

Association Between Employment Status and Mental Health of People: An Evidence-Based Analysis in The Post Covid-19 Era

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Abstract

The COVID-19 pandemic has inflated many megacities in the world and petrified the mental health of people. Mental health complications of people during this pandemic were spread at different levels. This situation created the ground for this study to see whether the employment status of people was in line with fluctuating mental health conditions in Dhaka City Corporation during this invasion or in the immediate past. It was a cross-sectional study that applied a multistage sampling method to define sample size. It selected the participants randomly and collected data through a self-administered structured questionnaire. This questionnaire was based on the DASS-21 to measure the conditions of mental health stability. Different statistical tools, including cross-tabulation, were used to reveal the association between the variables, and a chi-square test was conducted to examine the significance of such association. The findings of the study exposed the stern predisposition of mental health situations to employment status in the Dhaka City Corporation during and immediately after the COVID-19 invasion, which was at different levels depending on their demographic attributes. Thus, the findings have a significant conclusion that taking preventive measures for the employment security of people is essential to maintaining their mental health in the future. However, it could also be said that keeping this study only in urban areas and among educated people is a limitation, though such a limitation has opened further sites for potential studies.

Keywords: Dhaka, Demographic attributes, employment, DASS-21

1. Introduction

As a highly contagious viral disease, finding a way to barricade the COVID-19 incursion in Bangladesh looked dreadful. However, it was finally controlled after losing many lives like other countries (Martinez-Ferran *et al.*, 2020). During this pandemic, many people, including job holders of different sectors around the world, faced many serious mental health complications that had long-term consequences for their lives. Many working people lost their jobs on the grounds of different health-related complications and uncertain fear of losing life during this pandemic and its immediate past (Patel & Patel, 2019). On the other hand, many business organizations had to cut their staff as they lost their business due to the periling consequences of this pandemic (Al-Fadly, 2021). Around 20-50% of organizations lost their business partially or fully due to this invasion (Al-Fadly, 2021). As a result, they retained only key staff to ensure their survival, as the managers were mainly concerned with the pertinent to running the business somehow (Al-Fadly, 2021). This invasion created huge challenges for employees, as many had to leave the organization because of a 'no work situation' during COVID-19 (Al-Fadly, 2021). Ismail *et al.* (2021) admitted these challenges and identified a severe consistent adverse impact of the pandemic on employment during COVID-19, which also touched migrant workers (Saw *et al.*, 2021; Liem *et al.*, 2020) mainly in Singapore, Thailand, Malaysia, and the Gulf states (Yi *et al.*, 2020). Its severe impact was seen among the low-wage and manual workforces in all sectors, too (Wahab, 2020).

McDowell *et al.* (2021) counted an association between changing employment conditions in the form of homework or joblessness that severely halted the mental health norms during the COVID-19 pandemic. They

also found that the mental health of employees whose employment remained unchanged did not differ from those who switched to working from home (McDowell *et al.*, 2021). On the contrary, Ruffolo *et al.* (2021) stated that the employees experienced lower levels of mental health distress, higher levels of psychosocial well-being, better overall quality of life, and lower levels of loneliness than those who severely faced COVID-19. According to them, a clear and consistent difference in mental health conditions was visible among those who remained in employment and those who had to retire due to this pandemic. The unemployed people during COVID-19 or the employees who had to leave their jobs due to COVID-19 reported poorer mental health results in terms of emotion, loneliness, psychosocial well-being, quality of life, and psychological distress (Ruffolo *et al.*, 2021).

In this context, this study was initiated to assess the relationship between the employment status of people living in Dhaka City and their mental health conditions during COVID-19 and its immediate past. The reason is that there was no study documenting the employment status of people during COVID-19 in Dhaka City, one of the largest megacities in the world (Saw *et al.*, 2021). Thus, the objective of this study has been to examine the relationship between the mental health conditions of employees and their employment status during and immediately after the COVID-19 in Dhaka City based on the research questions “1) Does the employment status of people impact their mental health in post COVID-19 period? and 2) which mental health components are more impacted by employment status?”

2. Literature Review

The World Health Organization (WHO) defines people's mental health as the state of their well-being that allows them to realize their abilities, including working productively (Alam & Razi, 2018). Mental health disorders produce different indications of mental sickness, including anxiety, depression, and stress (Alam & Razi, 2018). During a pandemic like COVID-19, the mental health conditions of people pass a difficult time (López-Bueno *et al.*, 2020). Similarly, COVID-19 was the most contagious among all the pandemics that the world has already witnessed; it shortly spread out across the world (López-Bueno *et al.*, 2020) and created a continued effect on health conditions, which was highly severe for people with pre-existing health complexities (Apuke, 2017). It made people inactive by developing severe mental and physical anxiety and also developed a significant influence on people's behavioral aspects regardless of their occupation (Apuke, 2017).

A short-term consequence of COVID-19 on people's job continuation and wages has been revealed in the US (Beland *et al.*, 2020). COVID-19 increased the unemployment rate and decreased working hours and labor force participation. During this invasion, the labor market became extremely difficult for people, mainly for younger and less educated people, indicating labor market inequalities, as stated by scholars (Fana *et al.*, 2020). Fana *et al.* (2020) revealed that the occupations that depend on physical proximity to others were more affected economically, in contrast to occupations that were performed remotely.

Some of the workforces were impacted by social distancing measures of the COVID-19 pandemic (Pouliakas & Branka, 2020; Fana *et al.*, 2020). These workforces were mainly from the most vulnerable groups, like women, self-engaged workers, casual workers, less educated workers, workers of small organizations, low-paid workers, etc. Palomino *et al.* (2020) supported this finding, stating that the differences in impact on employment status depend on the workers' employment categories during COVID-19. Specifically, perilous and vulnerable workers were actively impacted as they faced the most challenging situations of COVID-19 because of some preventive measures, like local lockdown and confinement (Fana *et al.*, 2020). Such an impact also varied from region to region due to various demographic attributes of people, as there is a strong relationship between their mental health and lifestyle patterns (Javed, 2021). Barrot *et al.* (2020) supported these findings, showing that isolation activities narrowed the scope of employment, mainly in hotels and technical organizations.

The employees of different occupations who had lost their jobs reported higher symptoms of depression during COVID-19 and its immediate past (McDowell *et al.*, 2021), indicating that tailored and sensitive interventions were required to prevent descents in mental health associated with job loss during any pandemic. COVID-19 has rapidly altered the lives of people globally, transforming how people work. All the states of the USA declared a state of emergency during COVID-19 and introduced diverse measures to limit infection transmission and prevent critically overstraining healthcare systems (Gostin & Wiley, 2020). Many businesses closed their activities temporarily or permanently; thus, many people switched to working from home or voluntarily retired from services (McDowell *et al.*, 2021). Many people experienced changes in the work environment, including job uncertainty, during the protocol of isolation of COVID-19 (Douglas *et al.*, 2020). This situation disturbed the mental well-being of people to a large extent (Jonsson *et al.*, 2020). However, such a situation was not the same for all members of society (Godinc *et al.*, 2019).

From the perspective of the above theoretical views, the current study critically investigated the relationship

between the employment status of people of Dhaka City Corporation and their mental health conditions during the COVID-19 invasion and its immediate past and created evidence-based information about the risk factors of employment associated with the pandemic COVID-19.

3. Methodology

3.1 Research Design

A research method systematically deals with the research problem sequentially to capture the target output of the research work (Caltech, n.d.), based on which the philosophy of this study was designed. It was a cross-sectional study conducted in the Dhaka City Corporation from December 2022 to April 2023. It approached a quantitative method to generate research outcomes (Apuke, 2017).

3.2 Sampling Method

The people of the Dhaka City Corporation were taken as the population of this study, who were divided according to the subzones of this city (Chauvet, 2015). However, this study considered people aged 18-60 regardless of gender identity while calculating the study population, and by applying a multi-stage sampling method, Dhaka North City Corporation at first stage, and secondly, ward-4 and ward-5 were selected randomly. Thirdly, every second household was selected from each word, and thus the sample size was satisfied. In choosing every household, the first household was chosen purposively, followed by one adult from the available households.

The sample size was defined by applying the formula: $n = z^2 pq/d^2$ [n means respondents figure, z means the standard normal deviation: 1.96 at 95% confidence level, p refers to the positive response percentage [0.337 [36], q refers to $1 - p = 1 - 0.337 = 0.663$ and d shows the precision level at 5% = 1.96]. Hence, the sample size was determined as 343 [$n = z^2 pq/d^2 = (1.96)^2 \times (0.337) \times (0.663) / (0.05)^2$]. This figure ultimately came to 368, adding 10% non-response error (Apuke, 2017).

3.3 Questionnaire and Data Collection

A semi-structured self-administered questionnaire (both in English and Bengal languages) was developed to capture data for quantitative analysis. 20 adult people attended the pre-testing of this study, which ensured the validity of this questionnaire. Demographic, mental health and employment-related questions/statements were included in this questionnaire, based on which 368 respondents were captured for their opinions. Before approaching the respondents, they were briefed about the study's purpose. The people who were mentally sound and understood the questions were included in data collection with the provision of a Drop-off and Pick-up (DOPU) option that has ensured the accuracy of the data.

3.4 Measures

Following the recommendation of Lovibond and Lovibond (1995), the DASS-21 scale was applied to measure the mental health situation of the participants' depression, anxiety, and stress. In this scale, depression, anxiety, and stress were assessed separately, with 21 questions answered by the respondents. Later, the score of the DASS-21 scale was doubled to calculate the final score (Zanon *et al.*, 2021).

3.5 Analysis

Data was first reviewed for accuracy by omitting the missing or inconsistent facts. Later, IBM SPSS (V26) was used for data analysis. The simple frequency distribution was applied in descriptive analysis (mean, standard deviation, percentage), and cross-tabulation was done to examine the relationship between the variables, maintaining a 95% confidence interval (CI) level. The applied chi-square test revealed the significance of the relationship.

3.6 Ethical Consideration

The State University of Bangladesh approved this study (reference no.: 2022-12-06/SUB/H-ERC/0010) from an ethical point of view. In addition, respondents' written consent was also obtained before capturing their opinion, stating that they would have the right to withdraw their participation at any time without showing any cause. The Declaration of Helsinki was also followed in this study.

4. Results

4.1 Demographic Analysis of the Respondents

Table 1 shows that 51.1% of respondents in this study were male. It also shows that 37.2% of the respondents were from 20 - 29 years, and 36% were from 30 - 39 years of age. The mean (standard deviation) age of the respondents was 30.2 years. However, the mean age of the males was 30.3, and the females was 30.0 years.

According to Table 1, 55.98% of the respondents were married, and 48.91% completed graduation and post-graduation. Regarding monthly income, 33.42% of respondents earn less than BDT 20000; another 33.42% earn up to BDT 50000, while 12.77% earn more than BDT 100000. On the other hand, 20.38% of the respondents earn between BDT 50,000 to 100000.

Table 1. Demographic profile of the respondents

Variables	Constructs	No	%
Gender	Male	188	51.09%
	Female	180	48.91%
Age	<20	43	12.00%
	20-29	137	37.00%
	30-39	131	36.00%
	40-49	45	12.00%
	50-60	12	3.00%
Marital Status	Married	206	55.98%
	Single	151	41.03%
	Divorced or Widow or Widower	11	3.00%
Educational Status	Up to HSC	90	24.46%
	Graduation	98	26.63%
	Above Graduation	180	48.91%
Monthly Income (Family)	<20,000 BDT	123	33.42%
	20,000-50,000 BDT	123	33.42%
	50,000-100,000 BDT	75	20.38%
	>1,00,000 BDT	47	12.77%

4.2 Employment Status on or after the COVID-19

Table 2 shows that 36.14% of people suffered from COVID-19, while 5.16% of people lost their family members due to COVID-19 infection. During this invasion, 22.01% of people did their office work from home, while 32.88% were not engaged at work. However, only 32.88% of people worked up to 8 hours. Table 2 also shows that 22.83% of people lost their jobs, and 13.59% and 9.24% stayed out of work for up to 6 months and more than 6 months, respectively. During COVID-19, 11.41% of people lost their jobs due to loss in business or close of business or retrenchment decision, while 1.36% people lost their jobs due to physical unfit as the consequence of COVID-19 infection. On the contrary, 7.34% of people left their jobs because of uncertain fear during this invasion.

Table 2. Descriptive analysis of employment-related variables on or after COVID-19

Variables		No	%
Ever suffered from COVID 19	No	235	63.86%
	Yes	133	36.14%
Lost any family member due to COVID-19	No	349	94.84%
	Yes	19	5.16%
Work modality during COVID COVID-19 period	Both	100	27.17%
	Home Office	81	22.01%
	Office	66	17.93%
	Not engaged in work	121	32.88%
Duration of work (hour/day) during COVID 19-period	<= 8 hours	119	32.34%
	> 8 hours	99	26.90%
	Couldn't remember	29	7.88%
Became jobless due to COVID-19	No	163	44.29%
	Yes	84	22.83%
Duration of unemployed	Never jobless /out of business	163	44.29%
	<=6 Month	50	13.59%
	> 6 Month	34	9.24%
Reason for unemployment	Loss in business /Office closed /Retrenchment due to COVID-19	42	11.41%
	Unable to continue job for the fear of COVID-19	27	7.34%
	Physically unfit due to COVID-19	5	1.36%
	Others	10	2.72%

4.3 COVID-19 Prevalence of Mental Health and Their Relation with Covariate

Table 3 describes the prevalence of mental health conditions of people on or immediately after the invasion of COVID-19 in terms of depression, anxiety, and stress, which were at 59%, 54.1%, and 46.2%, respectively. However, this prevalence fluctuates between males and females, indicating that the sex identity of people drives their mental health conditions to some extent. For example, the prevalence of depression is 67.2%, the prevalence of anxiety is 63.9%, and the prevalence of stress is 56.1%, as mentioned in Table 3. On the contrary, people 20-29 years of age showed more prevalence on or immediately after COVID-19. Thus, it could be said that the age level of people influences the prevalence of mental health conditions to some extent. The statistical significance of such a prevalence is also not the same for married and unmarried people; a higher prevalence rate is seen among single people (55%). Similarly, a higher prevalence is detected among the less educated people- in the case of depression, it is 72.2%; in the case of anxiety, it is 67.8%; and in the case of stress, it is 60.0%. Unemployment of people is also responsible for a higher prevalence of mental health conditions during and immediately after the invasion pandemic: 69.42% in the case of anxiety and 1.16% in the case of stress. It was also found that anxiety (61.8%) and stress (56.9%) were also higher among the less-earning people.

The prevalence of mental health of people was more severe who lost their family members during this COVID-19 invasion (Depression: 78.95%, Anxiety: 73.68%, and Stress: 68.42%). However, the people who lost their jobs during COVID-19 also showed the highest prevalence of mental health (Depression: 67.86%, anxiety: 58.33%, and stress: 51.19%). Due to work modality, the prevalence was also varied: the people who were not engaged at work at all during the COVID-19 invasion showed the highest prevalence of mental health (Depression: 69.42%, anxiety: 61.16%, and stress: 57.02%). Another important finding is that the prevalence of mental health due to joblessness as the consequence of close of their business organizations was severe, followed by the relevance due to COVID-19 infection.

Table 3. Prevalence of mental health conditions with the covariates

Variables	Depression			Anxiety			Stress		
	Normal	Mild -Extremely Severe	P Value	Normal	Mild -Extremely Severe	P Value	Normal	Mild -Extremely Severe	P Value
Overall	41.0	59.0		45.9	54.1		53.80	46.20	
Gender									
Male	48.90	51.10	0.002 *	55.30	44.70	0.000 *	63.30	36.70	0.000 *
Female	32.80	67.20		36.10	63.90		43.90	56.10	
Age									
<20	34.90	65.10	0.059	41.90	58.10	0.001 *	51.1	48.90	0.000 *
20-29	32.80	67.20		35.80	64.20		42.30	57.70	
30-39	48.90	51.10		59.50	40.50		67.20	32.80	
40-49	44.40	55.60		37.80	62.20		44.40	55.60	
50-60	58.30	41.70		58.30	41.70		83.30	16.70	
Marital Status									
Single	37.10	62.90	0.228	43.0	57.00	0.241	45.00	55.00	0.013 *
Married	44.70	55.30		49.00	51.00		59.20	40.80	
Widow /Widower /Divorced	27.30	72.70		27.30	72.70		72.70	27.30	
Education									
HSC/Below HSC	27.80	72.20	0.005 *	32.20	67.80	0.011 *	40.00	60.00	0.002 *
Bachelor Degree	39.80	60.20		50.00	50.00		51.00	49.00	
Above Bachelor degree	48.30	51.70		50.60	49.40		62.20	37.80	
Monthly income									
<20,000 BDT	34.10	65.90	0.235	38.20	61.80	0.044 *	43.10	56.90	0.008 *
20,000-50,000 BDT	42.30	57.70		43.90	56.10		53.70	46.30	
50,000-100,000 BDT	48.00	52.00		57.30	42.70		66.70	33.30	
>1,00,000 BDT	44.70	55.30		53.20	46.80		61.70	38.30	
Lost family member due to COVID-19									
No	42.12	57.88	0.069	46.99	53.01	0.078	55.01	44.99	0.046 *
Yes	21.05	78.95		26.32	73.68		31.58	68.42	
Work modality during COVID-19									
Unemployed /Not engaged in work	30.58	69.42	0.039 *	38.84	61.16	0.262	42.98	57.02	0.021 *
Both	46.00	54.00		49.00	51.00		57.00	43.00	
Home Office	44.44	55.56		51.85	48.15		64.20	35.80	
Office	48.48	51.52		46.97	53.03		56.06	43.94	
Duration of work during COVID-19									

<= 8 hours	47.06	52.94	0.01	56.30	43.70	0.118	61.34	38.67	0.021
> 8 hours	49.49	50.51		47.47	52.53		62.63	37.37	
Couldn't remember	31.03	68.97		27.59	72.41		37.93	62.07	
Jobless due to COVID-19-									
No	53.37	46.63	0.000	53.37	46.63	0.035	64.42	35.58	0.001
Yes	32.14	67.86	*	41.67	58.33	*	48.81	51.19	*
Duration of unemployment during COVID-19									
Never jobless	53.37	46.63	0.000	53.37	46.63	0.007	64.42	35.58	0.002
<=6 Month	36.00	64.00		52.00	48.00		54.00	46.00	
> 6 Month	26.47	73.53		26.47	73.53		41.18	58.82	
Reason for unemployment during COVID-19									
Close of business /retrenchment/	23.81	76.19	0.000	42.86	57.14	0.195	42.86	57.14	0.009
Uncertain fear	33.33	66.67		44.44	55.56		55.56	44.44	
Physically unfit	60.00	40.00		40.00	60.00		60.00	40.00	
Others	50.00	50.00		30.00	70.00		50.00	50.00	

* Statistically significance of the association is at 5%.

5. Discussion and Significance

This study intended to see the relationship between employment status and the mental health condition of people during the COVID-19 invasion in Dhaka city, assuming that any invasion of the pandemic creates employment disruptions that destabilize the mental health conditions of people. Therefore, this study studied the prevalence of mental health conditions among people of Dhaka City Corporation and examined its relationship with their employment status. The finding shows that 46.2% - 59% of people faced the risk of going through mental health disorders during the COVID-19 attack, which varies among people depending on their engagement categories. For example, the prevalence score of depression, anxiety, and stress is different for employed and unemployed people (Figure 1). It also varies depending on gender identity (Figure 2) and age status.

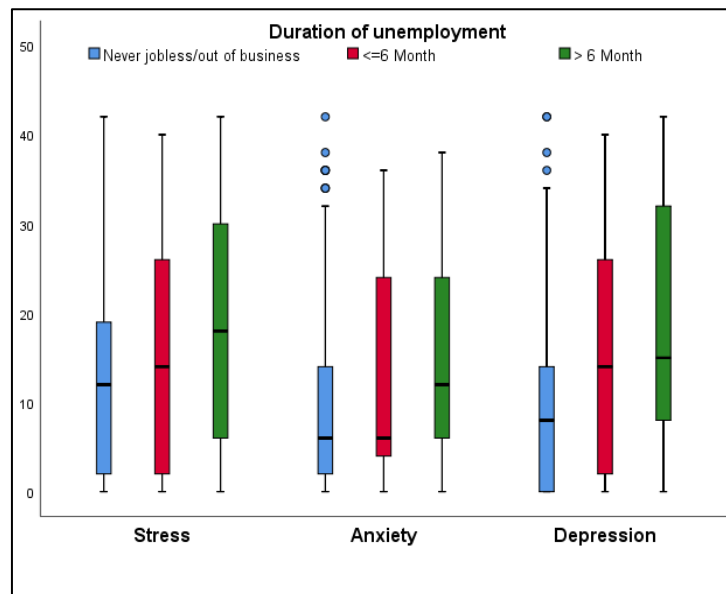


Figure 1. Box plots of participants' DASS-21 scores about unemployment status

The perception that the pandemic interrupts the lives of people and affects jobs, the education system, and healthcare support is pointedly associated with negative mental health outcomes. However, engaging in physical activity is positive during and immediately after the pandemic to ensure better mental health. Thus, engagement in physical work contributed to upholding mental well-being in the era of the COVID-19 invasion (Makhbul & Rawshdeh, 2021). COVID-19 also exaggerated the behaviors of people, particularly those who were jobless or had to lose jobs due to this invasion. According to scholars, the unemployment situation caused by the COVID-19 invasion instigated people, which has been recorded as incomparable and the most disturbing literature in public health (Han *et al.*, 2022). However, the significance of losing a job differs depending on the duration of employment, though the people with full employment showed such prevalence to some extent (depression: 46.63%, anxiety: 46.63%, and stress: 35.58%).

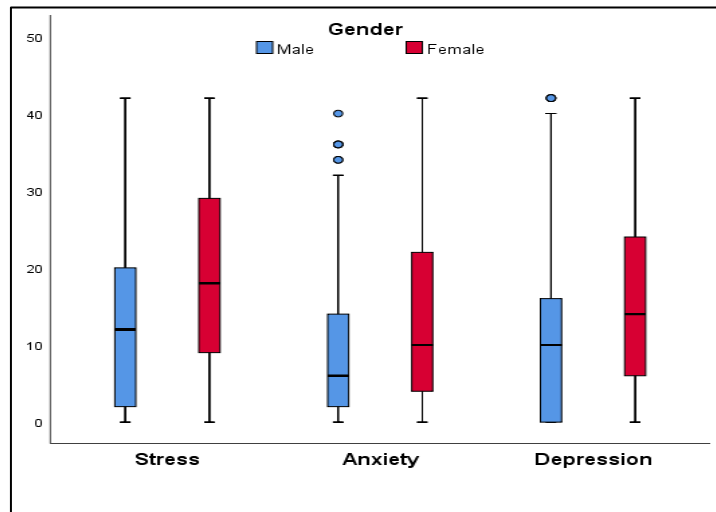


Figure 2. Box plots of participants’ DASS-21 score as a function of Gender identity

The people who worried about their earnings faced more severe health complications: the prevalence of depression moved from moderate to extremely severe level (76.19%), whereas it was 57.14% for anxiety and stress respectively among the people with a monthly income of <BDT 20000. Similarly, the people who were unemployed for less than 6 months during the COVID-19 showed more of a prevalence of mental health (depression: 73.53%, anxiety: 73.53%, and stress: 58.82%), than those who stayed 6 months or more out of job (depression: 64.0%, anxiety: 48.0%, and stress: 46.0%). Also, significantly high scores have been found among those who lost their family members due to COVID-19 during the pandemic (Figure 3). Similarly, depression, anxiety, and stress were severely visible among those who lost their family members during or immediately after the COVID-19 invasion (Figure 4)

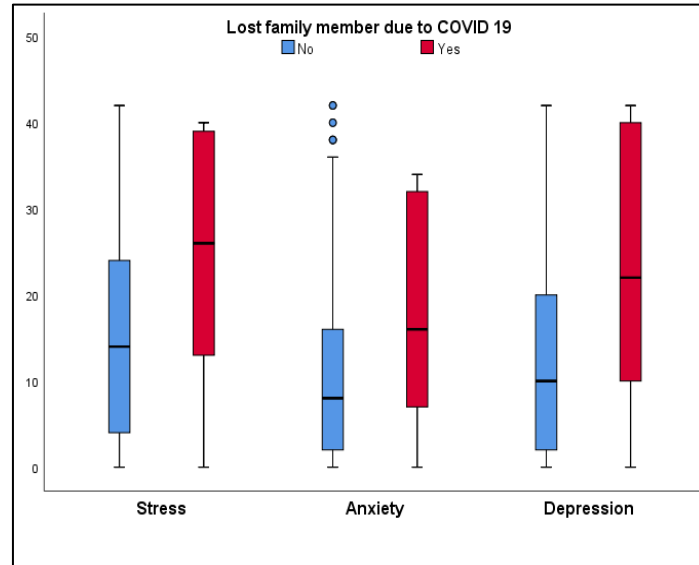


Figure 3. Box plots of participants’ DASS-21 score as a function of Loss of family members

From hypothetical facets, the insights of this research work will positively augment existing literature about any pandemic, like COVID-19, on the employment status of people in real-life situations. Particularly, it creates a severe consequence that affects the mental health conditions of people for many reasons, including financial turmoil in terms of joblessness, less income, and or physical fitness related to earnings. A pandemic like COVID-19 usually creates an environment where jobs are lost due to businesses closing, reduced business volume, physical unfitness of affected people, fear of uncertainty, etc. So, the significance of this study is that based on the above findings, the policymakers and regulatory bodies will get important evidence-based information for their decision-making in the future to control the effects of a pandemic like COVID-19. Another significance of the study is that it has created a message for the people living in crowded cities about how they

will behave during such a pandemic. Dhaka City is not only the Capital of Bangladesh but also one of the megacities of the world, where around 2.5 crore people live, where 90 live temporarily due to their employment purposes.

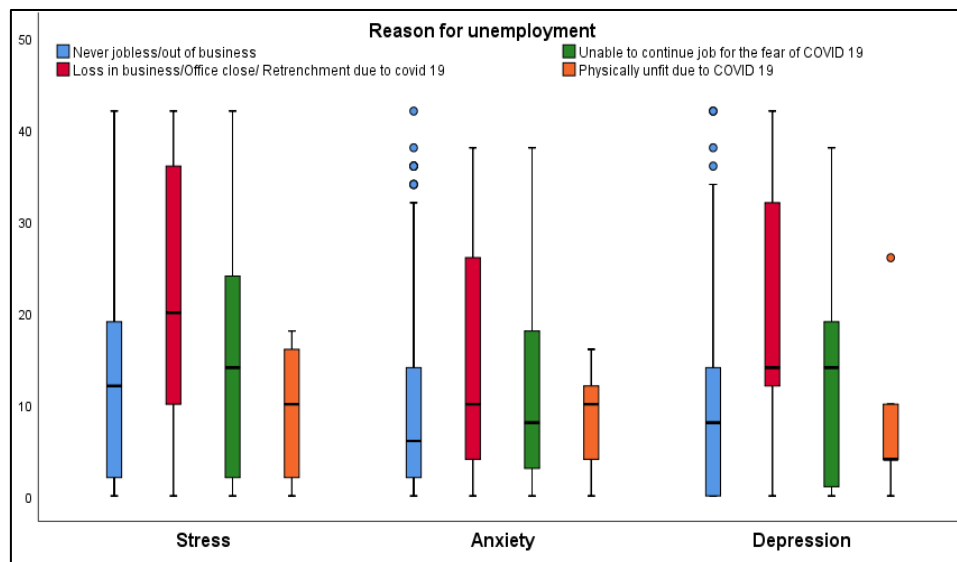


Figure 4: Box plots of participants' DASS-21 scores based on the reasons for unemployment

As the most populated country in the world, any pandemic can cost lives easily and in a short time. Thus, they need to know about the evidence-based consequences of any pandemic on their employment, at least to maintain their livelihoods and mental health conditions during such a pandemic. At the same time, it has also come to notice that this pandemic has forced us to learn some positive things required to maintain a healthy life, such as the quick medical intervention for vaccination, rapid technological interventions, the importance of networking, collaborative work, etc.

6. Limitations

The first limitation of this study is that this study only considered urban areas, whereas the rural areas of Bangladesh could be the potential area for study. Its second limitation is that it did not consider illiterate people. However, these two limitations have created new avenues for future researcher to go ahead with their studies to reveal evidence-based information that will enrich the literature on mental health and employment phenomena during the pandemic.

7. Conclusion

This study investigated the relationship between the prevalence of mental health conditions of people living in Dhaka City and their employment status during the COVID-19 pandemic. It captured the opinions of adult males and females almost equally, among whom about one-third of the respondents suffered from COVID-19. 40% of respondents lost their jobs due to the shutting down of business organizations, squeezing the volume of business, physical unfitness, etc. The outcomes of this study revealed that there was a strong relationship between the mental health of people and their employment status during the COVID-19 pandemic. However, it depicted that mental health prevalence significantly differs depending on the constructs of mental health of people and their unemployment duration. To some extent, their demographic attributes also promote the prevalence of mental health conditions. Overall, this research work has outlined the mental health conditions of people living in a crowded city in line with their employment status during and immediately after the COVID-19 invasion, which might be booked into contemplation for generating essential responsiveness in the future.

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Authors' contributions

The research work of this article was the brainchild of Ms. Tania Ahmed Chowdhury. She generated the idea and

urgency of conducting this research to serve the jobholders during any pandemic in the future. She did the whole function of data management including analysis. Mohammad Jahangir Alam, PhD, conducted the literature review and designed the research methodology and discussion part of this article. Dr. Esrat Zarin Lisa, Kaniz Fatima Emy, and Akhi Akter led the development of the questionnaire and data collection. In the research work, Ms. Tania held the role of Principal Investigator, while Mr. Alam. Dr. Esrat, Ms. Kaniz and Ms. Akhi worked as Co-Investigator as the agreement was made among them.

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Competing interests

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Obtained.

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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