



## THE EFFECT OF UNEMPLOYMENT ON MENTAL HEALTH: A STUDY ON THE UNIVERSITY GRADUATES OF BANGLADESH

Md. Amanullah<sup>1</sup> and Sayed Azharul Islam<sup>2\*</sup>

<sup>1</sup>Department of Humanities, Khulna University of Engineering & Technology, Bangladesh

<sup>2</sup>Human Resource Management Discipline, Khulna University, Khulna-9208, Bangladesh

KUS: 1074: 29092023

Manuscript submitted: September 29, 2023

Accepted: February 28, 2024

### Abstract

Though unemployment is directly associated with individuals' health and lifestyle, the nature of the relationship and intensity for specific groups in different socioeconomic conditions is not universal. The study addresses the unemployed university graduates of Bangladesh to understand the relationship of unemployment and mental health. The study aims to assess the effect of unemployment on mental health of unemployed university graduates of Bangladesh. The effect is examined on 385 unemployed graduates. Data were collected through online survey using a semi-structured questionnaire that included the 12-item General Healthcare Questionnaire (GHQ-12). Data were collected using a four-point un-weighted Likert scale. Later on, the data were coded using adjusted Caseness scale to avoid the constraints of marginal values, and to address chronic distress of the respondents. The study observes the presence of a moderate to high degree of mental illness due to unemployment. The respondents were primarily unemployed due to failure of getting a destined job despite their attempt. The independent variables—age, unemployed time, and time between employment and graduation—have significant impacts on mental illness of the respondents. However, sex and mental health remain inconclusive in this study. Mental distress is observed in three latent factors—psychological disorder, social and emotional dysfunction and cognitive disorder—among the respondents. Age, duration of unemployment, and time elapsed after graduation have positive effects on mental illness.

**Keywords:** Unemployment, Mental health, depression, Healthcare questionnaire, Mental distress, Cognitive disorder

### Introduction

Unemployment adversely affects an individual's socioeconomic life. On the one hand, unemployed people are isolated from social interaction; on the other hand, a large portion of them depends on others to meet their financial needs. As a result, along with tension over unemployment, loneliness and absence of belongings cause stress that may have negative impacts on mental health. Studies have suggested that psychological dysfunctions like anxiety, disorder or depression are more frequent among unemployed people than the employed ones (Knieps & Pfaff, 2016; Kroll *et al.*, 2016). Unemployment instigates lower mental and physical health and, in certain cases, riskier health behaviors like tobacco consumption or suicidal tendency (Freyer-Adam *et al.*, 2011). Unemployed people have a greater mortality risk and worse mental health by at least 1.6 times higher than employed people (Herbig *et al.*, 2013).

Though it is well established that unemployment is directly associated with individuals' health and lifestyle, it is not clear the nature of the relationship and intensity for specific groups in different socioeconomic conditions. Bangladesh is a country with huge population. In a small country, there are 169.36 million people (World Bank, 2021). The country is experiencing enormous economic and social changes due to high population and recent economic growth. Though the country is experiencing rapid economic growth, still the unemployment rate is significantly high. According to World Bank, the labor force participation rate of Bangladesh is only about 61% (World Bank, 2023). Moreover, the unemployment rate is significantly increasing day by day. The young university

\*Corresponding author: <azharulsayed@hrm.ku.ac.bd>

DOI: <https://doi.org/10.53808/KUS.2024.21.01.1074-mb>

graduates of Bangladesh are facing massive difficulty in getting employment opportunity. Thus, a significant number of them remain unemployed, at least for 5 to 10 years after their graduation. Apart from this, underemployment is very common in the context of Bangladesh. Rafi *et al.*, (2019) state that the Bangladeshi university graduates face various types of mental issues including depression, anxiety and stress in the period of job preparation. Mamun *et al.* (2020) identified financial troubles as the primary cause responsible for mental problems during unemployment. This condition became more vulnerable due to the recent covid-19 pandemic (Ela *et al.*, 2021). Researches have been conducted showing the relationship between mental health and unemployment from various dimensions around the globe especially in the context of developed nations like USA (Lee *et al.*, 2021; Voss *et al.*, 2020), UK (Thomson *et al.*, 2023), and European Countries (Matilla-Santander, 2021) where relationship has been explored and validated between unemployment and mental health. This area is still a place of interest for a notable number of researchers since both of the variables are very impactful and highly related to the interests of policymakers and practitioners (Bartelink *et al.*, 2020). The existing literature in this area in the context of Bangladesh still needs several empirical researches. This is essential because of the current socioeconomic conditions, unemployment rate of the country, population growth, and other demographic conditions.

Considering the above stated literature gap and significance of the study, this study aims at measuring the effect of unemployment on the mental health of the university graduates of Bangladesh which will help both the policy makers and researchers in understanding the latest scenario. Along with measuring the general relationship between these two variables, this study also aims at measuring the intensity of relationship among the participants from different groups (age, gender, duration of unemployment, delay in starting a career, and educational backgrounds).

### **Related Literature and Development of Hypothesis**

Researchers have proposed different notions to explain the relationship between unemployment and mental health. Unemployment creates stress because it drives people out of their jobs, costs them financial support and separates them from work-based communal networks (Goldman-Mellor, 2016). A high unemployment rate also causes stress among the jobless population, and the degree of stress increases with prolonged periods of unemployment (Goldman-Mellor, 2016). In addition, unemployment can cause mental distress due to an individual's demographic, societal and economic circumstances. Studies have concluded that unemployed males experience more severe distress than unemployed females (Paul & Moser, 2009). On the contrary, Goldman-Mellor has inferred a positive association between unemployment and mental illness regardless of age, sex and ethnic group (Goldman-Mellor, 2016). Researchers have prescribed further studies based on roles and social positions played by women in the target society to explain the contradictory findings of gender and mental health association of unemployed people (Strandh *et al.*, 2013).

Age is also correlated with mental health, especially in countries where the unemployed person either depends financially on family members or has to undertake family responsibilities. The younger population suffers more during economic crises due to restricted employment opportunities (Uutela, 2010). In result, suicidal tendencies and mental distress increase among young people. In addition, a large portion of them enter a vocation or embrace only available jobs for which they are overqualified (Buffel *et al.*, 2015). Furthermore, this may cause mental distress among young people. Though the relationship between age and mental health is mixed, scholars have identified it as an important factor to understand the correlation between employment status and mental illness (Goldman-Mellor *et al.*, 2010). Based on the stated findings, the following hypotheses are developed:

*H1: Age is positively related to mental distress.*

*H2: Mental distress is greater for unemployed males than for unemployed females.*

The duration of unemployment and intensity of mental distress are also found to be correlated in many studies. A study studied a sample of 49 recently unemployed and another 49 employed groups twice, with an interval of 6–8 months (Bolton & Oatley, 1987). The study concluded that the unemployed people were more depressed between time 1 and time 2, while the re-employed people were significantly less distressed (Bolton & Oatley, 1987). Studies also suggested the same findings that the duration of unemployment was positively correlated with mental distress, while the re-employed group showed significant improvement (Graetz, 1993). Another study concluded that unemployment and depression were significantly strong and persistent between two-year intervals (Frese & Mohr, 1987). The findings also suggested that depression was increased in two groups and decreased in another

group between time 1 and time 2 (Frese & Mohr, 1987). Based on the findings, the study hypothesizes the following hypotheses to test their effects on the study group:

*H3: The duration of unemployment is positively related to mental distress.*

*H4: Delay in starting a career after completing graduation enhances mental distress*

Duration of unemployment and job opportunities may differ for different groups with specific educational backgrounds considering the labor market conditions and job requirements. For instance, the financial sector, one of the most designated corporate job sectors in Bangladesh with prompt recruitment and selection mechanisms, prefers graduates from business, economics, statistics and related subjects. Hence, people who want to engage in such jobs may start their careers within a short time. On the contrary, humanities and social sciences graduates especially targeted for jobs in highly competitive public bodies, which require a great amount of time to complete the recruitment and selection process (Jahan, 2012). For this instance, graduates who are aiming for careers in public bodies have to wait for a long time. Hence, the intensity of mental distress may differ for graduates from different study groups considering the time requirement and competition. In this case, the following hypothesis is designed:

*H5: The intensity of mental distress is divergent for unemployed individuals from different educational backgrounds*

## **Materials and Method**

The study is quantitative in nature which believes in positivism research philosophy stating that proper interpretation of number may provide insights about reality. Many of the social scientists nowadays use positivism in order to conduct researches based on numbers (Hair, 2015). Data for the study were collected using a semi-structured questionnaire survey created with Google forms and distributed to respondents via email and social networking sites. A sample size of 385 respondents was selected using convenient sampling method which is commonly used in social science in order to collect. Malhotra (2020) suggested that as one of the non-probability sampling methods, convenient sampling can be used for collecting data from an unlisted population which is consistent with the condition of the current study. Sekaran and Bougie (2016) argued that convenient sampling technique allows researchers to reach the targeted respondents as per the convenience of the researchers. In addition, convenient sampling has been used in the current study since it provides quick and easy access to the respondents at a lower cost (Malhotra, 2020).

The study is based on a sample of respondents who have completed their graduation but have not been employed yet. In Bangladesh, 30 years (32 years for certain groups with quota privilege) is the maximum age limit for an entry-level job position in the government sector (The Daily Star, 2021) Considering the time (about 17 years) required for completing graduation and starting school at the age of 6, the study restricts the respondents with ages from 23 to 32 years. Researchers widely use the 12-item General Healthcare Questionnaire (GHQ-12), an instrument designed to measure psychological illness and well-being, to measure the mental health conditions of individuals (Farre *et al.*, 2018). Researchers concluded that GHQ-12 effectively addressed the overall mental health of the individuals considered for their study (Zulkefly & Baharudin, 2010). For this reason, GHQ-12 is used in this study to assess the effect of unemployment on mental health of the unemployed graduates of Bangladesh.

Based on the wording nature of the questions, the GHQ-12 is segmented into two categories: positive and negative. Each of these sets comprises six questions. Q1, Q3, Q4, Q7, Q8 and Q12 comprise the positive set and the rest comprise the negative set. A four-point (un-weighted) Likert scale—better than usual, as usual, worse than usual and much worse than usual—is used to measure the mental health of the respondents. The Likert scale is coded from 0 to 3 respectively, where 0 represents good mental health (better than usual) and 3 represents the worst mental health (much worse than usual). By this method, the summation of GHQ-12 scores results from 0 to 36, where 0 represents no distress and 36 represents the worst mental health. The study result represents a mean GHQ score of 13.57 with a standard deviation (SD) of 8.080. Hence, the results illustrate a moderate to high degree of mental distress among the respondents.

Literature proposes converting the GHQ-12 into a single index due to the limitations of the Likert scale, such as the possibility of incorrectly selecting the marginal points—0 or 3 in this case (Farre *et al.*, 2018). Hence, the Caseness scale is used and then summed up to calculate the total GHQ score. The Caseness scale calculates the responses of two worse categories, which refer to 0-0-1-1 coding instead of the 0-1-2-3 coding of the Likert scale. In result, the Caseness scale measures the psychological health from 0 (no distress) to 12 (highest degree of distress)

points on the GHQ score. Caseness scale data shows the presence of a moderate to high degree of mental illness among the respondents, with a mean GHQ score of 5.16 and SD of 3.664.

Though the Caseness scale effectively addresses the limitations of the Likert scale, chronic distress is neglected. The Caseness scale always denotes 0 for the as usual (code 1 in the Likert scale) condition. However, this is only true for positive items of GHQ-12 (Farre *et al.*, 2018). The as usual condition of the negative set refers to the presence of mental distress, which is not addressed in the Caseness scale, both in the past and present time. In order to eliminate the limitation, this study uses the adjusted Caseness scale as proposed by Goodchild and Duncan-Jones (1985). By means of the adjusted Caseness scale, the negative set is coded as 0-1-1-1, resulting in a total GHQ score from 0 to 12, where 0 refers to no distress and 12 stands for the highest distress.

The collected data, adjusted Caseness scale data unless otherwise specified, are analyzed in IBM-SPSS (v-20.0) using different statistical methods: descriptive statistics (frequency, mean and SD), factor analysis, correlation and regression. The internal consistency of the data is defined using Cronbach's Alpha. To determine the adequacy of the sample size and its factorability, the data are tested using Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy and Bartlett's test of Sphericity. The factor structure is extracted using the Principal Component Analysis (PCA) method with Varimax rotation and Kaiser Normalization. Considering the possible effect of independent variables on dependent variable, the regression model has developed as follows;

$$\text{Mental health} = \beta_0 + \beta_1(\text{age}) + \beta_2(\text{sex}) + \beta_3(\text{graduation period}) + \beta_4(\text{study concentration}) + \beta_5(\text{unemployment duration}) + \varepsilon$$

Where,

Mental health = Measured by GHQ score using the adjusted Caseness scale data

$\beta_0$  = Intercept coefficient (constant)

$\beta_i$  = Coefficients of each independent variables

$\varepsilon$  = Error term

## Results

Among the respondents, the most common cause of unemployment is that they have tried to get a job but couldn't manage it till the survey (Fig. 1). However, a sizable portion of the respondents (59.56%) chose not to accept the available jobs or to apply for them, or they chose not to engage in activities beyond their specific career goals like public service, corporate careers with lucrative benefits, and so on. Family or societal pressure also incites to go for specific job offerings regardless of the candidate's own career choice or skill sets. 7.21% of the respondents didn't want to engage in jobs but were fond of initiating entrepreneurial initiatives.

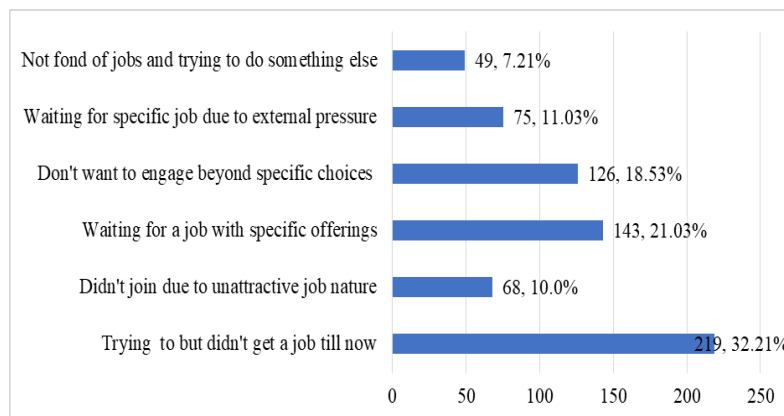


Figure 1. Causes of unemployment

**Reliability Test:** Cronbach's alpha of the collected data (Likert scale) is 0.860. The value represents a good indicator of data consistency. Hence, the results extracted from the data are reliable; in turn, the conclusions drawn from the data effectively address the purpose.

**Descriptive Statistics:** Table 1 represents the descriptive results of the data obtained. Among the respondents, 70.9% were male and 42.6% were between 23 and 25 years old (mean = 25.78, SD = 1.78). 36.6% of the participants completed their graduation within 1 year prior to t1 (mean = 1.96, SD = 1.39). The observations cover graduates from different educational backgrounds—humanities or law (16.1%), social sciences (17.1%), business studies (20.5%), and sciences or engineering (46.2%). Most of the respondents (48.6%) were unemployed for 0 to 1 years prior to t1 (mean = 1.52, SD = 1.20).

Table 1. Descriptive Statistics

Variables and measurements		n (%)
Sex	Male	273 (70.9%)
	Female	112 (29.1%)
Age	23-25 years	164 (42.6%)
	25-27 years	109 (28.3%)
	27-29 years	104 (27.0%)
	29-32 years	8 (2.1%)
	Mean	25.78
	SD	1.78
Graduation period (How many years ago?)	0-1 year	141 (36.6%)
	1-2 years	54 (14.0%)
	2-3 years	102 (26.5%)
	3-4 years	58 (15.1%)
	4-5 years	18 (4.7%)
	More than 5 years	12 (3.1%)
	Mean	1.96
SD	1.39	
Study concentration (Major area of study at graduation level)	Humanities, Arts or Law	62 (16.1%)
	Social sciences	66 (17.1%)
	Business studies	79 (20.5%)
	Sciences or Engineering	178 (46.2%)
Duration of unemployment (How many years after graduation?)	0-1 year	187 (48.6%)
	1-2 years	62 (16.1%)
	2-3 years	92 (23.9%)
	3-4 years	36 (9.4%)
	More than 5 years	8 (2.1%)
	Mean	1.52
SD	1.20	

**Notes.** a. Respondents—who haven't embraced their current jobs as a profession or who are already engaged in different occupations like freelancing, further study and others are considered as unemployed. b. Respondents engaged in higher studies (master's) after graduation may not consider themselves as unemployed during that period as several entry level jobs especially financial sector, corporates and university teaching either prefer or require a master's degree.

**Relationships among Independent Variables:** The independent variables considered for this study are significantly correlated with each other. The correlation coefficients show that the age of male respondents was higher than that of females (Table 2). Age, duration of unemployment, and time elapsed after graduation have moderate to high degrees of significant positive correlations with each other. Study concentration and sex are negatively correlated, which refers that men were more focused on science or engineering education, and less focused on humanities, arts, or law studies, whereas the opposite was true for female respondents.

Table 3 illustrates the descriptive results of GHQ-12. The intensity of distress is measured from a scale of 0 to 1 for the individual items of GHQ-12, where 0 describes no distress and 1 refers to the highest degree of distress in the past few weeks of the respondents. The total mean result of individual GHQ-12 represents the mean GHQ score. The GHQ score ranges from 0 to 12, with higher GHQ scores indicating greater distress.

Table 2. Correlation coefficients of independent variables

		Sex	Age	Graduation	Study concentration
Age	Correlation	-.106*	1	.651**	-.093
	Sig.	.038		<.001	.069
Graduation	Correlation	-.095	.651**	1	-.146**
	Sig.	.063	<.001		.004
Study concentration	Correlation	-.392**	-.093	-.146**	1
	Sig.	<.001	.069	.004	
Duration of unemployment	Correlation	-.137**	.737**	.755**	-.161**
	Sig.	.007	<.001	<.001	.002

\*Pearson correlation is significant at the 0.05 level (2-tailed) and \*\* 0.01 level (2-tailed)

Table 3. Descriptive statistics of GHQ-12

GHQ-12		Mean	SD
Q1	Ability to concentrate	.46	.499
Q2	Lost much sleep	.48	.500
Q3	Playing useful part	.30	.461
Q4	Ability to make decision	.26	.440
Q5	Constantly under strain	.67	.471
Q6	Unable to overcome difficulties	.57	.496
Q7	Enjoying normal activities	.49	.501
Q8	Ability to face problems	.42	.495
Q9	Felt unhappy or depressed	.62	.486
Q10	Losing self-confidence	.56	.497
Q11	Thinking worthless	.43	.496
Q12	Feeling reasonably happy	.46	.499
	GHQ score	5.74	3.52
	Total observations (n)	385	

Most respondents had a high level of mental illness in the previous few weeks of t1 because they were constantly stressed (mean = 0.67, SD = 0.471), unhappy or depressed (mean = 0.62, SD = 0.486), unable to overcome difficulty (mean = 0.57, SD = 0.496), and lost confidence (mean = 0.56, SD = 0.497). However, it's a good indication that the lowest degree of distress was caused by Q3 and Q4, which means the respondents felt that they were capable of making decisions about things and playing useful parts in things (mean of 0.26 and 0.30 with SD of 0.440 and 0.461 respectively) despite the presence of mental distress. The other GHQ-12 questions reveal mild distress among the respondents in the past few weeks of t1 as well (Table 3). The mean GHQ score is 5.74 (SD = 3.52), which represents a moderate to high degree of distress among participants.

**Factor Analysis:** Table 4 shows the sampling adequacy and factorability tests of GHQ-12 data (adjusted Caseness scale) using KMO and Bartlett's Test of Sphericity. The KMO test value is 0.727 and Bartlett's Test of Sphericity is significant ( $p < .001$ ) with an approximate Chi-Square value of 2,326 and a degree of freedom (df) of 66. Therefore, the sample size is adequate for factor analysis and all the variables considered for the analysis have a significant factorability value.

Table 4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.727
Bartlett's Test of Sphericity	Approx. Chi-Square	2,326
	df	66
	Sig.	<.001

As all the variables used in measuring the mental health of unemployed individuals have a significant factorability value, all the factors are considered for further analysis. The PCA extraction method is used to determine the factors that have an eigenvalue ( $\lambda$ ) greater than 1. The study employs Exploratory Factor Analysis (EFA) to identify factors with significant variable loadings ( $\lambda > 1$ ) using adjusted Caseness scale data.

Table 5. Rotated factor matrix

	Factor		
	1	2	3
Enjoying normal activities	.733		
Ability to concentrate	.733		
Constantly under strain	.676		
Lost much sleep	.660		
Unable to overcome difficulties	.597		
Felt unhappy or depressed		.818	
Losing self-confidence		.742	
Thinking worthless		.691	
Ability to make decision			.785
Ability to face problems			.757
Playing useful part			.710
Feeling reasonably happy			.682
Initial eigenvalue ( $\lambda$ )	4.605	2.120	1.145
% of variance	38.374	17.669	9.543
Cumulative % of variance	38.374	56.043	65.587

a. Rotation converged in 7 iterations. b. Any factor loadings less than 0.30 is converted to 0. The greater factor loading is considered for items loading to more than one factor.

The first three factors are responsible for 65.587 percent of the variance (Table 5). The study has labelled these factors as three latent variables—psychological distress ( $\lambda = 4.605$ , variance = 38.37%), social and emotional dysfunction ( $\lambda = 2.12$ , variance = 17.67%) and cognitive disorder ( $\lambda = 1.145$ , variance = 9.54%)—as identified by Hu *et al.* (2007). Table 5 also describes the items loaded on factors extracted by the EFA using PCA and Varimax rotation with Kaiser Normalization. The psychological distress factor consists of five items: enjoying normal activities; ability to concentrate; constantly under strain; loss of sleep; and unable to overcome difficulties. The social and emotional dysfunction factor includes three items from GHQ-12: feeling unhappy or depressed; losing self-confidence; and thinking worthless. The remaining items of GHQ-12 comprise the third factor—cognitive disorder.

**Correlations:** Table 6 illustrates the correlations between independent variables and GHQ-12 items along with the overall GHQ score.

Sex has no effect on ability to concentrate (Q1), ability to make decisions (Q4), overcoming difficulties (Q6), enjoying normal activities (Q7), or losing self-confidence (Q10) because there are no significant coefficients with these items. The correlation between GHQ score and sex is also insignificant. Hence, sex has no significant impact on the overall GHQ score; consequently, no overall mental distress among respondents is identified based on sexual orientation. In addition, female respondents lost more sleep (Q2) than the males prior to the last few weeks of t1 due to tension over unemployment as there is a significant positive relationship between sex and Q2 (.197). However, the effect is negligible. Furthermore, there is a low degree of positive relationship (.354) between sex and facing problem (Q8), which means the female respondents were much more confident in beating the complications caused by unemployment.

On the contrary, significant negative relationships exist between sex and the other four items of GHQ-12 (Q3, Q5, Q9 and Q11). The results show that the male respondents played more useful parts in things, felt more constantly under strain, felt more unhappy or depressed, and thought themselves as more worthless than the females. However, the effects are negligible ( $r = -.199, -.122, -.159$  and  $-.157$  respectively).

Age is significantly and positively correlated with GHQ score and GHQ-12 except Q4 (capable of making decisions). Hence, the study concludes that age is directly related to mental distress. With the increase in the age of the respondents, the intensity of mental distress increases slightly ( $r = .484$ ). The most adverse effects on mental health regarding age were caused by Q7 (.509) and Q12 (.507). The respondents couldn't enjoy their normal day-to-

day activities and didn't feel reasonably happy with increases in age. The relationship between age and decision-making capability (Q4) of the respondents is insignificant.

Table 6. Correlation coefficient

		Sex	Age	Graduation	Study concentration	Duration of unemployment
Q1. Ability to concentrate	Correlation	.037	.419**	.304**	-.316**	.505**
	Sig.	.470	<.001	<.001	<.001	<.001
Q2. Lost much sleep	Correlation	.197**	.209**	.373**	-.411**	.416**
	Sig.	<.001	<.001	<.001	<.001	<.001
Q3. Playing useful part	Correlation	-.199**	.151**	.120*	.133**	.256**
	Sig.	<.001	.003	.018	.009	<.001
Q4. Ability to make decision	Correlation	.060	-.044	-.008	.131**	.053
	Sig.	.240	.394	.871	.010	.304
Q5. Constantly under strain	Correlation	-.122*	.268**	.349**	-.347**	.402**
	Sig.	.016	<.001	<.001	<.001	<.001
Q6. Overcoming difficulties	Correlation	.046	.427**	.350**	-.061	.372**
	Sig.	.366	<.001	<.001	.232	<.001
Q7. Enjoying normal activities	Correlation	-.072	.509**	.409**	-.079	.567**
	Sig.	.160	<.001	<.001	.124	<.001
Q8. Ability to face problems	Correlation	.354**	.238**	.054	-.288**	.102*
	Sig.	<.001	<.001	.293	<.001	.046
Q9. Felt unhappy or depressed	Correlation	-.159**	.204**	.488**	-.069	.364**
	Sig.	.002	<.001	<.001	.177	<.001
Q10. Losing self-confidence	Correlation	-.044	.333**	.453**	-.043	.328**
	Sig.	.387	<.001	<.001	.401	<.001
Q11. Thinking worthless	Correlation	-.127*	.221**	.201**	.145**	.097
	Sig.	.013	<.001	<.001	.004	.057
Q12. Feeling reasonably happy	Correlation	.029	.507**	.366**	.090	.557**
	Sig.	.573	<.001	<.001	.078	<.001
GHQ score	Correlation	.002	.484**	.485**	-.158**	.562**
	Sig.	.965	<.001	<.001	.002	<.001

\*. Pearson correlation is significant at the 0.05 level (2-tailed). \*\*. Pearson correlation is significant at the 0.01 level (2-tailed).

Time elapsed after graduation is also significantly correlated with mental distress. There is a low degree of positive effect on mental illness (.485). All the other items of GHQ-12 except Q4 and Q8 are also significantly and positively correlated with the period after graduation. Along with other effects, the respondents felt a greater degree of unhappiness or depression (.488), lost more confidence (.453) and less enjoyed their normal day-to-day activities (.409) with the passing of time after graduation.

The study observed a greater intensity of mental distress among humanities, arts and law students. The degree of mental distress is lower for business studies and social science graduates respectively. However, the intensity is the lowest for science and engineering graduates. Though the correlation is significant, the effect is negligible ( $r = -.158$ ). Graduates from the humanities, arts, and law had low levels of distress regarding their ability to concentrate (Q1), lost sleep (Q2), and constant stress (Q5) ( $r = -.316, -.411, -.347$ , respectively).

Duration of unemployment has a significant and moderate degree of positive impact on mental distress of the respondents ( $r = .562$ ). Duration of unemployment had the most adverse impact on mental health regarding ability to concentrate (Q1), enjoying normal activities (Q7) and Feeling reasonably happy (Q12) ( $r = .505, .567$  and  $.557$  respectively). The variable has a low degree of positive correlation with the other items of GHQ-12 except Q4 and Q11. As a result, the intensity of mental distress increases moderately with the escalation of unemployment period.

**Regression:** The R2 value of the prescribed regression model epitomizes 33.9% of the variations of the experimental variables (Table 7). The correlations of age, graduation, and duration of unemployment are significant at 0.05, 0.10 and 0.01 levels respectively with an intercept value of 1.577 (standard error = 0.896), which is significant at 0.10 (Table 8). The other two variables—sex and study concentration—are insignificant.

Table 7. Regression model summary

Model	R	R2	Adjusted R2	Std. Error
1	.582a	.339	.331	2.877

Table 8. Regression

Model		Unstandardized Coefficients			Sig.
		B	Std. Error	t	
1	(Constant)	1.577	.896	1.760	.08
	Sex	0.476	.360	1.323	.18
	Age	0.536	.254	2.109	.03
	Graduation	0.272	.165	1.650	.10
	Study concentration	-.138	.145	-.952	.34
	Duration of unemployment	1.125	.218	5.171	<.001

a. Dependent Variable: GHQ score

Among the variables, the duration of unemployment is the most significant and most intense factor to illustrate the effect on mental health. The regression outcome explains that the duration of unemployment most adversely affects the respondents' mental health. The result concludes that the higher the duration of unemployment, the greater the degree of mental distress of the respondents (coefficient = 1.125, standard error = 0.218). Age and graduation period are also positively linked with the degree of mental distress (coefficients of 0.536 and 0.272 respectively). The intensity of mental distress increases with increases in respondents' age and time elapsed after graduation.

**Hypothesis Testing:** The Table 9 shows results for each of the hypothesis considered for the current study.

Table 9. Hypothesis testing and decision

Hypothesis	Tool used	Result
H1	Regression	Age has a minor and positive impact on mental distress (t = 2.109).
H2	Regression	There is no significant impact of sex on mental health (t = 1.323)
H3	Regression	The duration of unemployment has a significant and moderately positive impact on mental distress (t = 5.171).
H4	Regression	Time elapsed after graduation is also significantly and positively related to mental illness (t = 1.650).
H5	Correlation and regression	The study observed a greater intensity of mental distress among humanities, arts, and law students (r = -.158). The degree of mental distress is lower for business studies, social science, and science and engineering graduates respectively. However, the effect is negligible (t = -.952).

## Discussion

According to the study findings, the main reason people are unemployed is because they are persistently unable to find a destined job. The study also observes that unemployment is positively and significantly associated with mental distress. Individuals' age, duration of unemployment, and delay in starting a career after graduation enhance mental illness. However, sex and educational background remain inconclusive. Individuals' mental distress is identified due to psychological disorder, social and emotional dysfunction, and cognitive disorder.

Considering the labor market competition, it is well established that delay in starting a career is one of the leading causes of unemployment in Bangladesh, as the supply of available labor exceeds the demand for labor. In result, the graduates have to wait for a considerable amount of time to start a career. Long recruitment and selection processes, a person's own preference for a specific career, and social or family pressure all contribute to a longer period of unemployment, which is detrimental to mental health. However, the skills and competency of the candidate should be considered in this case because a major portion of the graduates only focused on theory-based academic initiatives rather than building their skills and competency according to job requirements.

Age, duration of unemployment, and time elapsed after graduation has two-tier relationships with mental distress. First, with the increase of these factors, the youth have to undertake family responsibility as the households of lower income countries like Bangladesh primarily depend on a single source of income. Second, work engagement of same-age group, friends or younger competitors, as well as repeated job failure, creates social pressure. As a result, the unemployed population gradually separates themselves from friends, family and social groups (Zeng, 2012). Hence, with an increase of these variables, the unemployed suffer from mental illness due to socioeconomic pressure and loneliness. The study also observes the presence of greater distress among aged unemployed individuals as compared to the younger ones. However, middle-aged people experience more psychological discomfort than younger or older people because the middle-aged people are responsible for more than either groups (Broomhall & Winefield, 1990). In addition, the findings regarding the duration of unemployment and time elapsed after graduation are consistent with the conclusions of other related studies (Bolton & Oatley, 1987; Graetz, 1993; Frese & Mohr, 1987). Unemployment duration is so expressively connected with mental illness that long-term unemployment instigates a greater risk of suicide (Milner, 2013).

The influence of gender is inconclusive in measuring the effect of unemployment on mental health in this study. The study finds no significant difference between male and female respondent's level of mental distress brought on by unemployment. The concept that unemployment may differently affect mental health based on gender depends on the assumptions of the roles and social positions held by the male and female of a society (Strandh *et al.*, 2013). As the study is based on the unemployed graduates, it can be inferred that both male and female are equally aware of and qualified in participating socioeconomic accomplishments. In addition, the labor force participation ratio of female to male in Bangladesh is 44.26% in 2021 (World Bank, 2022). Hence, male and female workers are contributing almost equally to the gender-based economy of Bangladesh. Chiefly, these could possibly explain the inconclusiveness of gender differences. Previous research has yielded contradictory results in explaining gender roles in the effect of unemployment on mental health. Researchers have suggested that unemployed males suffer more from mental distress than unemployed females (Amiri, 2021; Artazcoz *et al.*, 2004; Kulik, 2000). On the contrary, other studies have concluded that both unemployed males and females miss their employment equally and experience the same degree of mental distress (Hammarström *et al.*, 2011; Thomas *et al.*, 2005).

Although researchers gave significant efforts in avoiding the errors as much as possible, this study still confesses to some minor limitations. The readers and users are suggested to consider this limitation while using the findings of the current study. The time when the study was conducted itself may cause some disturbance in the results since the data were collected immediately after the Covid-19 pandemic in Bangladesh, while the pandemic had already emerged in the overseas. The respondents may suffer from addition amount of mental stress during this timeframe. Another probable limitation of this study is that this study did not use any modified questionnaires which might be more effective in the context of Bangladesh in understanding the scenario. A mixed method or qualitative approach might be more meaningful in understanding and interpreting the mental states and their relationships with unemployment. In spite of having above stated limitations, the authors believe that the findings of the current study are usable in great sense. The study suggests more future researches in this area in order to draw better conclusion and policy alternatives in order to save the country's youth from the mental distress and fostering employment for them.

## **Conclusion**

The current study has significant contribution in both academia and practices. The study has fulfilled a literature gap stated in the introduction section. Through this study, the theory of relationship between employment and mental stress has also been validated in the context of Bangladesh. The policy makers, especially the Government of Bangladesh can use this study in order to understand the conditions of mental distress among the young university graduates of Bangladesh. This study suggests that the delay in the public sector recruitment and selection process should be eliminated in order to save the young individuals from being distress during the period of unemployment. The findings of the current study can also be used by the policy makers of other countries, especially the developing ones having similar socioeconomic conditions.

The purpose of the study was to measure the effect of unemployment on mental health of the university graduates of Bangladesh. The study confirms high positive relationship between unemployment and mental stress. In other words, the unemployed are likely to suffer from mental illness. This study also concludes that among the unemployed individuals, there are certain sub-groups who are more likely to experience additional stress. Individuals

of more age, individuals who remain unemployed for longer time, and graduates who experience delay in starting a career after graduation are supposed to have additional mental stress.

### **Ethical Considerations**

The participation of the respondents to fill the survey questionnaire was voluntary. Consent was taken from the participants for using, publishing and/or sharing the anonymous data for research and academic purposes. It was further declared that their privacy will be the utmost priority that their identity, personal information like contact details, institutional affiliation and so on will not be disclosed to any third party.

### **Acknowledgement**

We would like to acknowledge the effort of the respondents who spend their valuable time to participate in the online questionnaire survey.

### **Conflict of Interest**

The authors declare no conflict of interest.

### **References**

- Amiri, S. (2021). Unemployment associated with major depression disorder and depressive symptoms: A systematic review and meta-analysis. *International Journal of Occupational Safety and Ergonomics*, 1–13. <https://doi.org/10.1080/10803548.2021.1954793>
- Artazcoz, L., Benach, J., Borrell, C., & Cortès, I. (2004). Unemployment and mental health: Understanding the interactions among gender, family roles, and Social Class. *American Journal of Public Health*, 94(1), 82–88. <https://doi.org/10.2105/ajph.94.1.82>
- Bartelink, V. H., Zay Ya, K., Guldbbrandsson, K., & Bremberg, S. (2020). Unemployment among young people and mental health: A systematic review. *Scandinavian journal of public health*, 48(5), 544–558.
- Bolton, W., & Oatley, K. (1987). A longitudinal study of social support and depression in unemployed men. *Psychological Medicine*, 17(2), 453–460. <https://doi.org/10.1017/s0033291700025010>
- Broomhall, H. S., & Winefield, A. H. (1990). A comparison of the affective well-being of young and middle-aged unemployed men matched for length of unemployment. *British Journal of Medical Psychology*, 63(1), 43–52. <https://doi.org/10.1111/j.2044-8341.1990.tb02855.x>
- Buffel, V., van de Straat, V., & Bracke, P. (2015). Employment status and mental health care use in times of economic contraction: A repeated cross-sectional study in Europe, using a three-level model. *International Journal for Equity in Health*, 14(1). <https://doi.org/10.1186/s12939-015-0153-3>
- Ela, M. Z., Shohel, T. A., Khan, L., Jahan, N., Hossain, M. T., & Islam, M. N. (2021). Prolonged lockdown and academic uncertainties in Bangladesh: A qualitative investigation during the COVID-19 pandemic. *Heliyon*, 7(2).
- Farré, L., Fasani, F., & Mueller, H. (2018). Feeling useless: The effect of unemployment on mental health in the great recession. *IZA Journal of Labor Economics*, 7(8), 1–34. <https://doi.org/10.1186/s40172-018-0068-5>
- Frese, M., & Mohr, G. (1987). Prolonged unemployment and depression in older workers: A longitudinal study of intervening variables. *Social Science & Medicine*, 25(2), 173–178. [https://doi.org/10.1016/0277-9536\(87\)90385-6](https://doi.org/10.1016/0277-9536(87)90385-6)
- Freyer-Adam, J., Gaertner, B., Tobschall, S., & John, U. (2011). Health risk factors and self-rated health among job-seekers. *BMC Public Health*, 11(659), 1–9. <https://doi.org/10.1186/1471-2458-11-659>
- Goldman-Mellor, S. J. (2016). Unemployment and mental health. *Encyclopedia of Mental Health*, 4, 350–355. <https://doi.org/10.1016/b978-0-12-397045-9.00053-7>
- Goldman-Mellor, S. J., Saxton, K. B., & Catalano, R. C. (2010). Economic contraction and mental health. *International Journal of Mental Health*, 39(2), 6–31. <https://doi.org/10.2753/imh0020-7411390201>
- Goodchild, M. E., & Duncan-Jones, P. (1985). Chronicity and the General Health Questionnaire. *British Journal of Psychiatry*, 146(1), 55–61. <https://doi.org/10.1192/bjp.146.1.55>
- Graetz, B. (1993). Health consequences of employment and unemployment: Longitudinal evidence for young men and women. *Social Science & Medicine*, 36(6), 715–724. [https://doi.org/10.1016/0277-9536\(93\)90032-y](https://doi.org/10.1016/0277-9536(93)90032-y)
- Hair, J. F. (2015). *Essentials of Business Research Methods*. (n.p.): Taylor & Francis Group.

- Hammarström, A., Gustafsson, P. E., Strandh, M., Virtanen, P., & Janlert, U. (2011). It's no surprise! Men are not hit more than women by the health consequences of unemployment in the northern Swedish cohort. *Scandinavian Journal of Public Health*, 39(2), 187–193. <https://doi.org/10.1177/1403494810394906>
- Herbig, B., Dragano, N., & Angerer, P. (2013). Health in the long-term unemployed. *Deutsches Ärzteblatt International*, 110(23-24), 413–419. <https://doi.org/10.3238/arztebl.2013.0413>
- Hu, Y., Stewart-Brown, S., Twigg, L., & Weich, S. (2007). Can the 12-item General Health Questionnaire be used to measure positive mental health? *Psychological Medicine*, 37(7), 1005–1013. <https://doi.org/10.1017/s0033291707009993>
- Jahan, M. (2012). Recruitment and selection process in Bangladesh civil service: A critical overview. *Public Policy and Administration Research*, 2(5), 29–36.
- Knieps, F., & Pfaff, H. (Eds.). (2016). Gesundheit und Arbeit. Zahlen, Daten, Fakten; mit Gastbeiträgen aus Wissenschaft, Politik und Praxis Health and work. Figures, data, facts; with guest contributions from science, politics and practice. *Medizinisch Wissenschaftliche Verlagsgesellschaft*.
- Kroll, L. E., Muters, S., & Lampert, T. (2016). Arbeitslosigkeit und ihre Auswirkungen auf die Gesundheit. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 59(2), 228–237. <https://doi.org/10.1007/s00103-015-2282-7>
- Kulik, L. (2000). Jobless men and women: A comparative analysis of job search intensity, attitudes toward unemployment, and related responses. *Journal of Occupational and Organizational Psychology*, 73(4), 487–500. <https://doi.org/10.1348/096317900167173>
- Lee, J. O., Kapteyn, A., Clomax, A., & Jin, H. (2021). Estimating influences of unemployment and underemployment on mental health during the COVID-19 pandemic: who suffers the most?. *Public Health*, 201, 48-54.
- Malhotra, N. K. (2020). *Marketing research: an applied presentation*. Pearson.
- Mamun, M. A., Akter, S., Hossain, I., Faisal, M. T. H., Rahman, M. A., Arefin, A., & Griffiths, M. D. (2020). Financial threat, hardship and distress predict depression, anxiety and stress among the unemployed youths: A Bangladeshi multi-city study. *Journal of Affective Disorders*, 276, 1149-1158.
- Matilla-Santander, N., Martín-Sánchez, J. C., González-Marrón, A., Cartanyà-Hueso, À., Lidón-Moyano, C., & Martínez-Sánchez, J. M. (2021). Precarious employment, unemployment and their association with health-related outcomes in 35 European countries: a cross-sectional study. *Critical Public Health*, 31(4), 404-415.
- Milner, A., Page, A., & LaMontagne, A. D. (2013). Long-term unemployment and suicide: A systematic review and meta-analysis. *PLoS ONE*, 8(1), 1–6. <https://doi.org/10.1371/journal.pone.0051333>
- Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior*, 74(3), 264–282. <https://doi.org/10.1016/j.jvb.2009.01.001>
- Rafi, M. A., Mamun, M. A., Hsan, K., Hossain, M., & Gozal, D. (2019). Psychological implications of unemployment among Bangladesh Civil Service job seekers: a pilot study. *Frontiers in Psychiatry*, 10, 578.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
- Strandh, M., Hammarström, A., Nilsson, K., Nordenmark, M., & Russel, H. (2013). Unemployment, gender and mental health: The role of the gender regime. *Sociology of Health & Illness*, 35(5), 649–665. <https://doi.org/10.1111/j.1467-9566.2012.01517.x>
- The Daily Star. (2021, September 14). Govt services: No plan to raise age limit now. *The Daily Star*. Retrieved September 20, 2022, from <https://www.thedailystar.net/news/bangladesh/news/govt-services-no-plan-raise-age-limit-now-2175986>
- Thomas, C., Stansfeld, S. A., & Benzeval, M. (2005). Employment transitions and mental health: An analysis from the British Household Panel Survey. *Journal of Epidemiology & Community Health*, 59(3), 243–249. <https://doi.org/10.1136/jech.2004.019778>
- Thomson, R. M., Kopasker, D., Leyland, A., Pearce, A., & Katikireddi, S. V. (2023). To what extent does income explain the effect of unemployment on mental health? Mediation analysis in the UK Household Longitudinal Study. *Psychological medicine*, 53(13), 6271-6279.
- Uutela, A. (2010). Economic crisis and mental health. *Current Opinion in Psychiatry*, 23(2), 127–130. <https://doi.org/10.1097/ycp.0b013e328336657d>
- Voss, M. W., Wadsworth, L. L., Birmingham, W., Merryman, M. B., Crabtree, L., Subasic, K., & Hung, M. (2020). Health effects of late-career unemployment. *Journal of Aging and Health*, 32(1-2), 106-116.

Amanullah & Islam (2024). The Effect of Unemployment on Mental Health: A Study on the University Graduates of Bangladesh. *Kbulna University Studies*. Volume 21(1): 300-312

- World Bank. (2021). *Population, total - Bangladesh*. Retrieved February 21, 2023, from <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=BD>
- World Bank. (2022, June). *Ratio of female to male labor force participation rate (%) (modeled ILO estimate) - Bangladesh*. World Bank. Retrieved from <https://data.worldbank.org/indicator/SL.TLF.CACT.FM.ZS?end=2017&locations=BD&start=1961&view=chart>
- World Bank. (2023, January). *Health Nutrition and Population Statistics*. Retrieved August 22, 2022, from <https://datacatalog.worldbank.org/search/dataset/0037652/Health-Nutrition-and-Population-Statistics>
- Zeng, Q. (2012). Youth unemployment and the risk of social relationship exclusion: A qualitative study in a Chinese context. *International Journal of Adolescence and Youth*, 17(2-3), 85–94. <https://doi.org/10.1080/02673843.2012.656196>
- Zulkefly, S. N., & Baharudin, R. (2010). Using the 12-item general health questionnaire (GHQ-12) to assess the psychological health of Malaysian college students. *Global Journal of Health Science*, 2(1). <https://doi.org/10.5539/gjhs.v2n1p73>