

Prevalence of depression and anxiety among university students during COVID-19 in Bangladesh: A cross sectional study

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Abstract

Introduction: The COVID-19 outbreak has become a challenging crisis for public health. During the COVID-19 pandemic, the indefinite closure of educational institutions in Bangladesh has a severe impact on the mental health of students.

Purpose: The purpose of this study is to investigate factors that might have considerable influence on the mental health of students during quarantine in Bangladesh though they did not explore in previous studies on mental health status during the pandemic.

Methodology: A standardized questionnaire was generated using PH9 and GAD7 to measure depression and anxiety levels. A total of 203 responses were collected from university students of Bangladesh through social media.

Results: Descriptive statistics found that 37% of the students experienced moderate to severe anxiety while 54% faced moderate to severe depression. Ordinal Logistic Regression analysis found that anxiety is significantly related to gender, students' current affiliation status in university (e.g., sophomore, masters), and time spent on watching TV while depression was related to family member's contact with Covid-19, performing multiple activities as hobbies, and spending time in reading and writing.

Conclusions: This study adds valuable findings in the existing literature, and it will help Students, university authorities, and government can take productive steps to tackle mental health issues.

Keywords

COVID-19, mental health, university students, quarantine activities, Bangladesh

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Introduction

COVID-19 outbreak has become one of the most devastating and challenging crisis for public health in the contemporary world (Islam et al., 2020). This pandemic has rapidly compounded its public health burden (Torales et al., 2020) and has been recognized as a greater risk for deteriorating mental health conditions of individuals (WHO 2020a). Along with public health, the COVID-19 pandemic has a significant impact on the social and economic aspects (Bhuiyan et al., 2020; Nicola et al., 2020). In December 2019, the coronavirus disease (COVID-19) pandemic was first identified in a seafood market in Wuhan City, Hubei in China, started to spread quickly throughout the world (Wang et al., 2020). In January 2020, the WHO declared the outbreak of COVID-19 infection as a public health emergency of worldwide concern (WHO, 2020a). Subsequently, on March 11, 2020, WHO declared COVID-19 as a pandemic (WHO, 2020b). The incidence and mortality due to COVID-19 have increased dramatically around the world. Until now, over 56,660,391 people have infected in the COVID-19 in the world, causing more than 1,356,705 deaths (As of 19 November 2020; Worldometers, 2020).

Lockdown is considered as effective measure in slowing the spread of COVID-19 around the globe (Barkur et al., 2020; Flaxman et al., 2020). Like other countries, Bangladesh reported the first COVID-19 case on March 8, 2020 (Daily star, 2020a), and although initially, the virus spread slowly, a rapid case increment started in April (Satu et al., 2020). After first COVID-19 detection, Bangladesh also put the lockdown strategy into effect on March 26, 2020, to ensure 'social distance' through 'home quarantine' to curb the 'spread' of the virus among its population (Jahid, 2020; Bhuiyan et al., 2020; Bodrud-Doza et al., 2020). Although the COVID-19 virus has affected all districts of the country and around 4 41,159 confirmed cases, 6,305 people died in Bangladesh (on 19 November 2020; Worldometers, 2020). However, all education institutions were shutdown initially from March 18, 2020, to March 31, 2020, across the country and later extended to November 14, 2020, in phases (Dhaka tribune, 2020a; Dhaka tribune, 2020b).

Consequently, it has created uncertainty about academic and professional careers among the students which intensified mental health problems among university students (Hossain et al., 2019; Shamsuddin et al., 2013). Furthermore, COVID-19, tertiary education institutions have shifted to an emergency online learning format, which would be expected to exacerbate more academic stressors for students (Grubic et al. 2020). Like other countries, most of the major public universities in Bangladesh have started to take online classes, including Dhaka University which

started online classes in July (Daily star, 2020b). Due to students with fewer facilities (i.e., high internet service costs, poor internet connection in the rural area, not having access to a digital device, etc.), only half or even more students could not access online class, might be potential mental distress mediating factors (Islam et al., 2020; Daily star, 2020b). A study showed that 35.5% of participants (medical students) were in a state of depression, and 22.1% were in a state of anxiety (Liu et al., 2020). Cao et al. (2020) confirmed that 24.9% of Chinese college students experienced the negative impact of the Covid-19 crisis on mental health due to academic delays and the economic effects of the pandemic. Moreover, financial instability, lack of personal space at home, fear of infecting other family members, and insecure potential jobs may lead to a wide range of psychiatric challenges for university students (Cao et al., 2020; Wang et al., 2020).

Purpose

This article aims to investigate the impact of COVID-19 on the mental health status of university students of Bangladesh. It also attempts to explore associate factors to mental health (i.e., depression and anxiety) and relieving factors (activities of students) of depression and anxiety since previous studies done on this area have not explored these factors. To evaluate the mental health status of students, this study use Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder 7 (GAD-7) screening tools.

Methodology

An online survey was conducted among students to gather the necessary data. The survey was conducted from 19th September to 18th October. During this pandemic, all the educational institutions were closed, and students were not able to go out because of quarantine. Depression was measured by the Patient Health Questionnaire (PHQ-9). PHQ-9 is useful for screening depression of the responses that are used to predict depression of an individual and what state he/she is in during the survey. The scores in PHQ-9 range from '0 = not at all' to '3 = nearly every day' (Kroenke et al., 2001). Levels of depression were characterized as 'non-minimal = 0–4', 'mild = 5–9', 'moderate = 10–14,' 'moderately severe = 15–19,' 'severe = > 20.' Anxiety was assessed by Generalized Anxiety Disorder (GAD-7). The questions in the questionnaire scale range from '0 = not at all sure' to '3 = nearly every day' (Spitzer et al., 2006). The levels of anxiety for the study were characterized as 'mild = 5–9,' 'moderate = 10–14, and 'severe = > 15'.

PHQ-9 and GAD7 were proved to be useful reliable tools in various studies for detecting depression (Martin et al., 2006; Hossain et al., 2019). Numerous studies used these methods to measure anxiety and depression in various countries (Milić et al., 2019; Liu et al., 2020). Considering its reliability and widespread usage, this study will use these two methods to measure the mental health of university students.

The independent variables taken from the literature (i.e., gender, age, living area, family members' contact with Covis-19, watching TV, talking with friends and family, spending time in reading and writing, and lastly, doing religious activities) consist mostly of factor variables which range from 0 to 1. If an individual falls into a specific category s/he was specified as 0 if not then 1(e.g., if male and 0 if female). Some continuous variables (i.e., number of activities performed, family income threshold, and affiliation with the university) are also included in the analysis, and they can take any number (e.g., 1 or 7).

Descriptive statistical analysis was conducted to describe the characteristics of the participants. Ordered Logistic Regression analysis was done to predict the association of psychological measures (PHQ and GAD7) to potential factors. The PHQ categorizes depression, and as non-minimal, mild, moderate, moderately severe, and severe, and GAD7 categorizes anxiety as mild, minimal, moderate, and severe. This study used OLR since there is an order in place, and these categories can be considered as the Likert scale, and a p-value of ≤ 0.05 was considered to be significant. Some of the previous studies done using the Likert scale mostly use OLR to analyze their data

(Eboli and Mazzulla, 2009), and it stated that OLR can be used in this case (Hedeker, 2014). After the regression analysis, assumptions related to OLR were checked using Omodel and Brant test which are usually used to test proportional odds assumption and parallel regressions assumption (Williams and Quiroz, 2020). The tests conclude that the overall model does not violate any assumptions, and the results obtained from the analysis can be considered reliable.

Results

Table 1 describes the variables, and Table 2 shows the prevalence of anxiety and depression among students. Out of the Total 203 responses, mild to severe depression was found among 161 (79%)students. Surprisingly almost everyone face mild to severe anxiety symptoms. 59 % (119) of participants were male, and 97% (197) were within 18 to 25 years. 66% (134) of students live in urban areas, and the rest are in rural areas. Mostly (28.7%) students came from a family having 10000 TK to 30000 TK monthly income. 19.2 %(39) students were from families having below 10000 TK monthly income while 24.8 % (51) students are from affluent families. Family members of 86.7 % (170) students were not infected by COVID-19. Almost 5 %(11) students were idle during this pandemic. Mostly (39%) were busy with doing single activities.43.9% (87) students spent their time watching TV, 46% (93) students read and wrote, 49% (100) students spent time with their family and friends,42% (86) students were busy with religious activities.

Table 1: Frequency table for different selected variables.

Variables	Percentage	Frequency (N= 203)
Gender		
Female	41%	84
Male	59%	119
Age		
18-25	97%	197
Above 25	3%	6
Current student affiliation with the University		
1st and 2nd year	33%	67
3rd year and above	67%	137
Living area		
Urban	66%	134
Rural	34%	69
Family income		

Below Tk. 10,000	19%	39
Tk. 10,000-30,000	29%	58
Tk. 30,000-50,000	27%	55
Above Tk. 50,000	25%	51
Family been infected by Covid-19		
No	86.7	170
Yes	13.3	33
Number of activities performed		
0 to 3	75%	153
4 to 7	25%	50
Activities performed		
Did not watch TV	56.1	116
Watched TV	43.9	87
Reading and writing		
Done reading and writing	46%	93
Did not read or write	54%	110
Talk with friend and families		
Did not talk	51%	103
Talked	49%	100
Doing religious activities		
Did not (0)	58%	117
Did (1)	42%	86

Table 3 illustrates the descriptive statistics of variables and the prevalence of anxiety and depression among them. The analysis showed that female suffered more depression (i.e., moderate 24% and moderately severe 17%) and anxiety (17% moderate and 30% severe) compared to their male counterpart (20% moderate and 1% moderately severe depression while 16% moderate and 14% severe anxiety). Among fresh graduates, only 3% of students were found to have moderately severe to severe depression while 23% and 13% of masters' students were in moderately severe to severe depression. Anxiety was also found to be severe among students from senior and master's years (23%) compared to their younger counterparts (13%). Prevalence of moderately severe to severe depression was found to be high (14% and 12%) among students from urban areas compared to students living in the rural area (7% and 1%). However, students from the urban area suffered less anxiety (16% moderate anxiety vs. 17%

among rural students) though they also faced 26% severe anxiety compared to 12% among rural students.

Students with family income less than 10000 TK have faced 5% moderately severe and severe depression while students with family income more than 50000 TK suffered 20% and 14% moderately severe and severe depression. Similar to students living in rural areas, students from low-income families suffer from 15% moderate anxiety compared to 12% among students from high-income family though they face severe anxiety more than students from low-income families (29% vs. 8%). The result also indicated that students whose family member has been in contact with Covid-19 have higher depression (18% severe) and anxiety (30% severe) compared to students whose family member has not been intact with Covid-19 who suffered from 6% and 18% severe anxiety and also severe depression.

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Table 2: Prevalence of anxiety and depression

Anxiety	Frequency	Percentage	Depression	Frequency	Percentage
Mild anxiety	64	32%	Mild	77	38%
Minimal anxiety	64	32%	Moderate	43	21%
Moderate anxiety	33	16%	Moderately severe	24	12%
Severe anxiety	42	21%	None-minimal	42	21%
			Severe	17	8%

Students with family income less than 10000 TK have faced 5% moderately severe and severe depression while students with family income more than 50000 TK suffered 20% and 14% moderately severe and severe depression. Similar to students living in rural areas, students from low-income families suffer from 15% moderate anxiety compared to 12% among students from high-income family though they face severe anxiety

more than students from low-income families (29% vs. 8%). The result also indicated that students whose family member has been in contact with Covid-19 have higher depression (18% severe) and anxiety (30% severe) compared to students whose family member has not been intact with Covid-19 who suffered from 6% and 18% severe anxiety and also severe depression.

Table 3: Descriptive statistics of depression and anxiety among students

Depression												
Variables		none-minimal	Percentage	Mild	Percentage	Mode	Rate	percentage	moderately severe	percentage	severe	Percentage
Gender	Female	18	21%	53	63%	20	24%	14	17%	8	1%	
	Male	24	20%	24	20%	23	20%	10	1%	9	1%	
Age	18-25	40	20%	76	39%	42	21%	24	12%	15	8%	
	Above 25	2	33%	1	17%	1	17%	0		2	33%	
Current student affiliation with the University	1-st year	9	30%	9	30%	10	33%	1	3%	1	3%	
	2-nd year	4	19%	22	60%	7	20%	2	5%	2	5%	
	3-rd year	7	16%	20	44%	10	22%	6	13%	2	4%	
	4-th year	8	20%	13	33%	6	15%	7	18%	6	15%	
	fresh graduate	8	40%	4	20%	3	15%	4	20%	1	5%	
	Masters	6	19%	9	29%	7	23%	4	13%	5	16%	
Living area	Urban	30	22%	42	31%	27	20%	19	14%	16	12%	
	Rural	12	17%	35	51%	16	23%	5	7%	1	1%	

	income?											
	Below Tk. 10k	8	21%	17	44%	9	23%	2	5%	2	5%	
	10-30k	16	28%	20	34%	14	24%	5	9%	3	5%	
	30-50k	8	15%	21	38%	12	22%	7	13%	7	13%	
	Above 50k	9	18%	18	35%	8	16%	10	20%	7	14%	
	Family been infected by Covid-19	No	39	23%	67	39%	36	21%	17	10%	11	6%
		Yes	3	9%	10	30%	7	21%	7	21%	6	18%
	Number of activities performed											
	0	1	24%	3	27%	2	18%			2	18%	
	1	14	18%	32	40%	19	40%	3	4%	4	5%	
	2	8	29%	8	29%	4	14%	11	39%	4	14%	
	3	8	24%	11	32%	10	29%	4	12%	2	6%	
	4	1	5%	12	57%	4	19%	3	14%	2	10%	
	5	6	30%	8	40%	3	15%	2	10%	2	10%	
	6	4	50%	2	25%	1	13%	1	13%	1	13%	
	7			1	100%							
	Activities performed											
	No	25	22%	40	34%	27	23%	13	11%	8	7%	
	Yes	17	20%	37	43%	16	18%	11	13%	9	10%	
	Done Reading and writing											
	Yes	17	18%	35	38%	23	25%	8	9%	11	12%	
	No	24	22%	42	38%	19	17%	16	15%	8	7%	
	Talk with friend and families											
	No	19	18%	36	35%	23	22%	15	15%	10	10%	
	Yes	22	22%	41	41%	20	20%	9	9%	8	8%	
	Done relig. activities											
	No	21	18%	42	36%	26	22%	18	15%	10	9%	
	Yes	21	24%	35	41%	17	20%	6	7%	7	8%	
	Anxiety											

Variables.		Minimal	Percentage	mild	percentage	mode rate	percentage	severe	percentage
Gender	Female	20	24%	26	31%	14	17%	25	30%
	Male	44	37%	38	32%	19	16%	17	14%
Age	18-25	61	31%	63	32%	33	18%	40	20%
	Above 25	3	50%	1	17%			2	33%
Current student affiliation with the University	1st year	17	57%	6	20%	4	13%	4	13%
	2 nd	13	35%	10	27%	10	27%	3	8%
	3 rd	9	20%	19	42%	8	18%	9	20%
	4 th	10	25%	9	23%	7	18%	14	35%
	fresh graduate	8	40%	6	30%	1	5%	5	25%
	Masters	7	23%	14	45%	3	10%	7	23%
Living area	Urban	42	31%	37	28%	21	16%	35	26%
	Rural	22	32%	26	38%	12	17%	8	12%
Family income? (Monthly)	Below Tk. 10k	14	36%	16	41%	6	15%	3	8%
	10-30k	21	36%	15	26%	10	17%	12	21%
	30-50k	18	33%	13	24%	11	20%	12	22%
	Above 50k	11	22%	20	39%	6	12%	15	29%
Family been infect.Covid-19	No	56	33%	55	32%	28	16%	31	18%
	Yes	8	24%	9	27%	6	18%	10	30%
Number of activities performed	0	3	27%	3	27%	2	18%	3	27%
	1	23	29%	27	34%	18	23%	14	18%
	2	7	25%	9	32%	3	11%	9	32%
	3	14	6%	8	24%	5	15%	7	21%
	4	7	33%	7	33%	3	14%	3	14%
	5	7	35%	7	35%	2	10%	4	20%

	6	3	38%	2	25%	0		2	25%
	7	0		1		0		0	
Watched TV	No	39	34%	37	32%	18	16%	19	16%
	Yes	25	29%	27	31%	15	17%	23	26%
Done Reading and writing	Yes	30	32%	32	34%	10	11%	22	24%
	No	34	31%	32	29%	23	21%	20	18%
Talk with friend and families	No	32	31%	38	37%	22	21%	25	24%
	Yes	32	32%	26	26%	11	11%	17	17%
Done religious activities	No	34	29%	38	32%	21	18%	23	20%
	Yes	30	35%	26	30%	12	14%	17	20%

Students who performed multiple activities also tended to have less anxiety and depression. Students who performed at least 6 activities reported to have 13% moderate and severe depression while students with 1 activity reported 18% depression. Anxiety was also high among

students who did less activities. The descriptive statistics also found that students who done religious prayers, talked with friends and family and did not watch TV reported less anxiety and depression compared to students who done the contrary.

Table 4: Result of regression analysis

	Anxiety			Depression		
Variables	B	Odds ratio	P Value	B	Odds ratio	P Value
Gender	-0.7767204	0.459912	0.007**	-0.4598762	0.629848	0.102
Students Affiliation	0.1939977	1.214093	0.025*	0.1066117	1.10407	0.214
Family income	-0.1727173	0.841376	0.188	-0.0452464	0.952321	0.728
Family contact with Covid	0.1678431	1.182751	0.655	0.974859	2.639802	0.008**
Watching TV	0.8628934	2.370008	0.012*	0.5127267	1.608821	0.126
Talk with friend and families	-0.1641943	0.848577	0.616	-0.0594845	0.933966	0.854

Number of activities	-0.3022578	0.739148	0.084	-0.3618266	0.71459	0.035*
Reading and writing	-0.2196312	0.802815	0.54	-0.7212372	0.495631	0.043*
Age	-0.9571335	0.383992	0.276	-0.3150179	0.729776	0.734
Religious activities	0.3290569	1.389657	0.354	0.0769458	1.079984	0.825

Note: *P-value<0.05, **P-value <0.01, B= coefficient

In Table 4, the regression analysis revealed that three of the variables were significant in determining anxiety. Gender was found to be significant in determining anxiety which means that male inclined to have less anxiety than females ($B = -0.78$, $p < 0.01$). Student's current affiliation with the university and watching TV were also significant in determining anxiety which we also found in descriptive analysis. Students who were in their graduation year or post-graduation year inclined to have higher anxiety than students in the first or second year ($B = 0.19$, $p < 0.5$). Among the activities, watching TV was found to be significant in determining anxiety so, students who watch TV inclined to have higher anxiety ($B = 0.86$, $p < 0.05$) than students who did not watch TV during the quarantine.

Variables that influenced anxiety significantly did not seem to have a significant relationship with depression. The result showed that depression was significantly related to family member's contact with Covid-19, reading and writing, and several activities. Students whose family had been in contact with Covid-19 seemed to have higher depression ($B = 0.97$, $p < 0.01$) compared to students whose family members did not come into contact with Covid-19. Among the activities, students who did reading and writing tended to have more depression ($B = -0.71$, $p < 0.05$) than students who did not. Also, the number of activities or hobbies were significantly related to depression ($B = -36$, $p < 0.05$). Students who have done more activities (e.g., 5, 6) tend to have less depression than students who did few activities

Discussion

The findings of this study agree with some previous studies though they differ with the results in some respects. The study found that a high rate of depression and anxiety exist among university student and some previous studies also found similar results. For example, Khan et al. (2020) found that 33.3% of anxiety and 46.92% of mild to extremely severe depression were affected among students of Bangladesh. Moreover, several studies were conducted in other countries like Wang et al. (2020) also found a high level of depression among people at the initial level of

quarantine. Various factors are responsible for deteriorating the quality of mental health among students during the pandemic. The Covid-19 has severed personal communication, and increased student's academic uncertainty is considered a substantial factor of depression and anxiety (Mushtaq et al., 2014; Roy et al., 2020).

This study found that a higher level of anxiety during quarantine was related to student's gender and their affiliations status (i.e., sophomore, masters) in university. Among quarantine activities, watching TV was found to be significantly related to anxiety. Depression had a significant relationship with the family member's infection with Covid-19. Also, several factors along with reading and writing were related to depression. Furthermore, some other factors(i.e., religious prayers, talking with friends and family, family income level) influenced the mental health of students in descriptive statistics, but they were not found significant in inferential statistics. A detailed discussion can make sense of these variables.

As in previous studies, the study found that gender status was significantly related to anxiety during the COVID-19. Women tended to have a higher level of anxiety compared to men for cognitive and physical reasons (Bahrami and Yousefi, 2011; Hosseini and Khazali, 2013). Various studies were conducted to find the causal relationships behind the women's higher level of anxiety. Women incline to ruminate over a particular issue more than men, therefore, become victims to higher levels of anxiety (Johnson and Whisman, 2013). The findings stated that women were affected by more anxiety than men during the Covid-19 crisis. However, some studies reported that they did not find any significant difference between men and women in mental health status (Islam et al., 2020). On the contrary, a study showed that there was a higher level of anxiety among the male population than women (Wang et al., 2020).

Some of the previous studies done on mental health among students during quarantine did not find or explore the mental health status among students of different years (Islam et al., 2020; Khan et al., 2020). This study included students' current affiliation status at university and found

that students' years of studying at the university have a significant relationship with anxiety. Students from senior, fresh graduate and post-graduate levels are more likely to face anxiety than freshmen or sophomore students. On the contrary, previous studies (i.e., before the quarantine) found that freshman and sophomores were more likely to face anxiety (Wyatt and Oswalt, 2013; Eleftheriades, et al., 2020). Eleftheriades et al. (2020) stated that it might not be the case that post-graduate and senior have minimal anxiety, but a selection bias might be in work here. Even students with higher anxiety do not continue their studies; so, only students with stable mental health can continue their studies at senior and post-graduate levels. However, a study found similar findings as this study that a higher level of anxiety was related to other students than freshmen during this quarantine (Kecojevic et al., 2020). So, students studying in university in the post-graduate or senior year have suffered from anxiety where selection bias does not occur. Halting academic progress and uncertainty of employment opportunities might be a reason behind this problem.

During quarantine, a high proportion of students were watching movies and TV shows; this study found that it was significantly related to anxiety. Recent studies on mental health during COVID-19 have not considered this factor (Islam et al., 2020; Khan et al., 2020; Wang et al., 2020) though previous studies found that there was a positive relationship between binge-watching TV and level of anxiety and depression (Wheeler, 2015; Madhav et al., 2017). Due to lockdown, people could not go outside, and watching TV was found as the most common activity among respondents; they spent more time on TV when having no home activities to do. Other activities like gardening or petting animals were found as regular activities among participants during quarantine to avoid mental health stress.

Reading and writing thought to improve mental health (Lewis, 2009; Baikie and Wilhelm, 2005), but this study found that students with a higher level of depression performed more reading and writing than students with a lower level of depression. The reasons were excessive reading and writing, and academic workloads during lockdown had different influences on students' mental health status. Students were facing a higher level of depression because of online classes and academic workload. Similarly, previous studies stated that students' mental health deteriorates when academic workload increase (Aidan, 2018; Cheung et al., 2020). Universities of Bangladesh were taking online classes even though a large number of students did not have enough resources to access online classes. Academic workloads with technical inaccessibility of students increased the level of anxiety and depression among them.

The study found that Students' (i.e., participants) performed several activities during lockdown were highly related to their depression level. The performed activities (e.g., gardening, petting animals, and talking with friends) of participants were influenced to improve their mental health. Takeda et al. (2015) also stated that performing multiple activities can keep desirable physical and mental health status (Pressman et al., 2009). Even though single activity such as prayers or talking with friends and family were not significantly related to depression, therefore, it indicated that doing multiple activities together improved an individual's mental health status.\

It also found that Covid-19 infection among family members was significantly related to depression. Individuals whose family members were infected by the Covid-19 had a higher level of depression. Several studies reported that fear of infection to Covid-19 might result in deteriorating mental health (Hossain et al., 2020; Ahorsu et al., 2020; Wang et al., 2020) though they did not assess the impact of confirmed cases on mental health. Previous studies (i.e., pre-COVID-19) showed similar findings that any family member's hospitalization increased depression and anxiety (Belayachi et al., 2013; Fonseca et al., 2019).

In terms of depression and anxiety, descriptive statistics found that most of the people who did not perform religious activities, did not spend much time talking with friends or family, and had a family income more than 30,000 TK related to have a higher level of anxiety and depression; but those variables were not significant in inferential statistics. These factors might not significantly relate to mental health, or the small sample size is making those variables insignificant. More research including those factors with a large sample size might reveal their proper relationship with mental health.

Strengths and Limitations of the study

The study complements some previous studies by including some detailed variables that have significance about mental health. Findings of this study filled in the gap through contributing a detailed analysis of mental health during Covid-19.

However, the small sample size is a limitation that could not be overcome because of lack of time and findings. Large sample size is desired but it is not possible to acquire a large sample size. Another limitation is that the responses are not balanced (e.g., female 41% and male 59%). Despite these setbacks, this study will add valuable information to the existing.

Conclusions

The COVID-19's lockdown, self-isolation, and social distancing have increased the psychiatric problems among the Bangladeshi people. Specifically, the COVID-19 pandemic has also created mental stress among college and university students due to academic delays, fear of the virus, financial instability, and uncertainty of jobs (Cao et al., 2020; Wang et al., 2020; Romash, 2020). This study has investigated the impact of COVID-19 on the mental health status of university students of Bangladesh. Like previous studies, the study found that a high rate of depression and anxiety exist among university student, and various factors were responsible for psychiatric stress among students during the quarantine. The study also observed that a higher level of anxiety was significantly related to student's gender and students' current affiliation status (i.e., studying year) in university during the crisis. Watching TV was also found to be significantly related to anxiety. Depression had a significant relationship with the family member's infection with Covid-19. Also, the number of activities during quarantine (e.g., petting animals, cooking, gardening) along with reading and writing was found to be significantly related to depression. Some factors (i.e., religious prayers, talking with friends and family, family income level) were found to be influencing mental health in descriptive statistics, though they were not statistically significant. Similar to other studies, it was found that performing multiple activities (e.g., gardening, petting animals, talking with friends, etc.) could work as vital factors to improve the mental health of students. Also, Bangladesh's government, along with the universities should consider the mental health issue as a challenging problem; they should work together to minimize the negative impacts on the mental health of university students.

Conflict of interest

The authors declare that they have no conflicts of interest.

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