morbidities which were found to be associated with younger age and increased self-blame (Dehkordi et al., 2020; Ebrahim et al., 2020; Goyal et al., 2020; Greenhalgh et al., 2020) and the fact that healthcare facilities could be sources of contagion, has focused attention on new models of care that avoid face-to-face contact between clinician and patient. There has been particular interest in video consultations, which are already being rolled out in many countries as part of national digital health strategies.¹²³ How appropriate are

video consultations for dealing with the coronavirus crisis—and what are the challenges of scaling up this model at speed? \n\nRandomised trials (most of which were underpowered. According to Evans et al., (2017), anxiety refers to the multiple mental and physiological phenomena, including a person's conscious state of worry over a future unwanted event, or fear of an actual situation, and depression means feelings of severe despondency and dejection. Anxiety and depression are found to be highly related to socio-economic variables like age, sex, living place, source of information and other risk factors (Tausczik et al., 2012).

Currently, there is few information on the psychological impact and mental health during the COVID-19 pandemic (Ebrahim et al., 2020; Sakib et al., 2020; Shammi et al., 2020) healthcare capacity, limited resources and existing poverty, environmental factors, social structure, cultural norms, and already more than 18,863 people infected, the community transmission of COVID-19 is happening fast. These exacerbated a complex fear among the public. The aim of this article is, therefore, to understand the public perception of socioeconomic crisis and human stress in resource-limited settings of Bangladesh during the COVID-19 outbreak. The sample comprised of 1066 Bangladeshi participants. Principal component analysis (PCA. Despite interest for the mental health, epidemiological data are scary and there is few information concerning mental health issues, particularly anxiety and depression among Bangladeshi students during COVID-19 situation. The major research questions of this study were:

- what was the level of anxiety and depression among undergraduate and graduate students?
- were anxiety and depression affected by age, gender, educational status, type of educational institution, marital status, present living place, religion, monthly family income, respondent's monthly expenditure, duration of using social media, and sources of information about COVID-19?

Method

This was a cross-sectional study using online survey. The survey questionnaire was sent through social media platform. The main reason for using this online survey method was the difficulty in reaching to the respondents due to lockdown situations.

Study population and sample:

The students (completed 12 years of schooling) over the age of 18 years at tertiary level institutions (general universities, medical colleges, engineering universities/colleges, and other higher educational institutes) who provided their consent, were eligible to participate in this survey. Those who were not students and non-willing to participate, were excluded. By using the formula ($n = \frac{Z^2 \cdot p \cdot q}{e^2}$), the calculated sample size was 384 (with 95% confidence interval, $Z=1.96$, 5% margin of error, and 50% (p value= 0.5) proportion rate of the sample to population). A total of 401 respondents were participated at the end of the survey.

Ethical Consideration:

The ethical consideration was drawn by the Declaration of Helsinki (WMA General Assembly, 1964) "ISSN": "00027979", "PMID": "25951678", "abstract": "Published research in English-language journals are increasingly required to carry a statement that the study has been approved and monitored by an Institutional Review Board in conformance with 45 CFR 46 standards if the study was conducted in the United States. Alternative language attesting conformity with the Helsinki Declaration is often included when the research was conducted in Europe or elsewhere. The Helsinki Declaration was created by the World Medical Association in 1964 (ten years before the Belmont Report. The respondents were informed about all types of information related to the research. When they agreed and gave consent to the research, the survey questionnaire was sent to them by online. Respondents could quit the survey at any time of the research. Each questionnaire would be

equipped with a unique ID, to ensure identification of a questionnaire within the sample, but would neither contain respondents' names nor initials. Data was handled with a concern for keeping the identify secret and maintain the confidentiality. No monetary rewards were given for completing the questionnaire.

Data collection tools:

In this research, two research instruments named 'Generalized Anxiety Disorder-7 (GAD-7)' and 'Patient Health Questionnaire-9 (PHQ 9)' were used for data collection. The GAD-7 was found as a valid and efficient self-report anxiety measure and it was used to evaluate anxiety symptoms in divergent samples (Beard & Björngvinsson, 2014; Donker et al., 2011; García-Campayo et al., 2010; Mahe & Balogh, 2000; Ruiz et al., 2011; Seo & Park, 2015; Spitzer et al., 1999; Wittchen, 2002; Zhong et al., 2015) 41 family practice. The PHQ-9 that was considered as a valid and reliable measure of depression severity was used in different studies (Adekanattu et al., 2018; Barrigón et al., 2017; Bot et al., 2013; Du et al., 2017; Farzanfar et al., 2014; Fisher et al., 2010; Gothwal et al., 2014; Hoodin et al., 2013; Karekla et al., 2012; Kim et al., 2002; Kroenke et al., 2001; Pinto-Meza et al., 2005; Rothermund et al., 2016; Tomenson et al., 2013; Xiong et al., 2015) assessment of severity is also important in guiding treatment decisions. Therefore, we examined the validity of a brief, new measure of depression severity. MEASUREMENTS: The Patient Health Questionnaire PHQ.

Generalized Anxiety Disorder-7 (GAD-7):

It is a scale which is mainly used to measure the anxiety level of a person. When a person finds it difficult to control worry, then GAD-7 can measure the score for anxiety level. It had mainly seven main questions. Each question had four answering options as: not at all, less than 7 days, more than 7 days, and almost every day. These options were given scores of 0, 1, 2 and 3, respectively (Spitzer et al., 2006) there is no brief clinical measure for assessing GAD.

The objective of this study was to develop a brief self-report scale to identify probable cases of GAD and evaluate its reliability and validity. Methods: A criterion-standard study was performed in 15 primary care clinics in the United States from November 2004 through June 2005. Of a total of 2740 adult patients completing a study questionnaire, 965 patients had a telephone interview with a mental health professional within 1 week. For criterion and construct validity, GAD self-report scale diagnoses were compared with independent diagnoses made by mental health professionals; functional status measures; disability days; and health care use. Results: A 7-item anxiety scale (GAD-7). Sum of all answers were taken. Scores of 5, 10 and 15 were taken as the cut-off points for mild, moderate and severe anxiety, respectively. The higher the sum was, the higher the level of anxiety it was.

Patient Health Questionnaire-9 (PHQ-9) is a multiple-choice self-report inventory that is used as a screening and diagnostic tool for mental health disorders of depression. This scale had 9 main questions and each question had 4 answering options as: not at all, several days, more than half the days, and nearly every day. These options were given score for not at all = 0; several days = 1; more than half the days = 2; nearly every day = 3 (Na et al., 2018) and is often used to screen depressed patients for suicide risk. We aimed to validate the PHQ-9 item 9 with a brief electronic version of the Columbia Suicide Severity Rating Scale (eC-SSRS). For interpreting the scores, there were about five categories of describing the severity of depression. Scores having "0-4" was categorized as "no depression", "5-9" as "mild depression", "10-14" as "moderate depression", and "15-19" as "moderately severe depression" and "20-27" as "severe depression".

Results

This online survey was conducted from April 6, 2020 to April 21, 2020 on 401 tertiary level students in Bangladesh. There were 211 (52.6%) female

and 190 (47.4%) male respondents. Majority of the students (75.6%) were in the age range of 20 to 24 years. The percentage of the students at graduation and post-graduation level students were 81.3% and 18.7%, respectively. The students from the general universities or affiliated colleges were 67.1%, medical and engineering students were 16.2%, and 13.0%, respectively. More than 90% of the respondents were unmarried and above 50% of the respondents were living in the district towns (cities of Bangladesh which are governed by municipal corporations) comparing to villages. Around 92% of the respondents were Muslim. Respondents who had the family income in the range of BDT 20000-30000 (1\$ = 85 BDT) were considered as low-and middle-income category (BBS, 2015).

All the respondents used social media on a regular basis. About 76.8% of the respondents used social media for at least two hours and more. Among them, 175 (43.6%) respondents got the updates and information about COVID-19 from Facebook while only 19 (4.7%) respondents used to read newspaper. The mean score of GAD-7 and PHQ-9 are also reported in Table 1, based on the demographics and socio-economic conditions. Both anxiety and depression were seen to have an increasing trend by age category. While students aged 20 to 24 years had PHQ-9 scores of 11.64, the students aged more than 28 had the score of 27, which was the highest in the table. A clear indication had been found that the senior students had more depression level than the juniors. The female students were more depressed than the male. About 53% of female were suffering from depression, while it was about 48% among the men. For measuring depression by using PHQ-9, it was found that about 26.9% had mild depression and 19.7% had moderately severe depression among the respondents. The GAD-7 showed that the mild, moderate and severe levels of anxiety were about 32.2%, 31.2%, and 20.2%, respectively (Table 2).

Binary logistic regression was performed to assess the impact of several factors on the likelihood that

Variables		Number of respondents (%)	PHQ-9 Mean	GAD-7 Mean
Age	Less than 20	39 (9.7%)	11.64	7.90
	20 to 24	303 (75.6%)	10.44	10.12
	25 to 28	54 (13.5%)	11.63	9.94
	More than 28	5 (1.2%)	27.00	14.00
Gender	Female	211 (52.6%)	11.83	11.38
	Male	190 (47.4%)	9.92	8.31
educational status	Graduate	326 (81.3%)	10.78	9.62
	Postgraduate	75 (18.7%)	11.55	11.23
Type of educational institution	General University /	269 (67.1%)	11.80	10.66
	Medical College	College		
	Engineering University	65 (16.2%)	8.71	8.52
	Other	52 (13.0%)	9.60	7.48
		15 (3.7%)	9.40	11.27
Marital status	Married	33 (8.2%)	12.00	10.73
	Unmarried	368 (91.8%)	10.83	9.85
Present living place	District town	208 (51.9%)	10.65	9.67
	Village	98 (24.4%)	11.97	9.98
	Police station	95 (23.7%)	10.44	10.42
Religion	Islam	366 (91.3%)	11.06	10.07
	Hindu	35 (8.7%)	9.51	8.37
Family income (BDT)	10000-20000	83 (20.7%)	10.98	9.45
	20000-30000	100 (24.9%)	10.56	9.73
	30000-40000	75 (18.7%)	12.37	10.56
	40000-50000	84 (20.9%)	9.31	10.29
	50000-60000	59 (14.7%)	11.92	9.61
Respondent's monthly expenditure (BDT)	2500-6000	157 (39.2%)	10.31	9.01
	6000-8000	171 (42.6%)	10.79	10.06
	8000-10000	31 (7.7%)	14.13	12.68
	10000-15000	27 (6.7%)	11.19	10.19
	15000+	15 (3.7%)	11.80	11.80
Duration of using social media	Less than half an hour	5 (1.2%)	4.00	9.00
	One hour	32 (8.0%)	9.56	9.38
	Two hours	56 (14.0%)	7.57	7.18
	More than that	308 (76.8%)	11.79	10.50
Sources of information about COVID 19	News portal	64 (16.0%)	10.17	9.72
	Facebook	175 (43.6%)	11.98	10.48
	YouTube	23 (5.7%)	7.70	9.13
	Newspaper	19 (4.7%)	9.79	11.89
	TV	112 (27.9%)	10.88	9.16
	Other	8 (2.0%)	6.38	7.75

respondents would report that they had a problem with depression and anxiety. For binary logistic regression, each independent variable was divided into two categories -reference category and other category. Based on different studies (DeMaris, 1995; Garavaglia & Sharma, 1998) the focus of this article is explanatory or independent variable construction and usage. Typically, dummy variables are used in the following applications: time series analysis with seasonality or regime switching; analysis of qualitative data, such as survey responses; categorical representation, and representation of value levels. Target domains may be economic forecasting, bio-medical research, credit scoring, response modeling, and other fields. Dummy variables may serve as inputs in traditional regression methods or new modeling paradigms, such as genetic algorithms, neural networks, or Boolean network models. Coding techniques include "1-of-N" and "thermometer" encoding. Statistical properties of dummy variables in each of the traditional usage and application contexts are discussed, and a more detailed introduction of a Boolean network model is presented. Because conversion of categorical data to dummy variables often requires time-consuming and tedious re-coding, a SAS macro is offered to facilitate the creation of dummy variables and improve productivity.", "author": [{"dropping-particle": "", "fami

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Table 2: Severity Categories of anxiety and depression

Scales	Levels	Number of respondents (%)
Patient Health Questionnaire (PHQ-9)	Minimal depression	97 (24.2%)
Mild depression	108 (26.9%)	
Moderate depression	55 (13.7%)	
Moderately severe depression	79 (19.7%)	
Severe depression	62 (15.5%)	
Generalized Anxiety Disorder (GAD-7)	Minimal anxiety	66 (16.5%)
Mild anxiety	129 (32.2%)	
Moderate anxiety	125 (31.2%)	
Severe anxiety	81 (20.2%)	

type of educational institution (general university as reference and medical college, engineering university as other), marital status (married as reference and unmarried as other), present living place (district town as reference and rural as other), religion (Islam as reference), monthly family income (40000 or less than it as reference), respondent's monthly expenditure (8000 or less than it as reference), duration of using social media (two hours or less than it as reference) and sources of information about COVID-19 (Facebook as reference).

GAD-7 score was transformed into two categories, one holding the scores 0-3 and another one holding the scores 4-5. For anxiety, P value was 0.00 in the Omnibus Tests of Model Coefficient which was less than 0.05 indicating that the logistic model was fitted well. Odds ratios (ORs) and their 95% confidence intervals (CIs) were used to quantify the associations between variables and anxiety as well as depression. As shown in Table 3, six of the independent variables made a unique statistically significant contribution to the model (age, gender, type of educational institution, present living place, monthly family income and duration of using social media). The strongest predictor of reporting anxiety was gender, recording an odds ratio of 2.848.

For depression, P value was 0.00 in the Omnibus Tests of Model Coefficient which was less than 0.05, indicating that the logistic model was fitted well. As shown in Table 3, two of the independent variables (present living place and duration of using social media) made a unique statistically significant contribution to depression.

It can be stated that, age (OR: 1.132; 95% CI; 1.004-1.276; $p < 0.05$), gender (OR: 2.848; 95% CI; 1.836-4.417; $p < 0.05$), type of educational institution (OR: 1.948; 95% CI; 1.197-3.170; $p < 0.05$), present living place (OR: 0.507; 95% CI; 0.313-0.824; $p < 0.05$), respondent's monthly expenditure (OR: 0.562; 95% CI; 0.315-1.003; $p < 0.05$), and duration of using social media (OR: 0.567; 95% CI; 0.329-0.978; $p < 0.05$) were the determinants of the level of the anxiety

for tertiary level students. Depression was getting affected by present living place (OR: 0.507; 95% CI; 0.316-0.814; $p < 0.05$) and duration of using social media (OR: 0.279; 95% CI; 0.160-0.488; $p < 0.05$).

Discussion and Conclusion

This study represented the psychological impact on undergraduate and graduate students in different institutions in Bangladesh during COVID-19 outbreak. According to GAD-7 scale, about 16.5%, 32.2%, 31.2%, and 20.2% of respondents had minimal, mild, moderate, and severe levels of anxiety, respectively. The similar result was found in the study of Lai et al. (2020) Settings, and Participants: This cross-sectional, survey-based, region-stratified study collected demographic data and mental health measurements from 1257 health care workers in 34 hospitals from January 29, 2020, to February 3, 2020, in China. Health care workers in hospitals equipped with fever clinics or wards for patients with COVID-19 were eligible. Main Outcomes and Measures: The degree of symptoms of depression, anxiety, insomnia, and distress was assessed by the Chinese versions of the 9-item Patient Health Questionnaire, the 7-item Generalized Anxiety Disorder scale, the 7-item Insomnia Severity Index, and the 22-item Impact of Event Scale-Revised, respectively. Multivariable logistic regression analysis was performed to identify factors associated with mental health outcomes. Results: A total of 1257 of 1830 contacted individuals completed the survey, with a participation rate of 68.7%. A total of 813 (64.7%) which was conducted in China. According to Kaveh et al. (2020), 18.1% of respondents experienced severe, 21.5% moderate, and 31.8% mild levels of anxiety. Like other studies, age was found as a significant factor for the levels of anxiety (Armour, 2020; Moghanibashi-Mansourieh, 2020; Özdin & Bayrak Özdin, 2020).

Gender was another significant factor. Higher anxiety level was found among the female. The respondents who were female reported anxiety about 2.9 times more than male. These findings were consistent with

Table 3 Binary Logistic Regression model for anxiety and depression with other factors

	Binary Logistic Regression model for anxiety with other factors				Binary Logistic Regression model for depression with other factors			
	Odd Ratio	Lower limit	Upper limit	P value	Odd Ratio	Lower limit	Upper limit	P value
Age	1.132	1.004	1.276	0.043	0.992	0.884	1.114	0.894
Gender	2.848	1.836	4.417	0.000	1.255	0.816	1.929	0.301
Highest educational Status	1.041	0.631	1.717	0.874	0.647	0.397	1.055	0.081
Type of educational institution	1.948	1.197	3.170	0.007	1.178	0.737	1.884	0.493
Marital status	1.583	0.683	3.671	0.285	1.343	0.600	3.005	0.473
Present living place	0.507	0.313	0.824	0.006	0.507	0.316	0.814	0.005
Religion	1.439	0.642	3.227	0.377	1.576	0.725	3.426	0.251
Monthly family income	1.524	0.940	2.471	.087	0.956	0.598	1.527	0.849
Respondent's monthly expenditure	0.562	0.315	1.003	.049	0.861	0.491	1.511	0.602
Duration of using social media	0.567	0.329	0.978	.041	0.279	0.160	0.488	0.001
Sources of information about COVID 19	0.989	0.630	1.553	.963	1.144	0.741	1.767	0.544

previous studies, in which women were found to have severe anxiety symptoms (Huang et al., 2020; Lai et al., 2020; Moghanibashi-Mansourieh, 2020; Özdin & Bayrak Özdin, 2020) 2020, 246 medical staff participated in the treatment of COVID-19 were investigated using cluster sampling, and received 230 responses, with a recovery rate of 93.5%. Results: The incidence of anxiety in medical staff was 23.04% (53/230). The present living place was found to be a factor affecting the anxiety level of the students. This was also found to be significant factor in other studies (Lai et al., 2020; Moghanibashi-Mansourieh, 2020; Özdin & Bayrak Özdin, 2020) 754 individuals from the general population of 31 provinces of Iran who completed the questionnaire on social networks from March 1 to March 9, 2020. The inferential statistics suggests that the level of anxiety was higher among

women (95% CI [0.1, 81.36], $p < 0.001$). The depression level varied among the respondents who lived in the district town and rural areas. The respondents in the urban area had more depression than the rural ones. The study conducted in China found that current working and living place was a significant factor for affecting the level of depression (Lai et al., 2020) Settings, and Participants: This cross-sectional, survey-based, region-stratified study collected demographic data and mental health measurements from 1257 health care workers in 34 hospitals from January 29, 2020, to February 3, 2020, in China. Health care workers in hospitals equipped with fever clinics or wards for patients with COVID-19 were eligible. Main Outcomes and Measures: The degree of symptoms of depression, anxiety, insomnia, and distress was assessed by the Chinese versions of the 9-item

Patient Health Questionnaire, the 7-item Generalized Anxiety Disorder scale, the 7-item Insomnia Severity Index, and the 22-item Impact of Event Scale-Revised, respectively. Multivariable logistic regression analysis was performed to identify factors associated with mental health outcomes. Results: A total of 1257 of 1830 contacted individuals completed the survey, with a participation rate of 68.7%. A total of 813 (64.7%). Several studies conducted on Turkish society found that people in the urban areas had more depression than the others during pandemic situation (Moghanibashi-Mansourieh, 2020; Özdin & Bayrak Özdin, 2020). Respondents who spent more time on using social media had higher level of anxiety. And the similar result was found in Shensa's study (Shensa et al., 2018).

As mental health is a major public health issue and it affects the human resource and productivity of the nation, necessary steps can be taken to minimize anxiety and depression. Since female were more vulnerable to mental health problems than male, focusing on female could be more prioritized in policy making. The students of different age group had different level of anxiety and depression. After considering this issue, counseling and programs can be taken for different age groups accordingly. In recent times, video calling based psychological counselling are getting popular as people cannot go outside of home (Greenhalgh et al., 2020). In Bangladesh, these kind of innovative ideas and lifestyle change are the necessary need to be mentally healthy in the current period of COVID-19 wave. Youth related organizations can create impactful campaign to keep the students busy and active for different purposes like, cultural activities, competitions etc. Since the duration of using social media increased the level of anxiety and depression, students may engage themselves in productive activities like, book reading, self-development, gardening etc. Students can also be encouraged to practice self-care, exercise, spending more family time, and other things which can help them for minimizing the level of anxiety and

depression.

This study had some limitations. Firstly, it was conducted during COVID-19 period which enabled us only to use the online survey that was totally voluntary submission (Wright, 2006) by the students. Secondly, the students who had access to internet were the respondents of this research. Many students could not join to this survey because of not having access to the internet.

However, this study brings an opportunity for further in-depth research. This research had just tried to find out the level of depression and anxiety as well as the determinants to it. Further research can be done to explore why the female students are more depressed than the male students. This research was only limited to the tertiary level students. The future study can also be conducted on covering larger heterogeneous samples.

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