

ORIGINAL ARTICLE

The COVID-19 Pandemic Fear and Psychological Status of the Medical Students of a Private Medical College in Bangladesh

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ABSTRACT

Background: The uprising of the COVID-19 pandemic has disrupted educational systems, posing psychological challenges, particularly for medical students, who faced heightened academic and health-related stress. **Objectives:** The study explored the relationship of medical students' mental health outcomes and their fear of the COVID-19 pandemic. It also examined how demographic and situational factors affect depression, anxiety, and stress levels. **Methods:** This cross-sectional, descriptive study was conducted among 240 medical students of Ashiyan Medical College, a private medical college in Dhaka, Bangladesh, between January and August of 2022. We used a self-administered questionnaire for data collection. The Fear of COVID-19 Scale (FCV-19S) was the independent variable, while the Depression, Anxiety and Stress Scale (DASS-21) was the dependent variable as a measure of psychological effect, with other related socio-demographic factors. **Results:** FCV-19S showed significantly positive correlations with all mental health subscales. Female students exhibited significantly higher levels of stress ($p < 0.001$) and fear ($p < 0.001$) compared to their male counterparts. Students not living with their families had elevated fear and depression scores. Those, whose lives were severely affected by the COVID-19, demonstrated the highest levels of fear, depression, anxiety, and stress. **Conclusion:** Poor mental health outcomes were highly correlated with fear of the COVID-19 pandemic among medical students in Bangladesh. The finding underscores for planned and targeted psychological support to combat such emergencies in future.

Keywords: COVID-19, stress, anxiety, depression, fear, mental health, medical students, Bangladesh

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INTRODUCTION

The COVID-19 pandemic emerged as one of the most serious global health crises we have faced in near past. More than 700 million people had been infected worldwide, with around 7 million deaths so far.¹ The rapidity of its initial spread led the World Health Organisation (WHO) declare it a global pandemic.² The Government of Bangladesh closed all educational institutions across the country and banned large gatherings

starting during March 2020 to reduce community transmission with the advice to stay indoors, maintain social distancing, quarantine suspected cases, and isolate confirmed cases.³

The implementation of strict social restrictions affected educational life transforming a lively and enjoyable phase of life into one filled with anxiety, uncertainty, and fear. Students struggled with mental distress, not only about their health but also about their academic progress and future career prospects. The long quarantine posed the

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concerns for the future of studies and professional life affected students' emotional well-being.⁴ Past outbreaks like SARS showed that long quarantine periods can increase anxiety and depression.⁵ Similarly, mental health issues like anxiety, insomnia, stress, and severe fear increased globally during the COVID-19 pandemic.⁶⁻⁹

Millions of students stayed home for an extended period in Bangladesh as all educational institutions were closed. This long-term isolation and disruption led to a surge in mental health issues. Surveys revealed that almost all experienced anxiety, over half showed signs of depression, and many reported of stress. Factors such as financial instability, disrupted studies, and social isolation contributed heavily to this mental health crisis.¹⁰

In a 2020 survey conducted in the United States, college students faced numerous academic and emotional challenges throughout the pandemic.¹¹ Many students found adjusting to online learning as a new educational tool difficult. In addition, many students encountered financial challenges, especially when the primary earners in their families lost their jobs. These unexpected challenges severely impacted students' emotional and academic well-being.¹²

A study in Bangladesh found that during the pandemic, nearly half of university students experienced severe depression, and over 88% of college students reported feeling mild anxiety.¹³ The ongoing crisis introduced new challenges, including health issues, financial uncertainty, and social disconnection. The fear of infection, along with worries about loved ones' health, created long-term psychological effects.¹⁴

In a survey in Bangladesh, 33% of over 10,000 respondents reported depression symptoms, and 5% admitted to having suicidal thoughts during the pandemic.¹⁵ Another study of 505 students revealed that 46.9% were suffering from various forms of depression, 28.5% were under stress, and 33.3% experienced anxiety symptoms. Fear of illness, loss of income, insufficient food supply, inactivity, and a lack of recreational opportunities were all contributing concerns.¹⁶

Medical students frequently express greater amounts of psychological distress than people in general, because of the pressure of their academic

training.¹⁷⁻¹⁹ Tools like the Fear of COVID-19 Scale (FCV-19S) and the Depression, Anxiety, and Stress Scale (DASS-21) have been used internationally to assess mental health relations.²⁰

²¹ However, in Bangladesh, research exploring the direct connection between FCV-19S and mental health outcomes among medical students remains limited. Understanding how FCV-19S influences mental health outcomes like depression, anxiety, and stress is vital to developing support systems for medical students, especially in preparation for future public health emergencies.

METHODS

This cross-sectional, descriptive study was conducted among students of Ashiyan Medical College, Dhaka, Bangladesh, between January and August of 2022. After explaining the study's purpose and obtaining consent, participants completed a self-administered questionnaire anonymously, ensuring their privacy.

The questionnaire was distributed to 450 medical students, of which 240 records could be kept for analysis into three sections. The first section gathered socio-demographic details, including age, gender, monthly income (in Bangladeshi Taka), level of education, place of residence during the pandemic, and whether there were confirmed COVID-19 cases among their family members or neighbours. It also included whether they lived with family during the pandemic and if they had any relatives working in healthcare. Respondents were asked how severely their lives were affected by the pandemic, using a 4-point Likert scale (not at all, slightly, moderately, or heavily). Income groups were categorised as low ($\leq 25,000$ BDT), middle (25,001–60,000 BDT), and high ($> 60,000$ BDT).

The second part of the survey assessed participants' fear of the COVID-19 (FCOV) by using the Fear of COVID-19 Scale (FCV-19S).²² This scale, introduced in March 2020, is a validated self-report measure to assess fear related to the pandemic.²³ The seven items on the 5-point Likert scale have scores from 7 to 35, ranging from "strongly disagree" to "strongly agree". Higher scores indicate greater fear.

To evaluate mental health status, we used the

Depression, Anxiety, and Stress Scale-21 (DASS-21)²⁴ in third section. It contains 21 points, divided equally into depression, anxiety, and stress subscales. Each point is scored from 0 to 3, where 0 means “did not apply at all,” 1 indicates “applied sometimes,” 2 reflects “applied a good part of the time,” and 3 means “applied most of the time.” Scores were summed to compute subscale totals and classified as follows: Depression categories are from normal (0-4), mild (5 to 6), moderate (7 to 10), severe (11 to 13), and very severe (>13). Anxiety levels range from 0 to 3 (normal), 4 to 5 (mild), 6 to 7 (moderate), 8 to 9 (severe), and >9 (very severe). Stress levels range from 0 to 7 (normal), 8 to 9 (mild), 10 to 12 (moderate), 13 to 16 (severe), and >16 (very severe).

Data were entered into Microsoft Excel and analysed with SPSS version 26.0 for windows. Using non-parametric testing was necessary because the data did not have a normal distribution. We summarised qualitative variables using frequencies and percentages, while we used mean±SD (standard deviation) to describe quantitative variables. We applied the Mann-Whitney U and Kruskal-Wallis H tests to determine the differences in FCOV and mental health outcomes across demographic groups. DASS-21 and FCV-19S scores were assessed with Spearman's rank correlation test. P values ≤0.05 were considered as statistically significant from univariate analysis; we assessed the adjusted relationship of FCOV on mental health with General Linear Model (GLM) with best fit.

RESULTS

Table 1 presents the mean FCV-19S scores across various demographic variables. A significant difference was observed based on gender, with females reporting higher levels of fear (16.29±4.72) compared to males (13.36 ± 4.19; P<0.001). Those not living with family had higher fear scores (16.65±3.67) than those living with family (14.51±4.78), with this difference being statistically significant (P=0.01). The degree to which students' lives were affected by the COVID-19 also significantly impacted fear levels. Participants reporting severe life impact had the highest FCV-19S scores (19.07±3.10), followed by moderate (15.36±4.62), mild (14.14±4.04),

and not affected (14.02±5.52), with a clear trend indicating increasing fear corresponding to the severity of impact (P=0.001). We did not find any significant differences in fear levels across study levels, income groups, or based on whether a family member was in health services. Table 2 outlines the associations between demographic characteristics and mental health outcomes measured by the DASS-21 scale. Female students appeared more vulnerable to stress, as reflected in significantly higher stress scores compared to their male peers (9.03±4.01 vs. 7.07±3.29 respectively; P<0.001). However, this gender gap was not evident in depression or anxiety scores. Students living apart from their families had higher depression scores (8.74±3.20) than those living with family (7.17±4.39; P=0.009). Additionally, a marked increase in DASS-21

Table 1: Demographic data classified by FCS-19S

Demographic characteristics		Fear of COVID-19 Scale	
		Mean±SD	P value
Gender	Male	13.36±4.19	<0.001
	Female	16.29±4.72	
Study level	Pre-clinical	15.00±4.60	0.83
	Clinical	13.71±5.14	
Income group	Low	15.33±4.66	0.44
	Middle	14.94±4.36	
	High	13.92±5.40	
Living with family	Yes	14.51±4.78	0.01
	No	16.65±3.67	
Family member in health services	Yes	14.58±4.63	0.44
	No	14.96±4.73	
Life affected by COVID	Not affected	14.02±5.52	0.001
	Mild	14.14±4.044	
	Moderate	15.36±4.62	
	Severe	19.07±3.10	

scores was observed with the increasing degree of life affected by COVID-19. Participants who experienced severe impact had the highest levels of depression (11.93 ± 2.99 ; $P < 0.001$), anxiety (10.13 ± 2.87 ; $P < 0.05$), and stress (10.20 ± 2.27 ; $P = 0.04$), with the overall DASS-21 score being highest in this group (32.27 ± 5.71 ; $P < 0.001$).

The General Linear Model (GLM) analysis is shown in Table 3. FCOV was the most significant predictor across most of the models. It demonstrated a strong and statistically significant association with total DASS score, anxiety, and stress ($P < 0.001$). However, it was not substantially associated with depression ($P = 0.11$). Life affected by COVID-19 had a significant impact on depression ($P < 0.001$). It showed a moderate effect on total DASS score ($P = 0.03$) but had no

significant impact on anxiety or stress. Gender significantly affected stress ($P = 0.01$), indicating that female students likely experienced higher stress levels. It did not correlate substantially with anxiety or depression. Living with family during COVID-19 showed a borderline association with depression ($P = 0.05$), but had no significant impact on total DASS, anxiety, or stress scores.

Figure 1 illustrates the positive correlations between FCV-19S scores and DASS-21 total and subscale scores. The FCV-19S scores are significantly associated with increased levels of anxiety, stress, and overall DASS-21 scores. The strongest correlation was seen for stress. The correlation with depression, however, was weak and not statistically significant.

Table 2: Demographic characteristics with DASS-21, depression, anxiety, and stress scale

Demographic characteristics		DASS-21		Depression		Anxiety		Stress	
		Mean $\pm$ SD	P value	Mean $\pm$ SD	P value	Mean $\pm$ SD	P value	Mean $\pm$ SD	P value
Gender	Male	21.85 $\pm$ 8.87	0.06	7.14 $\pm$ 3.64	0.42	7.64 $\pm$ 3.72	0.87	7.07 $\pm$ 3.29	<0.001
	Female	24.42 $\pm$ 10.08		7.66 $\pm$ 4.83		7.79 $\pm$ 3.74		9.03 $\pm$ 4.01	
Study level	Pre-clinical	23.47 $\pm$ 9.81	0.31	7.40 $\pm$ 4.40	0.15	7.87 $\pm$ 3.82	0.32	8.20 $\pm$ 3.91	0.75
	Clinical	21.21 $\pm$ 7.69		7.38 $\pm$ 3.40		6.76 $\pm$ 2.94		7.06 $\pm$ 2.76	
Income group	Low	23.32 $\pm$ 8.67	0.77	6.77 $\pm$ 4.34	0.48	7.65 $\pm$ 3.42	0.81	8.90 $\pm$ 4.06	0.13
	Middle	22.95 $\pm$ 9.92		7.57 $\pm$ 4.20		7.68 $\pm$ 3.99		7.71 $\pm$ 3.74	
	High	23.43 $\pm$ 9.77		7.70 $\pm$ 4.37		7.87 $\pm$ 3.43		7.87 $\pm$ 3.49	
Living with family	No	25.38 $\pm$ 8.26	0.06	8.74 $\pm$ 3.20	0.009	8.32 $\pm$ 3.29	0.25	8.32 $\pm$ 3.32	0.60
	Yes	22.78 $\pm$ 9.72		7.17 $\pm$ 4.39		7.61 $\pm$ 3.79		8.00 $\pm$ 3.86	
Family member in health services	No	23.27 $\pm$ 9.19	0.95	7.20 $\pm$ 4.32	0.43	7.75 $\pm$ 3.65	0.86	8.32 $\pm$ 3.79	0.28
	Yes	22.94 $\pm$ 10.17		7.72 $\pm$ 4.19		7.64 $\pm$ 3.85		7.58 $\pm$ 3.76	
Life affected by COVID	Not	22.98 $\pm$ 8.38	<0.001	7.04 $\pm$ 4.40	<0.001	7.74 $\pm$ 3.36	0.04	8.21 $\pm$ 4.23	0.04
	Mild	20.90 $\pm$ 8.66		6.10 $\pm$ 3.52		7.21 $\pm$ 3.82		7.60 $\pm$ 3.55	
	Moderate	24.22 $\pm$ 10.76		8.33 $\pm$ 4.46		7.83 $\pm$ 3.84		8.05 $\pm$ 3.88	
	Severe	32.27 $\pm$ 5.71		11.93 $\pm$ 2.99		10.13 $\pm$ 2.87		10.20 $\pm$ 2.27	

Table 3: General Linear Model assessing the factors related to fear of the COVID-19

3a: Variables (DV DASS)	3b: Variables (DV Depression)
F	F
P value	P value
FCOV	FCOV
19.46	2.60
<0.001	0.11
Gender	Gender
0.15	0.04
0.70	0.84
Life affected by COVID	Life affected by COVID
5.01	18.40
0.03	<0.001
Living with family members during COVID	Living with family members during COVID
0.86	3.93
0.35	0.05
3c: Variables (DV Anxiety)	3d: Variables (DV DASS)
F	F
P value	P value
FCOV	FCOV
20.21	23.26
<0.001	<0.001
Gender	Gender
1.60	6.39
0.21	0.01
Life affected by COVID	Life affected by COVID
0.93	0.05
0.34	0.82
Living with family members during COVID	Living with family members during COVID
0.08	0.04
0.77	0.83

*DV: Dependent variable

DISCUSSION

In the present study, we found that female students reported higher levels of fear. This aligns with previous findings showing that females tend to experience more fear, anxiety, and emotional strain during major crises.²⁵⁻²⁷ Studies suggest that women are likely to be more emotionally susceptible and may perceive health threats as more severe, which increases their fear response.²⁸ This may be impacted by social expectations and caregiving responsibilities, which frequently put extra strain on women, in addition to biological factors. Compared to students who stayed alone or in hostels, those who lived with their families during the lockdown experienced lower levels of fear and depression. The family setting likely offered emotional buffering. Students may have felt less stressed, more connected, and safer when loved ones were emotionally present. The household's everyday interactions, shared rituals, and mutual support probably facilitated a sense of normalcy and emotional stability during a very uncertain time. Interestingly, in the adjusted model, living with family was only borderline significantly associated with depression and showed no significant association with stress or anxiety. This suggests that while family support may offer some protective effects, these may not be uniformly strong across all mental health domains.²⁸

One of the most striking patterns we found was that the students whose lives had been substantially affected by COVID-19 exhibited significantly elevated levels of anxiety, stress, depression, and fear. Students who reported that their lives were severely affected showed a significant positive relation with all mental health attributes of DASS. This pattern is in line with previous studies demonstrating that individuals who experienced greater disruptions, such as loss of loved ones, financial strain, or academic setbacks, were more likely to develop psychological symptoms during the pandemic.^{27,29} This suggests that any future crisis with similar life disruptions could also trigger a significant adverse effect on students' mental health. However, in the adjusted model, life affected by COVID emerged as a significant predictor only for depression, but not for anxiety or stress, suggesting that prolonged or intense disruptions may especially erode mood and emotional well-being.³⁰

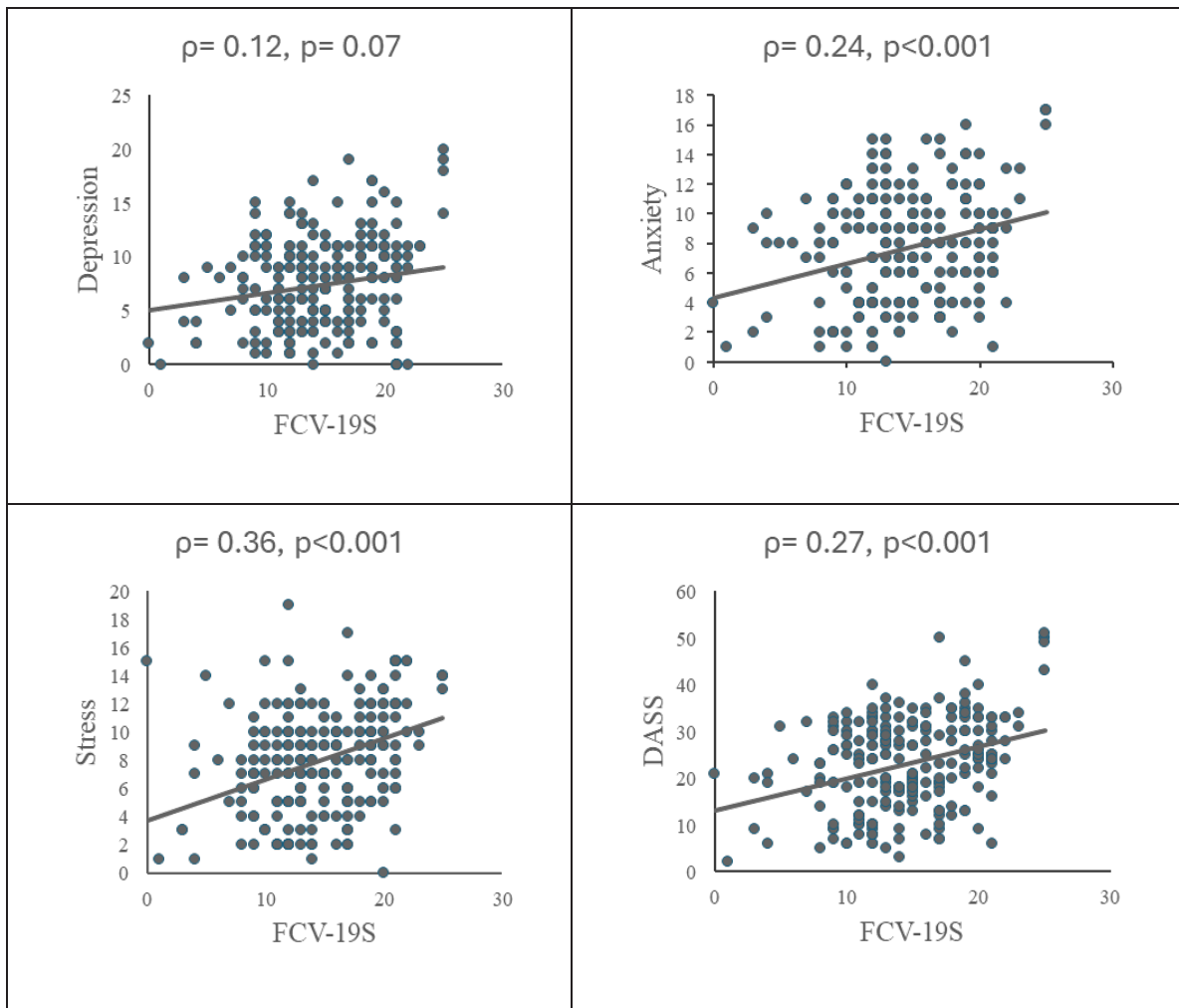


Figure 1: Scatterplot showing the relation of FCV-19S with DASS-21 and its components.

The strong positive associations between FCV-19S and DASS-21 scores highlight that while fear is an adaptive response, excessive or prolonged fear in uncertain situations like a pandemic may contribute significantly to psychological problems.²³ Fear of infection, social stigma, and future uncertainty may all contribute to higher levels of stress, anxiety, and depression. Our findings echo global studies that identify FCOV as a key predictor of poor mental health among students and healthcare workers.^{31,32} The finding of this study that the COVID-19 affected mental health is supported by a study done involving undergraduate medical students in Saudi Arabia during the same period. According to the study, 10.7% of the students experienced anxiety, 10.8% experienced stress, and 23% showed depressive symptoms.³³ Similar findings are demonstrated in another study conducted in Bangladesh.³⁴ However, it is essential to note that

in our adjusted model, fear was not significantly associated with depression. This suggests that although fear contributes to overall psychological distress, it may not be the sole or primary driver of depressive symptoms, which might be more directly influenced by other stressors like life affected by the COVID-19.

We gathered the data nearly a year after the pandemic. Response bias, such as recall bias, may affect self-reported questionnaires. Because of their perceptions or worries about stigma, participants may have overreported or underreported their levels of stress, anxiety, depression, or fear.²⁷ Moreover, no diagnostic tests or clinical interviews were carried out to verify the existence of psychological disorders. Moreover, even though the results show increased symptoms, they are not equivalent to medical diagnoses.

CONCLUSION

This study explored the psychological effects experienced by medical students during the COVID-19 pandemic, with FCOV emerging as a key factor associated with anxiety and stress and potentially contributing to depression. Female students, those living away from their families, and individuals whose lives were severely affected by the pandemic were found to be particularly vulnerable. These findings emphasise the critical need for mental health interventions responsive to medical students' specific challenges.

Educational institutions and healthcare training organisations must take the initiative by incorporating mental health support into the academic environment. To address the specific requirements of medical students, programs like stress-reduction workshops and readily available counselling should be designed to support the development of coping mechanisms and mental resilience. Moreover, long-term planning should incorporate gender-sensitive approaches and emphasise the value of strong social support

networks. These elements are critical in shaping how students navigate high-pressure situations, including pandemics and other public health emergencies. Resolving these vulnerabilities is essential for future healthcare practitioners' mental health and academic performance.

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Ethical Approval: We took ethical clearance from the Institutional Review Board of Ashiyan Medical College, Dhaka, Bangladesh.

Author's Contribution: SMBB conceptualised the study, SMBB and FIK planned the study design, FIK and SAS did sample selection and collected data, SMBB and SAS analysed data, All the authors wrote, reviewed, edited and finalized the manuscript for submission.

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