Prevalence and Associated Risk Factors of 'Psychological, Financial and Career Effect' Among Bangladeshi Undergraduate Students in the COVID-19 Pandemic Situation

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Abstract: Objective: The COVID-19 pandemic situation has deeply affected students' psychological, financial, and career problems. The objective of our study is to find out the prevalence and identify significant risk factors of psychological, financial and career effects among the students in the pandemic.

Methods: The cross-sectional survey was performed online via multiple social media sites such as Facebook, Email, WhatsApp, and the survey included 723 individuals. Chi-square analysis was performed to show the association between different selected factors and psychological, financial and career problems. Risk factors were obtained by logistics regression on the basis of p-value (p-value<0.05).

Findings: Our findings illustrate that 68.11% of students suffer from depression, 60.86% from anxiety, 61.98% from a mood disorder, and 63.23% from financial difficulties, such as being unable to afford the cost of education, working frustrated all the time, and losing interest in many things. Binary logistic regression demonstrated that student's gender, feeling helpless, worried, lost interest, educational expenses, and opinion of solve the problems and

problems for prolonging education system were the risk factors of career effects. On the other hand, student's gender, marital status, feeling bad about yourself, symptoms of corona virus, feeling nervous, short term memory loss, mood change, communicating problem, lost interest, feeling helpless, continue of income, study interrupt, irritable mood were associated factors of psychological problems. Family income status, feeling bad about yourself, lost interest, educational expenses, continue of income source, study interrupt, reason of study interrupt, were the factors associated with financial problems.

Novelty: We have found many statistically significant risk factors of the psychological (depression, anxiety and mood disorder) as well as financial and career of the students in the pandemic situation, which have not been discussed in previous studies.

Index Terms: COVID-19; risk factor; logistics regression; depression; anxiety; mood disorder; financial problem; career effect.

1. Introduction

In December 2019, officials in Wuhan City, China, first reported COVID-19 human cases because of the novel coronavirus, which was later named SARS-CoV-2[1]. COVID-19 has already spread worldwide in the form of a pandemic [2]. The epidemiology institute of Bangladesh, IEDCR, reported the first three known cases on March 8, 2020. Then, the epidemic has spread throughout the nation [3]. The Government of Bangladesh declared closures to all academic institutions, dormitories, and coaching centres, considering the devastating coronavirus on March 16, 2020 [4][5][6].

This situation has created various types of mental health problems among Bangladeshi university students [7]. Financial insecurity, fear of coronavirus infection, lack of relevant knowledge and excess COVID-19 exposure, and on social networking sites, COVID-19 pandemic news and media have harmed students' mental health [8]. Similarly, due to this sudden lifestyle change, about 3.9 million university students in Bangladesh suffer from depression and anxiety symptoms during the current pandemic situation [9][10] . In this pandemic situation, it is more noticeable that the younger generation and females are particularly at risk of suicidal ideation, depression and anxiety [11][12]. In addition to depression and anxiety, a student is suffering from various mental problems in this pandemic situation [13]. Most of the Bangladeshi university students spoke about the financial crisis due to the COVID-19 pandemic [14], which affected their studies, and many of them worked some tuition or part-time jobs to afford their expenses. In these circumstances, all tuition or part-time jobs still stopped [14]. In this situation, more students' families live below the poverty line than before, and many young people are becoming addicted to drugs and getting involved in various crimes and mental disorders due to the loss of their jobs [15][16].

The current situation has created serious concerns among students about their careers [17]. Not only in Bangladesh but also abroad, students are suffering from mental, economic and career problems in this pandemic situation. For example, this epidemic situation creates many physical barriers for disrupting the routine of daily life, leading to poor health, anxiety, worries, isolation, extended family and headaches, insomnia, digestive problems, hormonal imbalances and fatigue in the Indian undergraduate and postgraduate [18]. Surveys have shown that the pandemic among students has worsened mood [19][20]. This pandemic had a significant impact on UK students' finances for several essential reasons: an overall reduction in income, accommodation rent payments, and increased worries about employability after graduation, students are still paying full tuition fees [21]. During COVID-19, students from other countries are also suffering from career worries [22][23]. Although there has been some research among undergraduate students in Bangladesh on psychological problems, including depression and anxiety problems [10], there has been no research on the psychological, financial and career effects on students that highlights their overall condition or explores all of these issues and risk factors in this situation of the COVID-19 pandemic. In our study, we will try to find out the prevalence of psychological (depression, anxiety and mood disorder), financial and career effects among the students in the present situation. The objective of this research was to identify significant risk factors that are associated with psychological, financial, and career effects.

2. Methodology

2.1 Data source

Researchers carried out an online survey using a cross-sectional process of undergraduate students in Bangladesh from August 18, 2020, to September 3, 2020. Undergraduate students were taken from the Public, National and Private Universities for this survey. To collect data on depression, anxiety, mood disorder, career, and financial problems, we constructed a fluent and straightforward questionnaire. We generated the questionnaire in Google form for the online survey. All participants of our survey were adults, and before starting the survey, it informed them about the purpose of this survey. The survey was subsequently initiated with their written consent. At the beginning of the survey, we also informed them they could withdraw from the survey with no difficulty if they felt uncomfortable.

2.2 Determined of sampling size

About 3.9 million students are studying at universities in Bangladesh. The following mathematical formula used the sampling size for this study [24].

$$SS = \frac{Z^2 \times (p) \times (1-p)}{C^2} \tag{1}$$

Where, SS= sample size, Z=Z-value (e.g. 1.96 for 95% confidence level), p= percentage picking a choice, expressed as decimal (0.5 used for sample size needed), C= confidence interval, expressed as decimal (e.g., 0.0366=±0.0366).

$$SS = \frac{1.96^2 \times (0.5) \times (1-0.5)}{0.0366^2} = 716.95 \approx 717 \tag{2}$$

Therefore, 718 students were sufficient to represent a comprehensive study. However, we collected data from 723 students for this study. Finally, we excluded the data of 5 students from the survey for lack of sufficient information.
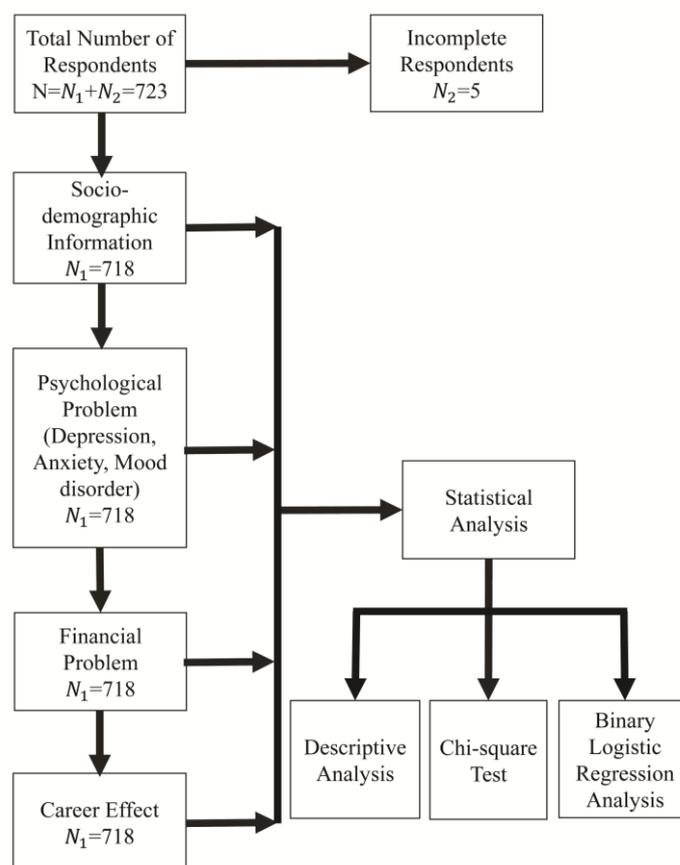
Fig.1. Flowchart of the study

2.3 Sampling technique

Data was collected from students using the snowball sampling method. The questionnaire was continued with everyone's consent, and everyone is responsible for all their answers in this survey. Respondents were requested to share it through their personal and social networks. We have tried to make our survey questions easy and fluent and understandable for the participants.

2.4 Data collection

A total of 51 questions were asked by the participants that were related to the survey. Data was collected using a Standard English questionnaire that took about 10-12 minutes to complete. In the, the entire survey was performed online in the case of the COVID-19 pandemic situation in Bangladesh, while keeping in mind the general health rules. A Google form was created for the online survey, and the link to the form was shared with the participants through many social media (Facebook, Gmail, WhatsApp and Messenger). The online link was posted and reposted on the researchers' Facebook timeline. Besides the researchers, the participants also shared the link in their Facebook timeline.

The questionnaire included a phone number for contacting the researchers about any topic, including the survey. Participants took part in the survey entirely willingly and did not receive any financial aid or intimidation for their work. The 1st part of the survey collected socio-demographic data from the participants as part of the overall survey, including name, gender (male, female), family member, religion, resident (rural, urban), marital status, division, institution name, academic year, and family monthly income. They were asked some more questions that were related to the COVD-19 pandemic situation. The next section included questions related to psychological, financial problems and career effects.

2.5 Outcome variable

Mental, financial, and career features were measured with five items. Five items were yes and no, respectively. Participants were also measured for three psychological problems (depression, anxiety, and mood disorders). Respondents measured psychological problems based on the mental state of the students during COVID-19 and previous conditions. Those who had increased mental problems after COVID-19 said yes and those whose mental state did not change said no. Bangladeshi undergraduate students have also measured their economic conditions. Those who have increased economic problems in the post-COVID-19 situation said yes, the rest answered no. Career issues (yes, no) were measured according to the career issues of post- COVID-19 and previous students considering career problems.

2.6 Independent variable

Based on recent surveys, we know about gender, marital status, and family monthly income from undergraduate students in the socio-demographic section. In this epidemic situation, we asked the students in the current situation about quarantine (yes, no), coronavirus (normal, epidemic, panic, nothing). We asked students with the same options (not at all, several days, more than half a day, nearly every day) some questions about mental health, such as feeling depressed or helpless, feeling bad about themselves or their failure. The respondents were worried about a variety of issues (not at all, several days, more than half a day, nearly every day), terrified of something terrible (not at all, several days, more than half a day, nearly every day), and feeling nervous and anxious (not at all, several days, more than half days, nearly every day). Respondents were asked if they experienced short-term memory loss (not at all, several days, more than half days, nearly every day), mood changes (not at all, several days, more than half days, nearly every day), communication problems (not at all, several days, more than half days, nearly every day), or lost interest in anything gradually (not at all, several days, more than half days, nearly every day). Respondents are in an irritable mood right now (not at all, several days, more than half a day, and nearly every day). The effects on your career were like future plans before COVID-19 (a lot, medium, some, not at all), any change in your previous future plans, fear that your studies may be at risk (yes, no, partial, most). If it prolongs your education system (loss of the age of govt. job, less time to prepare for the job, being interested in a private job, the alternative is to think of something) the following ways of solving the above problems (preparation for the job test, thought of being an entrepreneur, thought of being a business, none). Carrying your educational expenses (full, partial, most, no), continuing your source of income (yes, no, partial, none), the significant reason your studies are at risk after (Financial problem, married under family pressure, for involving in financial works lost interest in education, none). Campus should be established (yes, no, it should begin with online classes, and classes should be held at a specific distance).

2.7 Statistical analysis

Data was analysed using IBM SPSS version 25.0 and Microsoft Excel 2016. Microsoft Excel is used for importing data and SPSS version 25 for the chi-square test and logistic regression. All of those sets were in the analysis of chi-square and the logistic regression. To evaluate the risk factors that cause depression, anxiety, mood disorder, financial issues, and job effect of respondents, the logistic regression model was used to determine the risk factors of the outcome.

3. Results

3.1 Prevalence of anxiety, career effect, depression, financial problems, and mood disorder

From our analysis, the prevalence of psychological, financial and career impact can be observed among the undergraduate students of Bangladeshi universities. Out of a total of 718 participants, almost 50% of male students were participated in the survey whereas, majority of students were unmarried. About 38.58% of students were taken for this study whose family income was 15001-35000). Findings also show that 68.11% of participants were depressed and, 60.86% for anxiety, and 61.98% for mood disorder, 63.2% for financial problems and 94.29% for worried about their career (See **Fig. 2**).
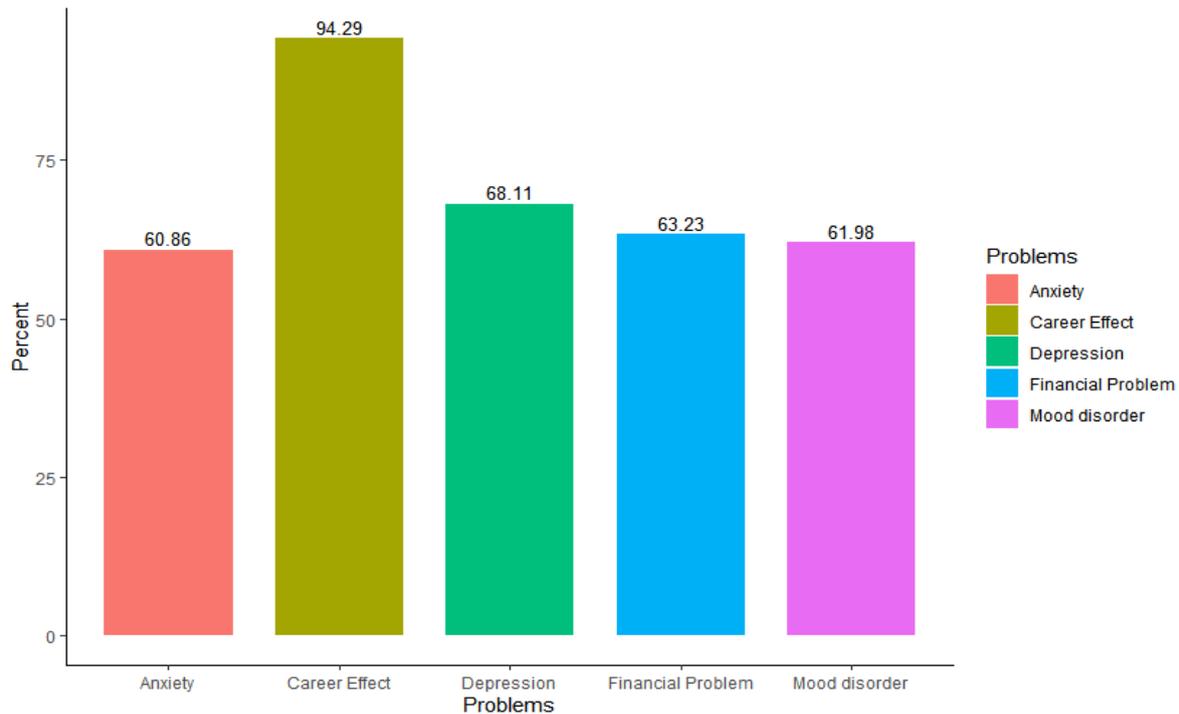
Fig. 2. Prevalence of anxiety, career effect, depression, financial problems, and mood disorder.

3.2 Association between different selected factors and anxiety, career effect, depression, financial problems, and mood disorder

The chi-square test demonstrated that gender, feeling down, depressed or helpless, feeling bad about yourself, studies may be at risk, feeling nervous, anxious, lost interest anything slowly and income was significantly associated with depression. The chi-square test also demonstrated that gender, feeling down, depressed or helpless; feeling bad about yourself; feeling nervous, anxious; mood change, marital status and communication problems were also statistically significantly associated with anxiety. Gender, feeling nervous, anxious, losing interest in anything slowly, irritable mood, mood change, short term memory loss, marital disorder, and coronavirus symptoms were also significant predictors of mood disorder. It was noted that continue of income source, lost interest in anything slowly, carry your educational expenses, a significant reason why studies are at risk, the campus should be started, feeling bad about yourself, studies may be at risk, were statistically significant with financial problems. While gender, feeling down, depressed, or helpless, being worried about various things, problems for prolonging the education system, carrying your educational expenses before Covid-19, and considering any of the following ways to solve the above problem were statistically significant for career effect (See **Table 1**).

Table 1. Prevalence and frequency table for different selected variables.

Variable	Depression		Anxiety		Mood Disorder		Financial Problem		Career Effect	
	Yes (68.11)	**No** (31.89)	**Yes** (60.86)	**No** (39.14)	**Yes** (61.98)	**No** (38.02)	**Yes** (63.23)	**No** (36.77)	**Yes** (94.29)	**No** (5.71).
Gender										
Male (360) (50.14%)	219 (30.50)	141 (19.64)	193 (26.88)	167 (23.26)	189 (26.32)	171 (23.82)	237 (33.01)	123 (17.13)	330 (45.96)	30 (4.18)
Female (358) (49.86%)	270 (37.60)	88 (12.26)	244 (33.98)	114 (15.88)	256 (35.65)	102 (14.21)	217 (30.22)	141 (19.64)	347 (48.33)	11 (1.53)
Marital Status										
Married (30) (4.18%)	16 (2.23)	14 (1.95)	12 (1.67)	18 (2.51)	12 (1.67)	18 (2.51)	20 (2.79)	10 (1.39)	29 (4.04)	1 (0.14)
Unmarried (688) (95.82%)	473 (65.88)	215 (29.94)	425 (59.19)	263 (36.63)	433 (60.31)	255 (35.52)	434 (60.45)	254 (35.38)	648 (90.25)	40 (5.57)
Family's monthly income										
0-15000 (167) (23.26%)	114 (15.88)	53 (7.38)	96 (13.37)	71 (9.89)	102 (14.21)	65 (9.05)	135 (18.80)	32 (4.46)	155 (21.59)	12 (1.67)
15001-35000 (277) (38.58%)	192 (26.74)	85 (11.84)	165 (22.98)	112 (15.60)	166 (23.12)	111 (15.46)	184 (25.63)	93 (12.95)	261 (36.35)	16 (2.23)
35001-60000 (203) (28.27%)	131 (18.25)	72 (10.03)	125 (17.41)	78 (10.86)	130 (18.11)	73 (10.17)	99 (13.79)	104 (14.48)	192 (26.74)	11 (1.53)
600001-300000 (71) (9.89%)	52 (7.24)	19 (2.65)	51 (7.10)	20 (2.79)	47 (6.55)	24 (3.34)	36 (5.01)	35 (4.87)	69 (9.61)	2 (0.28)

3.3 Risk factor identification among socio-demographic variables & psychological problem, financial problems, career effect

Bangladeshi undergraduate male students were less at risk of depression than female students [AOR = 0.506; CI: 0.367-0.697; p≤0.001]. The model describes that male students were also less likely to report anxiety than female students [AOR= 0.537; CI: 0.396-0.729; p≤0.001]. Students who were married were less likely to get anxious than their counterparts [AOR = 0.404; CI: 0.190-0.859; p<0.05]. Respondents who were male were less likely to get mood disorders than females [AOR= 0.437; CI: 0.320-0.596; p≤0.001]. Undergraduate married Bangladeshi students were less likely to get mood disorders than unmarried [AOR = 0.377; CI: 0.176-0.808; p≤0.05]. Students whose family's monthly income was between 0-15000 were more likely to get into financial trouble than those whose monthly income was between 15001-35000 [AOR=2.132; CI: 1.347-3.374; p≤0.001] and whose family's monthly income was between 35001-60000 [AOR =4.432; CI: 2.760-7.116; p≤0.001] and the students whose family's monthly income was between 60001-3000000 [AOR = 4.102; CI: 2.24-7.504; p≤0.001]. For those who are concerned about the study, the model describes male students who are less likely to be concerned about their careers than their female counterparts [AOR = 0.349, CI: 0.172-0.707; p≤0.05] (See **Table 2**).

Table 2. Logistic regression model for finding the effect of associated socio-demographic factors on psychological, financial and career effects in the COVID-19 pandemic situation.

Variable	Depression	Anxiety	Mood	Financial	Career
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Gender (ref.: Male)					
Female	0.506*** (0.367-0.697)	0.537*** (0.396- 0.729)	0.437*** (0.320-0.596)	--	0.349** (0.172-0.707)
Marital status (ref.: Married)					
Unmarried	--	0.404** (0.190-0.859)	0.377** (0.176-0.808)	--	--
Family's monthly income (ref.: 0-15000 tk)					
15001-35000	--	--	--	2.132*** (1.347- 3.374)	--
35001-60000	--	--	--	4.432*** (2.760-7.116)	--
60001-300000	--	--	--	4.102*** (2.242-7.504)	--

ref. = Reference group; * = p-value ≤ 0.05;** = p-value ≤ 0.01; *** = p-value ≤0.001

3.4 Risk factor identification among different factors on psychological, financial and career effects in the COVID-19 pandemic situation.

3.4.1 Depression

Students who reported feeling 'not at all' down, depressed, or helpless were less likely to suffer from depression than those who reported feeling' more than half days' down, depressed, or helpless [AOR =0.056; CI: 0.007-0.474; p≤0.05] and 'nearly every day' [AOR =0.211; CI: 0.079-0.565; p≤0.01] and 'several days' [AOR =0.444; CI: 0.266-0.741; p≤0.001]. Participants who had 'not at all' feeling bad about themselves or that they were a failure were less likely to have depression than those who had 'nearly every day' [AOR =0.129; CI: 0.042-0.401; p≤0.01] and who had 'more than half days' [AOR =0.184; CI: 0.058-0.583; p≤0.001] and 'several days' [AOR =0.392; CI: 0.240-0.639; p≤0.01]. Undergraduates who reported feeling 'not at all' nervous or anxious were less likely to suffer from depression than those who reported feeling' more than half a day' [AOR =0.118; CI: 0.035-0.339; p≤0.05] and 'nearly every day' [AOR =0.208; CI: 0.061-0.701; p≤0.05] and 'several days' [AOR =0.394; CI: 0.243-0.637; p≤0.05]. Respondents who had not lost interest in anything gradually were less likely to suffer from depression than those who had lost interest in 'nearly every day' [AOR = 0.306; CI: 0.140-0.668; p≤0.01] and 'more than half days' [AOR = 0.352; CI: 0.153-0.813; p≤0.01]. Students who continued their income sources in the COVID-19 pandemic were less likely to have depression than those who did not continue their income source [AOR =0.519; CI: 0.304-0.884; p≤0.001]. We also noticed that students who answered 'no' to whether their studies were at risk were more likely to develop depression [AOR =1.912; CI: 1.088-3.359; p≤0.01] and 'partial' [AOR =2.726; CI: 1.509-4.925; p≤0.01] (See **Table 3).**

3.4.2 Anxiety

The students who had 'not at all' feeling down, depressed or helpless, were less likely to have anxiety than those who had 'several days' [AOR =0.467; CI: 0.289-0.754; p≤0.01] and 'nearly every day' [AOR =0.295; CI: 0.132-0.658; p≤0.01]. Participants who felt bad about themselves "not at all" were less likely to be anxious than those who felt bad

about themselves "more than half a day" [AOR =0.222; CI: 0.084-0.586; p≤0.01] and 'nearly every day' [AOR =0.219; CI:0.093-0.517; p≤0.001]. Students with 'not at all' feeling nervous, anxious; were less likely to be anxiety than those who were in 'several days' [AOR =0.461; CI: 0.292-0.730; p≤0.001], 'more than half days' [AOR =0.285; CI: 0.104-0.782; p≤0.05] and 'nearly every day' [AOR =0.267; CI: 0.100-0.713; p≤0.01]. Respondents who had 'not at all' mood change, were less likely to have anxiety than those who had 'nearly every day' [AOR =0.247; CI: 0.118-0.517; p≤0.001]. Those who faced a 'not at all' communicating problem were less likely to be anxious than those who faced a 'several days' [AOR =0.389; CI: 0.252-0.599; p≤0.001] or a 'more than half days' [AOR =0.176; CI: 0.067-0.464; p≤0.001] communication problem and 'nearly every day' [AOR =0.424; CI: 0.217-0.826; p≤0.01] (See **Table 3**).

3.4.3   *Mood disorder*

We have observed the following problems among Bangladeshi undergraduate students who have a mood disorder. Respondents who had coronavirus symptoms were less likely to have a mood disorder 'mostly' [AOR =0.041; CI: 0.005-0.374; p≤0.01]. Undergraduates who reported feeling nervous or anxious 'not at all' were less likely to have a mood disorder than those who reported feeling nervous or anxious 'more than half a day' [AOR =0.118; CI: 0.036-0.384; p≤0.001] and 'nearly every day' [AOR =0.251; CI: 0.100-0.630; p≤0.05] and 'several days' [AOR =0.460; CI: 0.297; p≤0.05]. Participants who had 'not at all' short term memory loss were less likely to suffer mood disorder than who had 'several days' [AOR =0.599; CI: 0.362-0.989; p≤0.01] and more likely 'nearly every day' [AOR =2.663; CI: 1.021-6.946; p≤0.01]. Respondents who hadn't suffered from mood change at all were less likely to get mood disorder than who had suffered for 'several days' [AOR = 0.437; CI: 0.261-0.732; p≤0.001] and 'more than every day' [AOR =0.239; CI: 0.105-0.549; p≤0.001] and 'nearly every day' [AOR =0.111; CI: 0.047-0.263; p≤0.001]. Respondents who hadn't lost interest in anything slowly at all were less likely to suffer mood disorder than those who had lost 'nearly every day' [AOR = 0.177; CI: 0.076-0.413; p≤0.01]. Participants who were not in an irritable mood at all, were less likely to suffer mood disorder who were 'more than half-day' [AOR =0.242; CI: 0.089 -0.662; p≤0.01]. Students who continued their income sources in the COVID-19 pandemic were less likely to have mood disorders than those who did not continue their income source [AOR =0.571; CI: 0.310-0.862; p≤0.001] (See **Table 3).**

3.4.4   *Financial problem*

Students who had carried their full educational expenses were more likely to have financial problems than those who 'partially' [AOR =1.974; CI: 1.176-3.314; p≤0.01] carried their educational expenses. Participants who reported 'nearly every day' [AOR =0.257; CI: 0.106-0.623; p≤0.01] and 'more than half days' [AOR =0.335; CI: 0.178-0.631; p≤0.001] feeling bad about themselves or being a failure were less likely to have financial problems. We also found that those who did not quickly lose interest in anything were less likely to have a financial problem than those who lost interest in 'More than half a day' [AOR =0.441; CI: 0.224-0.869; p≤0.05] 'Nearly Every day' and [AOR =0.344; CI: 0.182-0.650; p≤0.001]. Students whose income source continued during COVID-19 were less likely to have a financial problem than those whose income source did not continue [AOR =0.194; CI: 0.119-0.315; p≤0.001] and less likely to have a financial problem than those whose income source partially continued [AOR =0.188; CI: 0.097-0.366; p≤0.001] and who answered none [AOR =0.450; CI: 0.234-0.865; p≤0.05]. The students who had chosen the option 'financial problem' as the reason why their studies would be at risk were more likely to get into financial trouble than those who had chosen 'marriage under family pressure' [AOR =4.546; CI: 1.676-12.336; p≤0.01] and 'for involving in financial works lost interest in education' [AOR =2.139; CI: 1.124-4.070; p≤0.01] and 'other' [AOR =2.873; CI: 1.746-4.728; p≤0.001] (See **Table 3).**

Table 3. Logistic regression model for finding the effect of associated different factors   on psychological, financial and career effects in the COVID-19 pandemic situation.

Variables	Depression	Anxiety	Mood	Financial	Career
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR(95% CI)
Symptoms of corona virus (ref: Yes)					
No	--	--	1.018 (0.320-1.672)	--	--
Partial	--	--	1.400 (0.723-2.710)	--	--
Mostly	--	--	0.041*** (0.005-0.374)	--	--
Feeling down, depress or helpless (ref.: Not at all)					
Several days	0.444*** (0.266-0.741)	0.467** (0.289-0.754)	--	--	0.200** (0.071-0.558)
More than half days	0.056** (0.007-0.474)	0.362 (0.122-1.071)	--	--	0.000 (0.000-)
Nearly every days	0.211*** (0.079-0.565)	0.295** (0.132-0.658)	--	--	0.580 (0.171-1.965)
Feeling bad about yourself (ref.: Not at all)					

Several days	0.392*** (0.240-0.639)	0.746 (0.478-1.165)	--	0.647 (0.418-1.002)	--
More than half days	0.184*** (0.058-0.583)	0.222** (0.084-0.586)	--	0.257** (0.106-0.623)	--
Nearly every days	0.129*** (0.042-0.401)	0.219*** (0.093-0.517)	--	0.335*** (0.178-0.631)	--
Worried about different things (ref.: Not at all)					
Several days	--	--	--	--	0.236*** (0.097-0.573)
More than half days	--	--	--	--	0.000 (0.000-)
Nearly every days	--	--	--	--	0.751 (0.235-2.400)
Feeling nervous, anxious					
Several days	0.394*** (0.243-0.637)	0.461*** (0.292-0.730)	0.460*** (0.297-0.713)	--	--
More than half days	0.118*** (0.035-0.399)	0.285* (0.104-0.782)	0.118*** (0.036-0.384)	--	--
Nearly every days	0.208* (0.061-0.701)	0.267** (0.100-0.713)	0.251*** (0.100-0.630)	--	--
Short term memory loss (ref.: Not at all)					
Several days	--	--	0.599*** (0.362-0.989)	--	--
More than half days	--	--	0.740 (0.225-2.434)	--	--
Nearly every days	--	--	2.663* (1.021-6.946)	--	--
Mood change (ref.: Not at all)					
Several days	--	0.669 (0.400-1.119)	0.437*** (0.261-0.732)	--	--
More than half days	--	0.638 (0.306-1.333)	0.239*** (0.105-0.546)	--	--
Nearly every days	--	0.247*** (0.118-0.517)	0.111*** (0.047-0.263)	--	--
Communicating problem (ref.: Not at all)					
Several days	--	0.389*** (0.252-0.599)	--	--	--
More than half days	--	0.176*** (0.067-0.464)	--	--	--
Nearly every days	--	0.424** (0.217-0.826)	--	--	--
Lost interest in anything slowly (ref.: Not at all)					
Several days	0.621 (0.380-1.013)	--	0.716 (0.439-1.166)	0.914 (0.571-1.464)	0.555 (0.234-1.315)
More than half days	0.352** (0.153-0.813)	--	0.579 (0.279-1.202)	0.441* (0.224-0.869)	0.395 (0.045-3.454)
Nearly every days	0.306*** (0.140-0.668)	--	0.177*** (0.076-0.413)	0.344*** (0.182-0.650)	0.063** (0.007-0.553)
Irritable mood (ref.: Not at all)					
Several days	--	--	0.682 (0.433-1.073)	--	--
More than half days	--	--	0.242** (0.089-0.662)	--	--
Nearly every days	--	--	0.485 (0.203-1.158)	--	--
Carry your educational expenses (ref.: Full)					
Partial	--	--	--	1.974** (1.176-3.314)	1.199 (0.506-2.841)
Most	--	--	--	0.701 (.0383-1.281)	0.265 (0.065-1.073)
No	--	--	--	0.513 (0.248-1.061)	0178 (0.021-1.527)
Continue of income source (ref.: Yes)					
No	0.519* (0.304-0.884)	--	0.517* (0.310-0.862)	0.194*** (0.119-0.315)	--
Partial	0.789 (0.375-1.658)	--	0.915 (0.464-1.804)	0.188*** (0.097-0.366)	--
None	1.236 (0.592-2.580)	--	0.917 (0.456-1.842)	0.450* (0.234-0.865)	--
Studies maybe at risk (ref.: Yes)					
No	1.912* (1.088-3.359)	--	--	2.083** (1.241-3.496)	--
Partial	2.726*** (1.509-4.925)	--	--	1.065 (0.615-1.844)	--

Most	2.152 (0.924-5.013)	--	--	0.786 (0.385-1.606)	--
Significant reason why studies are at risk (ref.: Financial problem)					
Married under family pressure	--	--	--	4.546** (1.676-12.336)	--
For involving in financial Works lost interest in education	--	--	--	2.139* (1.124-4.070)	--
Other	--	--	--	2.873*** (1.746-4.728)	--
Following ways of solve the above problems (ref: Preparing yourself for the job test)					
Thought of being an entrepreneur	--	--	--	--	4.301** (1.195-15.483)
Thought of being an business	--	--	--	--	1.968 (0.447-8.660)
None	--	--	--	--	4.807* (1.630-14.180)
Problems for prolonging education system (ref.: Loss the age of govt. job)					
You will have less time to prepare for the job	--	--	--	--	0.176** (0.034-0.907)
Being interest in private job	--	--	--	--	0.684 (0.065-7.224)
The alternative is to think of something	--	--	--	--	2.167 (0.863-5.442)
Campus should be started (ref.: Yes)					
No	--	--	--	1.380 (0.776-2.456)	--
Should start with online classes	--	--	--	1.244 (.0681-2.271)	--
Classes should be held at a certain distance	--	--	--	0.580 (.288-1.166)	--

NB: ref. = Reference group; * = p-value ≤ 0.05; ** = p-value ≤ 0.01; *** = p-value ≤0.001

3.4.5 Career effect

Undergraduate students who were not 'feeling down, depressed, or helpless' at all were less likely to worry about their careers than those who were several days' [AOR =0.200; CI: 0.071-0.558; p≤0.01], and those who were 'not at all' worried about different things were less likely to worry about their careers than those who feared in 'several days' [AOR =0.236; CI: 0.097-0.573; p≤0.001]. Among those who lost the age of government service to prolong their education, those who had less time to prepare for the job were less likely concerned about their careers. [AOR=.176; CI: 0.034-0.907; p≤0.05]. Bangladeshi undergraduate students who were preparing themselves for the job test were more likely to get worried about careers than through of being an entrepreneur [AOR =4.301; CI: 1.195-15.483; p≤0.05], and 'None' [AOR =4.807; CI 1.630-14.180; p≤0.01] (See **Table 3).**

4 Discussion

In the current desperate circumstances, COVID-19 has become a new problem globally. Globally, COVID-19 has an impact that it is too difficult to live a safe life. Much as this situation has raised the worldwide death rate, different psychiatric disorders have been caused among all ages [25][26]. In addition to these problems, it has a great impact on career and income [16]. Globally, educational institutions, including Bangladesh, were closed longer than expected [27][28][29]. Because of that, uncertainty about academic, professional, career and psychological issues was created among them [30][31][32]. This study's main goal during the COVID-19 pandemic was to explore the extent of psychological (depression, anxiety, and mood disorder), financial problems and career effects among university students and also discover its cause's influencers.

Our cross-sectional study indicated that more than two-thirds and more than half were influenced by depression and anxiety. A current study also showed that 52.2% and 56.1% of university students were depressed and anxious [33]. Another survey suggested that 15.6% of undergraduate students suffered from depression or anxiety disorder [34] .Our findings showed that students felt more depressed and nervous than in previous studies [10]. Our findings also showed that 61.96% of undergraduate students suffered from mood disorders in Bangladesh. Another study suggested that 52.6% of people suffered from mood disorders in Singapore [35].It was noticed that the psychological problems had increased during COVID-19. As a least developed country, Bangladeshi students have to face various problems to continue their studies and financial problems are one of them [36][37][38]. University students were also faced these financial problems [39]. About 19% of university students lived below the poverty line after a three-month lockdown [40]. Moreover, in our survey, we found that 63.2% of university students had financial problems during this situation. This situation occurred not only in Bangladesh but also in different countries like India, the US, Taiwan [41][42][43]. The result of our survey indicated that about 95% of Bangladeshi undergraduate students in this COVID-19 period were

worried about their careers. In addition, Bangladeshi students were concerned about their jobs, 25.4% of whom were male and 35.7% of whom were female [39]. Again, 20.4 million workers are unemployed during this epidemic, and 68% of people in Dhaka have lost their jobs due to the COVID-19 pandemic [44] [45]. For all these reasons, students are becoming more concerned about their careers than ever before.

Our study revealed both male and female undergraduate students in Bangladesh were affected by depression. However, female students were ahead of male students in terms of the impact of this depression. Our findings also suggested that study may be jeopardized. Feeling down, depressed, or helpless, as well as feeling nervous or anxious, play a more significant role in the rising prevalence of depression among Bangladeshi students. We saw in a report that the education system after COVID would suffer, resulting in depression among our students [40]. Furthermore, depression would be an important factor for undergraduates who continue to work, feel bad about themselves, and gradually lose interest in anything.

According to the survey, we found that most female and unmarried students suffered from anxiety, as well as feeling down, depressed or helpless; feeling bad; feeling nervous, anxious; mood change and communication problems related to Corona put their anxiety at risk. During COVID-19, communication was disrupted to maintain social distance, which affected all classes of people mentally, such as students [11] [46] [47]. This situation hampered both the financial and educational lives of most female students [48] .A survey found that about 63.6% and 62.9% of university students were at the risk zone of anxiety and depression [49]. The pandemic situation was the cause of worldwide sadness, depression, loneliness and also the negative impact on both students' emotions and mental [47][50]. This condition can reduce grief, isolation, and income loss, but it can also exacerbate pre-existing mental health conditions, causing high levels of anxiety [51]. Our research has revealed that undergraduate students in Bangladesh were affected by mood disorders. This effect was greater among female students. Mood disorders were also seen in unmarried female undergraduate students. A study found that unmarried people in Spain had more mood disorders [52]. Our research further assumes that short-term memory loss, feeling nervous or anxious, mood change and losing interest in anything slowly were important influencers for a mood disorder. Moreover, we found that continued source of income, irritable mood, and coronavirus symptoms were the factors that affected mood disorder.

Many students have lost their part-time jobs and tuition in this current situation [53]. In the case of some students, their family members also lost their jobs or sources of income [22][54].The study showed that since their income source was not running in this situation, it created a financial crisis among the students. Many university students bear the cost of their own education [55].So, students who used to pay for their own education fees before COVID-19, they had more financial problems. In this situation, the students feared that they might drop out of college and university for various reasons [56][57].The significant reason given of dropping out from their studies was that they were having financial problems. Many of them got married under family pressure, and another reason. The above problems created many negative impacts on them and, at the same time, it increased their worries about careers [22].With all of this stress, students may feel like failures and lose interest in various subjects. Both males and females were currently anxious about their careers. Females suffered a little more, which was a large portion of participation, and it was a little more than males. In another survey, it had been found that women were more prone to career worries [39].It was the students' critical factor; students who always felt frustrated, depressed or helpless were worried about their career. In this situation, those who were worried about various things were also worried about their careers. Because of the prolonged education system, the students were thinking about their career at an extreme level, which was almost 100%. Simultaneously, obstacles to formal education and future plans have generated stress for career seekers [58]. 36.02% of those who prepare themselves for a job test are worried about their career. On the other hand, 26.89% of those who have not thought about anything are worried about their career.

4.1 Limitations of the current study

One of our limitations is that the entire process of our survey is conducted online. As a result, we could not communicate directly with the students while participating in the survey. Moreover, we do the research based on the students' own opinions and do not use any scale. Among the reasons for not communicating directly with the students were the closure of educational institutions at all levels of the country as per government guidelines, and coronary health hygiene. For the same reason, we collect data following the snowball sampling method. The influencer factors of these problems (psychological, financial and career problems) which were identified in the cross-sectional survey, may be the outcomes of these problems or maybe the reason for the problems. We did not collect any personal information other than the information required for the survey to protect the respondents' privacy. Our research method did not reach the students with medical observation symptoms (psychological, financial, and career). That's why the results may not be completely accurate. However, the quality of our questions reached the respondents in a very simple and easy way, and the results were determined based on the respondents' answers.

5   Conclusion

The study tried to determine some problems such as psychological, financial and career effects on the ongoing pandemic situation for Bangladeshi undergraduate students. Depression has increased among university students whose studies may have been at risk during the lockdown. Feeling down, depressed or helpless in COVID-19 increased

anxiety among them. Feeling nervous, anxious in this uncertain situation increased their mood disorder. Students had lost their source of income, which was the cause of their financial difficulties. Those who had faced various problems with prolonging education were more worried about their careers at this time. Governments, families and students need to take some steps on the causes of significant risks to our studies. Sufficient sleep, creating to-do lists and schedules that help them stay on track, controlling stress, taking exercise at home, and avoiding caffeine and alcohol may help prevent students' psychological problems. Their family needs to cooperate with them to overcome these critical problems. At the same time, promoting entertainment programs in the media will benefit them psychologically. With new ventures, they have to decorate themselves. In this emergency situation, some special financial scholarships may be provided by the government and new work sources may help alleviate their financial and career concerns. The government should also take measures to ensure that, after this crisis, students can return to their studies. It is important to prepare for a multifaceted future.

6   Ethical issues

Ethical standards were maintained to the highest possible extent whilst the study was conducted. All participants read, understood a consent form and agreed to participate in the study. Furthermore, this research is officially approved by the ethics clearance committee of Faculty of Biological Science, Jashore University of Science and Technology, Bangladesh.

Acknowledgments

Author contributions

Fee Faysal Ahmed and Tonmoy Adhikary conceived the idea of the study. All the author was participated to prepare questionnaire and the manuscript of this study. Tonmoy Adhikary created a Google form according to the questionnaire. Sheikh Sadia Arny, Faria Tabassum Nishi, Mst. Tania Sultana, Partho Bosu and Tonmoy Adhikary were participated to data organization. All the author was analyzed and interpreted the results. Fee Faysal Ahmed and Samiran Mondal review the manuscript and provide the suggestion. Fee Faysal Ahmed supervised the project and corrected the manuscript.

Conflicts of interest

No conflict of interest according to the declaration of authors.

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Prevalence and Associated Risk Factors of 'Psychological, Financial and Career Effect' Among Bangladeshi Undergraduate Students in the COVID-19 Pandemic Situation

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