Evaluation of Depression, Anxiety and Stress among Unemployment Graduates in Bangladesh.

A thesis submitted in partial to fulfillment of the requirements of Varendra University for the degree of B.Sc. Engineering in CSE.

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Declaration

We hereby state that the research titled **"Evaluation of Depression, Anxiety and Stress among Unemployment Graduates in Bangladesh"** submitted to the Department of Computer Science and Engineering in partial fulfillment of the requirements for the award of the degree of Bachelor of Science in Computer Science and Engineering of Varendra University, Rajshahi, is the result of our research, except where otherwise referenced or acknowledged under the supervision of Dr. Ahammad Hossain, Assistant Professor, Department of Computer Science and Engineering, Varendra University, Rajshahi, Bangladesh, and this thesis or any part of the same has not been submitted for qualification at any other university or institution.

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Certification

This is to certify that this thesis entitled **"Evaluation of Depression, Anxiety and Stress among Unemployment Graduates in Bangladesh"** submitted by Md Mahfuzar Rahman Tarek, Alamgir Hossain Rocky and Md Eftekharul Alam in partial to fulfillment of the requirement for the award of the degree of Bachelor of Science in Computer Science and Engineering of Varendra University, Rajshahi, Bangladesh is a record of the candidate's own work carried out by them under my supervision. This thesis has not been submitted for the award of any other degree.

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Abstract

The rising problem of unemployment among university graduates in Bangladesh is causing significant difficulties for individuals and society. This research explores the complex factors affecting the mental well-being of unemployed graduate students, focusing on the connections between feelings of depression, physical activities, post-traumatic stress symptoms, and the risk of suicide.

Unemployment, whether due to job loss or the struggle to find a job after graduation, leads to a challenging period marked by stress and uncertainty. In Bangladesh, where the demand for skilled jobs is higher than the available opportunities, unemployed graduate students face unique challenges that can greatly impact their mental health and prospects.

This study recognizes the positive impact of physical activity on mental well-being and aims to investigate how engaging in physical activities relates to mental health outcomes for unemployed graduate students. The goal is to understand the connections between feelings of depression, participation in physical activities, post-traumatic stress symptoms, and the risk of suicide in this specific group.

Through a comprehensive approach, this research seeks to provide valuable insights into the psychological effects of unemployment on graduate students in Bangladesh. This are expected to develop effective support systems and interventions tailored to the mental health needs of this vulnerable group. By understanding the complex relationship between mental health, physical activities, and unemployment, this research aims to lay the groundwork for addressing the well-being of unemployed graduate students in Bangladesh and beyond.

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1. Introduction

The issue of unemployment among graduate university students is a pivotal concern with far-reaching consequences for both individuals and society. Personal unemployment at the individual level can stem from either job loss or the inability to secure employment upon entering the workforce. Job loss entails a series of stressful events, commencing with the anticipation of losing one's job, undergoing the actual layoff, and subsequently transitioning to the phases of job search, training, and ultimately, reemployment (Dooley et al., 1996).

Graduates encounter an ever more competitive labor market, characterized by numerous challenges and obstacles when it comes to securing employment (Clements & Kamau, 2018). In Bangladesh, where the demand for skilled employment exceeds the available opportunities, unemployed graduate students face unique challenges that can significantly impact their well-being and prospects. The scarcity of suitable employment opportunities in such contexts exacerbates the difficulties faced by graduates as they navigate the transition from academia to the professional realm.

Physical activity is widely acknowledged as a crucial Protective factor in preventing and managing mental well-being, encompassing various mental disorders such as depression, anxiety, and post-traumatic stress disorder (PTSD), among others (Teychenne et al., 2020). Engaging in regular physical activity over the long term is associated with a decreased risk of dementia, a reduced risk of depression, and an enhanced quality of life (Piercy & Troiano, 2018). However, the relationship between physical activity, unemployment, and mental health outcomes among graduate students remains understudied.

This research proposal aims to scrutinize the relationship between depressive symptoms, physical activities, post-traumatic stress symptoms, suicide risk, and unemployed graduate students in Bangladesh. A comprehensive understanding of the psychological impact of unemployment on this specific population is vital for devising effective support systems and interventions that address their mental health needs. By delving into the intricate interplay between mental health, physical activities, and unemployment, this study endeavors to offer

valuable insights into the factors influencing the well-being of unemployed graduate students in Bangladesh.

1.1. **Statement of the Problem**

In Bangladesh, the persistent issue of unemployment among graduate university students stands as a multifaceted challenge with far-reaching consequences. Beyond the statistical metrics of joblessness, this phenomenon delves into the very fabric of individuals' lives, shaping their mental and emotional well-being in profound ways. This research aims to unravel the layers of this complex problem by focusing on the psychological impact experienced by unemployed graduates in Bangladesh.

The core problem addressed by this research is the prevalence of manifestations of depression, anxiety, and stress among the demographic of unemployed graduates. The transition from academic pursuits to the job market is often fraught with uncertainties, challenges, and the anticipation of job loss, creating a cascade of stressors that profoundly influence individuals' mental health.

One crucial dimension of this problem involves understanding the intricate relationship between unemployment and mental well-being. As graduates navigate the phases of job loss, engage in the demanding process of job search, and confront the competitive realities of the labor market, the toll on their psychological health becomes increasingly pronounced. This study aims to describe the various threads of this psychological tapestry, exploring not only the prevalence of mental health issues but also the contributing factors and coping mechanisms employed by unemployed graduates.

Furthermore, the research delves into the potential protective role of physical activity in mitigating mental health challenges. Recognizing the widely acknowledged benefits of regular physical activity in preventing and managing mental health issues, this study investigates its application in the unique context of unemployed graduates in Bangladesh.

The societal context adds an additional layer of complexity, where the demand for skilled employment surpasses the available opportunities. Graduates, armed with education and skills, face a competitive landscape characterized by challenges and obstacles in securing meaningful employment. This study seeks to illuminate the specific mental health needs arising from this confluence of factors, offering insights that extend beyond individual experiences to address systemic issues.

This research aims to undertake investigation into the depression, anxiety, and stress among unemployed graduates in Bangladesh. Through this exploration, the goal is to offer a perspective that can shape the development of tailored support systems and interventions. By delving into the intricate psychological dimensions of unemployment, the study seeks to provide a more profound understanding of the mental health challenges faced by this demographic. The ultimate objective is to lay the groundwork for the formulation of effective strategies that specifically address the distinctive needs of unemployed graduates, ultimately contributing to the improvement of their overall well-being.

1.2 Research Questions

The study is conducted based on the following research questions:

a) What is your anxiety level during unemployment?
b) What is your depression level during unemployment?
c) What is your stress level during unemployment?
d) How many years or months have you been unemployed since graduating from university?
e) Have you faced any discrimination or barriers in the job market?
f) How often do you engage in physical activities, such as exercise or sports, in a typical week?
g) How often do you experience physical symptoms related to your mental health, such as headaches or stomachaches?
h) How has your mental health affected your daily life, including your job search and personal relationships?
i) Have you received any career guidance or job placement assistance from your university or institution?
j) Has unemployment affected your self-esteem or sense of self-worth?
k) Do you have access to the internet and technology for job searching and online learning?
l) Have you actively been seeking employment?
m) Have you sought professional help or counseling for your mental health concerns during unemployment?
n) Are you receiving any financial support from your family or other sources during your unemployment?

1.3 Objectives of the Study

To mitigate depressive symptoms, address post-traumatic stress symptoms, and reduce suicide risk among unemployed graduate students.

To promote comprehensive mental health, considering both psychological well-being and symptoms associated with mental health.

To assess the impact of unemployment on both mental and physical health and understand how these factors are interconnected.

To identify and address the specific mental health needs unique to unemployed graduate students.

Chapter 2
Methodology

2.1. Materials

Following a review of many literature, a questionnaire was developed to assess depression, anxiety, and stress levels among unemployed graduate students in Bangladesh. The questionnaires included a summary of the study's context, purpose, procedures, confidentiality agreement. Participants self-reported their responses, and the survey was designed to be completed within 12-15 minutes.

The study conducted between March 19, 2023, and January 11, 2024, engaged a total of 405 unemployed graduate students in both online and offline surveys. Offline surveys were administered in Rajshahi, while online surveys gathered responses from graduates across various regions. Demographic information revealed a gender distribution of 67.9% male and 32.1% female participants. Regarding age groups, 45.93% fell within the 23-25 age bracket, while 54.07% belonged to the 26-32 age group.

Statistical analysis employed the use of Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics, including frequency and percentage, were utilized to present demographic information. Additionally, inferential statistics such as chi-square tests and logistic regression were employed to explore relationships between variables.

The final analysis included a thorough examination of depression, anxiety, stress among unemployed graduate students. Class variables were compared between the three groups (Depression vs. Anxiety vs. Stress) using accurate tests of Chi-Square and Multinomial Logistic Regression.

In-depth regression analysis was performed, with all variables entered the binary logistic regression model. Results were interpreted with a 95% confidence interval and relationships between mental health, physical activity, and unemployment among graduate students in Bangladesh.

These findings serve as a foundation for understanding the psychological impact of unemployment on this specific population, paving the way for the development of effective support systems and interventions to address the mental health needs of unemployed graduate students in Bangladesh.

2.2 Measures

The questionnaires included a total of 44 self-reported questions and were divided into six sections, as follows:

2.2.1. Personal Information

Collects basic demographic details, such as the participant's name, age, email, gender, educational level, and field of study.

2.3.2 Professional Experience

Explores the participant's professional background, including internships or work experiences during their studies, current enrollment in job placement or career development programs, and the duration of unemployment since graduating.

2.3.3 Personal Life and Well-being

Gathers information about the participant's personal life, residence, family size, marital status, experiences with loss or significant life changes, and any exposure to suicide within their close circle.

2.3.4 DASS Variables

This questionnaire is designed to measure the severity of symptoms related to depression, anxiety, and stress. It consists of 21 items, with seven items dedicated to each of the three psychological constructs: depression, anxiety, and stress. Respondents rate the extent to which they have experienced each symptom over the past month on a Likert scale ranging from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time).

Here's a brief overview of the three subscales:

1. **Depression:**
   - Measures feelings of hopelessness, lack of interest or pleasure, low self-esteem, and sadness. For example, "I couldn't seem to experience any positive feeling at all" and "I felt that life was meaningless."

2. **Anxiety:**
   - Assesses symptoms related to physiological arousal, situational anxiety, and the subjective experience of anxious feelings. For example, "I experienced trembling (e.g., in the hands)" and "I was worried about situations in which I might panic and make a fool of myself."

3. **Stress:**
   - Focuses on perceived levels of stress, tension, and irritability. For example, "I found it hard to wind down" and "I found it difficult to relax."

2.3.5 Employment and Mental Health

Examines the participant's experiences in the job market, including any discrimination or barriers faced. It also delves into the participant's engagement in physical activities, the frequency of physical symptoms related to mental health, and the impact of mental health on daily life, job search, and personal relationships.

2.3.6 Career Development and Support

Focuses on the participant's access to career guidance, job placement assistance, and support from their university or institution. It also explores the participant's active job search status, seeking of professional help or counseling during unemployment, and any financial support received from family or other sources.

2.3 Statistical analysis

All statistical analyses for the study on the "Evaluation of Depression, Anxiety, and Stress among Unemployment Graduates in Bangladesh" were conducted using IBM SPSS version 25. The analysis process involved several key steps to comprehensively explore the associations and relationships within the dataset.

2.4.1 Descriptive Analysis

Initial descriptive analyses were performed to provide a detailed overview of the data, including mean scores, standard deviations, and frequency distributions of depression, anxiety, and stress levels among unemployed graduates.

2.4.2 Bi-variate Analysis (Chi-square Test)

The chi-square test is a hypothesis test used to determine if nominal and ordinal variables in a bivariate table have a statistically significant connection. In other words, it determines if two variables are mutually exclusive. The sample size affects the chi-square test. In our study, we are keen to explore the relationship between mental health and a specific factor.

Picture two lists: one detailing aspects of mental health and the other related to a particular factor influencing mental health. The Chi-Square test allows us to determine if there's a substantial link between these two lists.

The chi-squared test compares the observed and expected value. The Chi-Square indicates or checks the link between two category variables that can be calculated using observed and expected frequencies. The Chi-Square test informs us whether any difference between these expected and observed values is just random chance or if there's a meaningful connection.

One technique to show a relationship between two category variables is to use Chi-Square. In statistics, there are two sorts of variables: numerical and non-numerical variables. Using the above observed and expected frequencies, the value can be determined.

Formula for Chi-Square Test

The Chi-Square is denoted by χ^2 and the formula is:

$$\chi^2 = \sum (O - E)^2 / E$$

Where,

- O = Observed frequency
- E = Expected frequency
- $\sum$ = Summation
- χ^2 = Chi-Square value

Finding P-value

The Chi-Square test is a powerful tool that provides a P-value, helping us evaluate whether there is a meaningful correlation between variables. This P-value becomes crucial in testing specific conditions or assertions.

We're considering the possibility that a certain condition or assertion is true, which we can test later. For instance,

- A low Chi-Square test score suggests that the collected data closely resembles the expected data.
- The data does not match very well if the Chi-Square test statistic is quite large. The null hypothesis is rejected if the chi-square value is big.

The P-value, a crucial outcome derived from the Chi-Square test, serves as a powerful indicator of statistical significance. Abbreviated as the probability value, it quantifies the likelihood of obtaining a result equal to or more extreme than the observed data.

In simpler terms, the P-value acts as a gauge of the probability of an event occurring by chance alone. It is utilized as a key determinant in assessing the least significance level at which we reject the null hypothesis. Rather than relying on a fixed rejection point, the P-value offers flexibility, allowing us to decide the strength of evidence against our initial assumptions.

This nuanced understanding of the P-value within the Chi-Square test framework enhances our ability to draw meaningful conclusions about the relationships observed in our data.

P-value	**Description**	**Hypothesis Interpretation**
P-value ≤ 0.05	It indicates the null hypothesis is very unlikely.	Rejected
P-value > 0.05	It indicates the null hypothesis is very likely.	Accepted or it "fails to reject".
P-value > 0.05	The P-value is near the cut-off. It is considered as marginal	The hypothesis needs more attention.

2.4.3 Multivariate Analysis

Multivariate means that numerous dependent variables are combined to produce a single result. This explains why the bulk of real-world problems are multivariate. The fundamental benefit of multivariate analysis is that the conclusions drawn are more accurate since it considers more than one aspect of independent variables that influences the variability of dependent variables. The conclusions are more reasonable and realistic.

Understanding Multivariate Analysis:

1. **Types of Analyses:**
   - Univariate Analysis: Examines a single variable.
   - Bivariate Analysis: Analyzes the relationship between two variables.
   - Multivariate Analysis: Investigates the interaction of more than two variables.

2. **Categories of Techniques:**
   - **Dependence Techniques:**
     - Used when one or more variables depend on another.
     - Explores cause-and-effect relationships.
     - Seeks to understand if values of independent variables can explain, characterize, or predict the values of a dependent variable. For example, predicting "weight" based on "height" and "age."

   - **Interdependence Techniques:**
     - Applied to unveil the structural makeup and underlying patterns in a dataset.
     - No causal links are sought as variables are not dependent on each other.
     - Aims to provide meaning to a set of variables by grouping them meaningfully, deciphering the impact of certain variables on others and revealing the dataset's structure.

By employing these multivariate analysis techniques, we can delve into the intricacies of complex problems, offering a nuanced and comprehensive understanding that goes beyond traditional univariate or bivariate approaches.

Let's look at some interesting multivariate analysis approaches with that in mind. We'll examine:

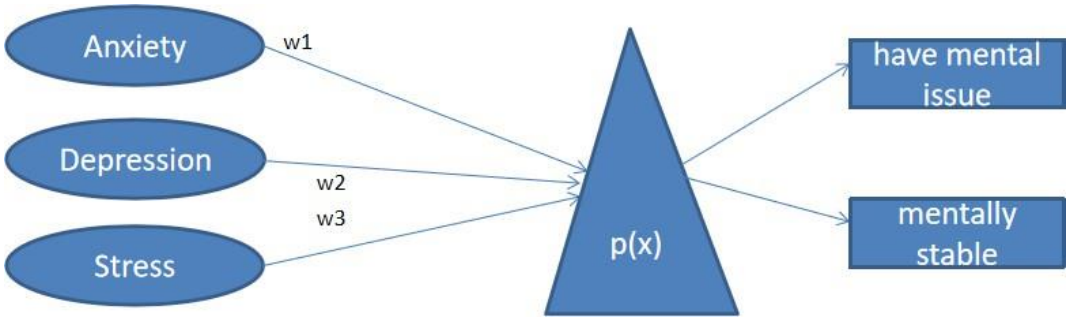
- Multiple linear regression
- Multiple logistic regression
- Multivariate analysis of variance (MANOVA)
- Factor analysis
- Cluster analysis

Multinomial logistic regression:

Expanding upon the principles of binary logistic regression, multinomial logistic regression takes a step further by accommodating more than two categories in the dependent or outcome variable. Like its binary counterpart, multinomial logistic regression employs maximum likelihood estimation to evaluate the probability of category membership.

Based on many independent factors, multinomial logistic regression is used to predict categorical placement in or the likelihood of category membership on a dependent variable. The independent variables can be binary or continuous (interval or ratio in scale). Multinomial logistic regression is a straightforward extension of binary logistic regression that allows for the inclusion of more than two categories of the dependent or outcome variable. Multinomial logistic regression, like binary logistic regression, assesses the probability of category membership using maximum likelihood estimation.

Multinomial logistic regression models will be applied to determine possible associations between dependent variables (mental health) and independent variables (the factor of mental health).



w1, w2, w3-amount of each individual factor of
mental health P(x)-Probability calculation

Multinomial logistic regression is a classification approach used in statistics that extends logistic regression to issues with more than two discrete outcomes. That is, given a set of independent variables, it is a model that is used to forecast the probability of several possible outcomes of a categorically distributed dependent variable (which may be real-valued, binary-valued, categorical-valued, etc.).

When the dependent variable is nominal (equivalently categorical, meaning that it falls into any one of a set of categories that cannot be sorted in any meaningful way) and there are more than two categories, multinomial logistic regression is utilized.

2.4.4. Correlation

The correlation coefficient stands as a pivotal statistical concept, serving as a guide in establishing connections between predicted and actual results within a statistical experiment. This coefficient's determined value acts as a metric, shedding light on the precision of expected versus actual outcomes.

Key Features:

1. **Numerical Precision:**
   - The correlation coefficient's value ranges between -1 and +1, encapsulating the degree of connection between variables.
   - A positive correlation coefficient signifies a similar and direct relationship between the two variables, while a negative coefficient indicates a contrasting relationship**.**

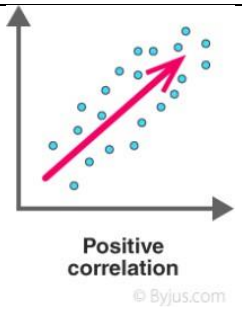
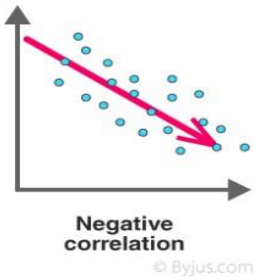
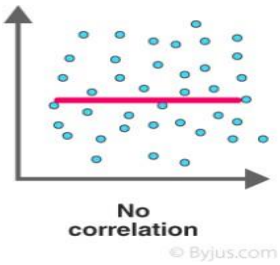
2. **Pearson's Correlation Coefficient:**
   - Pearson's correlation coefficient is a widely utilized measure, calculated by dividing the covariance of two variables by the product of their standard deviations.
   - Symbolized by ρ (rho), this coefficient quantifies the strength and direction of the linear relationship between variables X and Y.

Calculation Formula:

$\rho (X,Y) = \text{cov} (X,Y) / \sigma X.\sigma Y.$

In statistics, correlation is utilized practically everywhere. The link between two or more variables is depicted by correction. The correlation coefficient is a number that expresses this relationship. Correlations can be divided into two categories:

- **Positive Correlation**
- **Negative Correlation**

Positive Correlation	The value of one variable increase linearly with increase in another variable. This indicates a similar relation between both the variables. So, its correlation coefficient would be positive or 1 in this case.	
Negative Correlation	When there is a decrease in values of one variable with increase in values of another variable. In that case, correlation coefficient would be negative.	
Zero Correlation or No Correlation	There is one more situation when there is no specific relation between two variables.	

Chapter 3
Results

3.1. Bi-variate analysis

The chi-square test assesses relationships between depression, anxiety, and stress levels among unemployed graduates in Bangladesh. Categorizing mental health as normal, mild, moderate, or severe, the test explores connections with age, gender, education, marital status, life changes, job market discrimination, physical activities, mental health symptoms, daily life impact, career guidance, self-esteem, internet access, job-seeking behavior, and support-seeking. The null hypothesis suggests no significant connection. This analysis reveals potential associations between these factors and the mental health levels of unemployed graduates in Bangladesh.

Table-1: The chi-square relationships between categorical variables like depression and other variables.

Variable Categories		Depression level					X^2(df)	P-Value
		Normal	Mild	Moderate	Severe	Total		
Age	23-25	48 (25.8%)	80 (43.0%)	48 (25.8%)	10 (5.4%)	186 (100.0%)	3.665 (3)	0.3
	26-32	41 (18.7%)	95 (43.4%)	70 (32.0%)	13 (5.9%)	219 (100%)		
Gender	Male	73 (26.5%)	123 (44.7%)	70 (25.5%)	9 (3.3%)	275 (100%)	21.319 (3)	0.0
	Female	16 (12.3%)	52 (40.0%)	48 (36.9%)	14 (10.8%)	130 (100%)		
Educational level	Bachelor's degree	74 (25.1%)	135 (45.8%)	72 (24.4%)	14 (4.7%)	295 (100%)	16.419 (3)	0.001
	Master's degree	15 (13.6%)	40 (36.4%)	46 (41.8%)	9 (8.2%)	110 (100%)		
Marital Status	Unmarried	64 (20.0%)	153 (47.8%)	87 (27.2%)	16 (5.0%)	320 (100%)	13.407 (3)	0.004
	Married	25 (29.4%)	22 (25.9%)	31 (36.5%)	7 (8.2%)	85 (100%)		
Lost a close friend or family Member to suicide.	Yes	21 (18.8%)	59 (52.7%)	29 (25.9%)	3 (2.7%)	112 (100%)	7.135 (3)	0.068
	No	68 (23.3%)	115 (39.4%)	89 (30.5%)	20 (6.8%)	292 (100%)		
Experienced any significant life changes	Yes	31 (15.9%)	103 (52.8%)	51 (26.2%)	10 (5.1%)	195 (100%)	15.709 (3)	0.001
	No	58 (27.6%)	72 (34.3%)	67 (31.9%)	13 (6.2%)	210 (100%)		

or stressors recently, such as the loss of a loved one or a breakup.								
Facing discrimination or barriers in the job market	Never	39 (35.5%)	43 (39.1%)	23 (20.9%)	5 (4.5%)	110 (100.0%)	25.258 (9)	0.003
	Sometimes	28 (19.7%)	69 (48.6%)	36 (25.4%)	9 (6.3%)	142 (100.0%)		
	Often	16 (16.5%)	40 (41.2%)	37 (38.1%)	4 (4.1%)	97 (100.0%)		
	Almost Always	6 (10.7%)	23 (41.1%)	22 (39.3%)	5 (8.9%)	56 (100.0%)		
Engaging in physical activities, such as exercise or sports, in a typical week	Never	13 (14.3%)	34 (37.4%)	37 (40.7%)	7 (7.7%)	91 (100.0%)	12.682 (9)	0.178
	Sometimes	46 (24.2%)	87 (45.8%)	48 (25.3%)	9 (4.7%)	190 (100.0%)		
	Often	18 (21.4%)	37 (44.0%)	25 (29.8%)	4 (4.8%)	84 (100.0%)		
	Almost Always	12 (30.0%)	17 (42.5%)	8 (20.0%)	3 (7.5%)	40 (100.0%)		
Experienced physical symptoms related to mental health, such as headaches or stomachaches.	Never	20 (30.8%)	24 (36.9%)	15 (23.1%)	6 (9.2%)	65 (100.0%)	39.863 (9)	0.00
	Sometimes	59 (27.4%)	100 (46.5%)	48 (22.3%)	8 (3.7%)	215 (100.0%)		
	Often	10 (10.4%)	41 (42.7%)	40 (41.7%)	5 (5.2%)	96 (100.0%)		
	Almost Always	0 (0.0%)	10 (34.5%)	15 (51.7%)	4 (13.8%)	29 (100.0%)		
Mental health affected on daily life, including job search and personal relationships.	Never	20 (30.8%)	27 (41.5%)	13 (20.0%)	5 (7.7%)	65 (100.0%)	20.673 (9)	0.014
	Sometimes	42 (25.8%)	75 (46.0%)	41 (25.2%)	5 (3.1%)	163 (100.0%)		
	Often	14 (13.9%)	48 (47.5%)	33 (32.7%)	6 (5.9%)	101 (100.0%)		
	Almost Always	13 (17.1%)	25 (32.9%)	31 (40.8%)	7 (9.2%)	76 (100.0%)		
Receiving career guidance or job	Never	55 (31.4%)	74 (42.3%)	40 (22.9%)	6 (3.4%)	175 (100.0%)	57.356 (9)	0.00
	Sometimes	26 (20.2%)	67 (51.9%)	33 (25.6%)	3 (2.3%)	129 (100.0%)		

placement assistance from university or institution	Often	7 (10.6%)	25 (37.9%)	28 (42.4%)	6 (9.1%)	66 (100.0%)		
	Almost Always	1 (2.9%)	9 (25.7%)	17 (48.6%)	8 (22.9%)	35 (100.0%)		
Unemployment effect on self-esteem or sense of self-worth	Never	28 (39.4%)	26 (36.6%)	11 (15.5%)	6 (8.5%)	71 (100.0%)	33.218 (9)	0.00
	Sometimes	33 (22.0%)	74 (49.3%)	36 (24.0%)	7 (4.7%)	150 (100.0%)		
	Often	16 (15.8%)	47 (46.5%)	34 (33.7%)	4 (4.0%)	101 (100.0%)		
	Almost Always	12 (14.5%)	28 (33.7%)	37 (44.6%)	6 (7.2%)	83 (100.0%)		
Access to the internet and technology for job searching and online learning	Never	7 (18.9%)	14 (37.8%)	13 (35.1%)	3 (8.1%)	37 (100.0%)	21.541 (9)	0.10
	Sometimes	20 (18.9%)	47 (44.3%)	35 (33.0%)	4 (3.8%)	106 (100.0%)		
	Often	11 (11.1%)	44 (44.4%)	36 (36.4%)	8 (8.1%)	99 (100.0%)		
	Almost Always	51 (31.3%)	70 (42.9%)	34 (20.9%)	8 (4.9%)	163 (100.0%)		
Seeking employment	Never	18 (41.9%)	17 (39.5%)	7 (16.3%)	1 (2.3%)	43 (100.0%)	27.023 (9)	0.001
	Sometimes	26 (18.3%)	76 (53.5%)	37 (26.1%)	3 (2.1%)	142 (100.0%)		
	Often	20 (18.7%)	39 (36.4%)	39 (36.4%)	9 (8.4%)	107 (100.0%)		
	Almost Always	25 (22.1%)	43 (38.1%)	35 (31.0%)	10 (8.8%)	113 (100.0%)		
Sought professional help or counseling for mental health concerns during unemployment	Never	68 (30.0%)	92 (40.5%)	55 (24.2%)	12 (5.3%)	227 (100.0%)	25.324 (9)	0.003
	Sometimes	16 (12.7%)	62 (49.2%)	41 (32.5%)	7 (5.6%)	126 (100.0%)		
	Often	3 (8.3%)	17 (47.2%)	14 (38.9%)	2 (5.6%)	36 (100.0%)		
	Almost Always	2 (12.5%)	4 (25.0%)	8 (50.0%)	2 (12.5%)	16 (100.0%)		
Receiving financial support from family or other sources during unemployment	Never	22 (25.3%)	27 (31.0%)	33 (37.9%)	5 (5.7%)	87 (100.0%)	18.312 (9)	0.032
	Sometimes	22 (16.9%)	62 (47.7%)	37 (28.5%)	9 (6.9%)	130 (100.0%)		
	Often	14 (15.2%)	47 (51.1%)	27 (29.3%)	4 (4.3%)	92 (100.0%)		
	Almost Always	31 (32.3%)	39 (40.6%)	21 (21.9%)	5 (5.2%)	96 (100.0%)		

Table-1 presents an analysis of the association between depression levels and various factors among unemployed graduates in Bangladesh. The study encompasses socio-demographic variables, mental health indicators, and support mechanisms during unemployment.

The participants' age distribution revealed that a substantial portion (43.0%) belonged to the 23-25 age group, with 5.4% experiencing severe depression. There was a statistically significant association between age and depression levels ($\chi2 = 3.665$, $p = 0.3$). Gender differences were pronounced, with a higher percentage of males (44.7%) experiencing mild depression compared to females (40.0%). This gender discrepancy was statistically significant ($\chi2 = 21.319$, $p = 0.0$).

Educational attainment exhibited a significant relationship with depression levels ($\chi2 = 16.419$, $p = 0.001$). Those with a master's degree reported higher levels of moderate and severe depression (41.8%) compared to Bachelor's degree holders (24.4%). Marital status also played a role, with unmarried individuals exhibiting higher depression levels ($\chi2 = 13.407$, $p = 0.004$).

Experiencing significant life changes or stressors ($\chi2 = 15.709$, $p = 0.001$) and facing discrimination in the job market ($\chi2 = 25.258$, $p = 0.003$) showed significant associations with depression levels. Similarly, mental health affecting daily life ($\chi2 = 20.673$, $p = 0.014$) and lack of career guidance from the institution ($\chi2 = 57.356$, $p = 0.00$) were associated with varying depression levels.

The impact of unemployment on self-esteem exhibited a significant association ($\chi2 = 33.218$, $p = 0.00$), with those experiencing frequent self-esteem challenges reporting higher depression levels. Access to the internet for job searching showed a trend towards significance ($\chi2 = 21.541$, $p = 0.10$). Seeking employment frequently ($\chi2 = 27.023$, $p = 0.001$), seeking professional help ($\chi2 = 25.324$, $p = 0.003$), and receiving financial support ($\chi2 = 18.312$, $p = 0.032$) during unemployment were all significantly associated with depression levels.

Table-2: The chi-square relationships between categorical variables like anxiety and other variables.

Variable Categories		Anxiety level					X^2(df)	P-Value
		Normal	Mild	Moderate	Severe	Total		
Age	23-25	55 (29.6%)	85 (45.7%)	42 (22.6%)	4 (2.2%)	186 (100%)	9.420 (3)	0.024
	26-32	38 (17.4%)	110 (50.2%)	67 (30.6%)	4 (1.8%)	219 (100%)		
Gender	Male	78 (28.4%)	130 (47.3%)	64 (23.3%)	3 (1.1%)	275 (100%)	18.631 (3)	0.000
	Female	15 (11.5%)	65 (50.0%)	45 (34.6%)	5 (3.8%)	130 (100%)		
Education Level	Bachelor's Degree	80 (27.1%)	144 (48.8%)	67 (22.7%)	4 (1.4%)	295 (100%)	17.502 (3)	0.001
	Master's Degree	13 (11.8%)	51 (46.4%)	42 (38.2%)	4 (3.6%)	110 (100%)		
Currently enrolled in any job placement or career development programs	Yes	34 (29.3%)	55 (47.4%)	24 (20.7%)	3 (2.6%)	116 (100%)	5.517 (3)	0.138
	No	59 (20.4%)	140 (48.4%)	85 (29.4%)	5 (1.7%)	289 (100%)		
Marital Status	Unmarried	69 (21.6%)	164 (51.2%)	83 (25.9%)	4 (1.3%)	320 (100%)	8.950 (3)	0.030
	Married	24 (28.2%)	31 (36.5%)	26 (30.6%)	4 (4.7%)	85 (100%)		
Lost a close friend/Family member to suicide	Yes	23 (20.5%)	61 (54.5%)	27 (24.1%)	1 (0.9%)	112 (100%)	3.155 (3)	0.368
	No	70 (24.0%)	133 (45.5%)	82 (28.1%)	7 (2.4%)	291 (100%)		
Experienced any significant life changes such as the loss of a love one or a breakup	yes	33 (16.9%)	117 (60.0%)	41(21%)	4 (2.1%)	195 (100%)	21.801 (3)	0.000
	No	60 (28.6%)	78 (37.1%)	68 (32.8%)	4 (1.9%)	210 (100%)		
Receiving career guidance or job placement assistance from institute	Never	30 (42.2%)	29 (40.8%)	12 (16.9%)	0	71 (100%)	31.476 (9)	0.000
	sometimes	36 (24.0%)	74 (49.3%)	37 (24.7%)	3 (2.0%)	150 (100%)		
	Often	12 (11.9%)	57 (56.4%)	31 (24.7%)	1 (1.0%)	110 (100%)		
	Almost always	15 (18.1%)	35 (42.2%)	29 (34.9%)	4 (4.8%)	83 (100%)		

Accessing to the internet and technology for job searching and online earning	Never	9 (24.3%)	18 (48.6%)	9 (24.3%)	1 (2.7%)	37 (100%)	27.194 (9)	0.001
	sometimes	17 (16.0%)	53 (50.0%)	33 (31.1%)	3 (2.8%)	106 (100%)		
	Often	13 (13.1%)	45 (45.5%)	39 (39.4%)	2 (2.0%)	99 (100%)		
	Almost always	54 (33.1%)	79 (48.5%)	28 (17.2%)	2 (1.2%)	163 (100%)		
Seeking Employment	Never	16 (37.2%)	20 (46.5%)	7 (16.3%)	0 (0.0%)	43 (100%)	14.099 (9)	.119
	sometimes	31 (21.8%)	77 (54.2%)	32 (22.5%)	2 (1.4%)	142 (100%)		
	Often	20 (18.7%)	46 (43.0%)	38 (35.5%)	3 (2.8%)	107 (100%)		
	Almost always	26 (23.0%)	52 (46.0%)	32 (28.3%)	3 (2.7%)	113 (100%)		
Sought professional help or counselling for mental health concerns during unemployment	Never	68 (30.0%)	103(45.4%)	55 (24.2%)	1 (0.4%)	227 (100%)	24.558 (9)	0.004
	sometimes	18 (14.3%)	68 (54.0%)	36 (28.6%)	4 (3.2%)	126 (100%)		
	Often	4 (11.1%)	15 (41.7%)	15 (41.7%)	2 (5.6%)	36 (100%)		
	Almost always	3 (18.8%)	9 (56.3%)	3 (18.8%)	1 (6.3%)	16 (100%)		
Unemployment Effect on self esteem or sense of self worth	Never	30 (42.2%)	29 (40.8%)	12 (16.9%)	0 (0.0%)	71 (100%)	31.476 (9)	0.000
	sometimes	36 (24.0%)	74 (49.3%)	37(24.7%)	3 (2.0%)	150 (100%)		
	Often	12 (11.9%)	57 (54.4%)	31(30.7%)	1 (1.0%)	101 (100%)		
	Almost always	15 (18.1%)	35 (42.2%)	29(34.9%)	4 (4.8%)	83 (100%)		
Facing discrimination or barriers in the job market	Never	43 (39.9%)	47 (42.7%)	19 (17.3%)	1 (0.9%)	100 (100%)	39.492 (9)	0.000
	sometimes	29 (20.4%)	73 (51.4%)	39 (27.5%)	1 (0.7%)	142 (100%)		
	Often	13 (13.4%)	54 (28.9%)	28 (28.9%)	2 (2.1%)	97 (100%)		
	Almost always	8 (14.3%)	21 (37.5%)	23 (41.1%)	4 (7.1%)	56 (100%)		
Receiving financial support from family or other sources during unemploym	Never	23 (26.4%)	29 (33.3%)	33 (37.9%)	2 (2.3%)	87 (100%)	28.170 (9)	0.001
	sometimes	18 (13.8%)	79 (60.8%)	30 (23.1%)	3 (2.3%)	130 (100%)		
	Often	18 (19.6%)	46 (50.6%)	27 (29.3%)	1 (1.1%)	92 (100%)		
	Almost always	34 (35.4%)	41 (42.7%)	29 (19.8%)	2 (2.1%)	96 (100%)		

ent								
Experienced physical symptoms related to mental health such as headaches or stomachaches	Never	21 (32.3%)	26 (40.0%)	17 (26.2%)	1 (1.5%)	65 (100%)	56.310 (9)	0.000
	sometimes	58 (27.0%)	116 (54.0%)	37 (17.2%)	4 (1.9%)	215 (100%)		
	Often	13 (13.5%)	46 (47.9%)	37 (38.5%)	0 (0.0%)	96 (100%)		
	Almost always	1 (3.4%)	7 (24.1%)	18 (62.1%)	3 (10.3 %)	29 (100%)		
Engaging in physical activities such as exercise in a typical week	Never	22 (24.2%)	45 (49.5%)	22 (24.2%)	2 (2.2%)	91 (100%)	11.404 (9)	0.249
	sometimes	42 (22.1%)	101 (53.2%)	43 (22.6%)	4 (2.1%)	190 (100%)		
	Often	16 (19.0%)	35 (41.7%)	32 (38.1%)	1 (1.2%)	84 (100%)		
	Almost always	13 (32.5%)	14 (35.5%)	12 (30.0%)	1 (2.5%)	40 (100%)		
Affecting mental health on daily life including job search and personal relationships	Never	20 (30.8%)	29 (44.6%)	14 (21.5%)	2 (3.1%)	65 (100%)	18.094 (9)	0.034
	sometimes	43 (26.4%)	82 (50.3%)	37 (22.7%)	1 (0.6%)	163 (100%)		
	Often	18 (17.8%)	45 (44.6%)	37 (36.6%)	1 (1.0%)	101 (100%)		
	Almost always	12 (15.8%)	39 (51.3%)	21 (27.6%)	4 (5.3%)	76 (100%)		

Table-2 provides an in-depth examination of the association between anxiety levels and various factors among unemployed graduates in Bangladesh. The study explores socio-demographic variables, mental health indicators, and support mechanisms during unemployment.

The age distribution indicates that individuals in the 23-25 age group experienced higher anxiety levels, with a statistically significant association ($\chi 2 = 9.420$, $p = 0.024$). Gender differences were evident, as a higher percentage of females (50.0%) reported mild anxiety compared to males (47.3%). This gender discrepancy was statistically significant ($\chi 2 = 18.631$, $p = 0.000$).

Educational attainment exhibited a significant relationship with anxiety levels ($\chi 2 = 17.502$, $p = 0.001$). Those with a Master's degree reported higher levels of moderate and severe anxiety (38.2%) compared to Bachelor's degree holders (22.7%). Marital status also played a role, with unmarried individuals exhibiting higher anxiety levels ($\chi 2 = 8.950$, $p = 0.030$).

Experiencing significant life changes ($\chi 2 = 21.801$, $p = 0.000$), receiving career guidance ($\chi 2 = 31.476$, $p = 0.000$), and accessing the internet for job searching ($\chi 2 = 27.194$, $p = 0.001$) showed significant associations with anxiety levels. Seeking employment frequently ($\chi 2 = 14.099$, $p = 0.119$), seeking professional help ($\chi 2 = 24.558$, $p = 0.004$), and facing discrimination in the job market ($\chi 2 = 39.492$, $p = 0.000$) were all significantly associated with varying anxiety levels.

The impact of unemployment on self-esteem exhibited a significant association ($\chi 2 = 31.476$, $p = 0.000$). Individuals who often felt their self-esteem affected reported higher anxiety levels. Receiving financial support showed a significant association ($\chi 2 = 28.170$, $p = 0.001$), with those receiving support often reporting higher anxiety levels.

Experiencing physical symptoms related to mental health, such as headaches or stomachaches, was significantly associated with anxiety levels ($\chi 2 = 56.310$, $p = 0.000$). Engagement in physical activities did not show a significant association with anxiety levels ($\chi 2 = 11.404$, $p = 0.249$).

Mental health affecting daily life, including job search and personal relationships, exhibited a significant association ($\chi 2 = 18.094$, $p = 0.034$). Those who reported mental health often affecting daily life also reported higher anxiety levels.

Table-3: This table shows the chi-square relationships between categorical variables like stress and other variables.

Variable Categories		Stress level					X^2(df)	P-Value
		Normal	Mild	Moderate	Severe	Total		
Age	23-25	27 (14.5%)	82 (44.1%)	64 (34.4%)	13 (7.0%)	186 (100%)	4.496 (3)	0.213
	26-32	18 (8.2%)	98 (44.7%)	88 (40.2%)	15 (6.8%)	219 (100%)		
Gender	Male	36 (13.1%)	130 (47.3%)	92 (33.5%)	17 (6.2%)	275 (100%)	9.021 (3)	0.029
	Female	9 (6.9%)	50 (38.5%)	60 (46.2%)	11 (8.5%)	130 (100%)		
Education Level	Bachelor's Degree	38 (12.9%)	144 (48.8%)	97 (32.9%)	16 (5.4%)	295 (100%)	17.472 (3)	0.001
	Master's Degree	7 (6.4%)	36 (32.7%)	55 (50.0%)	12 (10.9)	110 (100%)		
Currently enrolled in any job placement or career development programs	Yes	22 (19.0%)	45 (38.8%)	40 (34.5%)	9 (8.0%)	116 (100%)	5.517 (3)	0.138
	No	23 (8.0%)	135 (46.7%)	12 (38.8%)	19 (6.6%)	289 (100%)		
Marital Status	Unmarried	31 (9.7%)	151 (47.2%)	116 (36.3%)	22 (6.9%)	320 (100%)	6.032 (3)	0.110
	Married	14 (16.5%)	29 (34.1%)	36 (42.4%)	6 (7.1%)	85 (100%)		
Lost a close friend/Family member to suicide	Yes	8 (7.1%)	66 (58.9%)	29 (25.9%)	9 (8.0%)	112 (100%)	15.147 (3)	0.002
	No	37 (12.7%)	114 (39.0%)	122 (41.8%)	19 (6.5%)	292 (100%)		
Experienced any significant life changes such as the loss of a love one or a breakup	yes	12 (6.2%)	99 (50.8%)	72 (36.9%)	12 (6.2%)	195 (100%)	12.053 (3)	0.007
	No	33 (15.7%)	81 (38.6%)	80 (38.1%)	16 (7.6%)	210 (100%)		
Receiving career guidance or job	Never	31 (17.7%)	83 (47.4%)	52 (29.7%)	9 (5.1%)	175 (100.0%)	47.509 (9)	0.000
	sometimes	10 (7.8%)	68 (52.7%)	46 (35.7%)	5 (3.9%)	129 (100.0%)		

placement assistance from institute	Often	4 (6.1%)	24 (36.4%)	30 (45.5%)	8 (12.1 %)	66 (100.0%)		
	Almost always	0 (0.0%)	5 (14.3%)	24 (68.6%)	6 (17.1 %)	35 (100.0%)		
Accessing to the internet and technology for job searching and online earning	Never	7 (18.9%)	15 (40.5%)	12 (32.4%)	3 (8.1%)	37 (100.0%)	17.163 (9)	0.046
	sometimes	8 (7.5%)	53 (50.0%)	39 (36.8%)	6 (5.7%)	106 (100.0%)		
	Often	5 (5.1%)	40 (40.4%)	42 (42.4%)	12 (12.1 %)	99 (100.0%)		
	Almost always	25 (15.3%)	72 (44.2%)	59 (36.2%)	7(4.3 %)	163 (100.0%)		
Seeking Employment	Never	14 (32.6%)	20 (46.5%)	8 (18.6%)	1 (2.3%)	43 (100.0%)	41.279 (9)	0.000
	sometimes	14 (9.9%)	74 (52.1%)	47 (33.1%)	7 (4.9%)	142 (100.0%)		
	Often	7 (6.5%)	47 (43.9%)	40 (37.4%)	13 (12.1 %)	107 (100.0%)		
	Almost always	10(8.8%)	39 (34.5%)	57 (50.4%)	7 (6.2%)	113 (100.0%)		
Sought professional help or counselling for mental health concerns during unemployment	Never	35 (15.4%)	98 (43.2%)	78 (34.4%)	16 (7.0%)	227 (100.0%)	13.440 (9)	0.144
	sometimes	7 (5.6%)	57 (45.2%)	53 (42.1%)	9 (7.1%)	126 (100.0%)		
	Often	2 (5.6%)	20 (55.6%)	12 (33.3%)	2 (5.6%)	36 (100.0%)		
	Almost always	1 (6.3%)	5 (31.3%)	9 (56.3%)	1 (6.3%)	16 (100.0%)		
Unemployment Effect on self esteem or sense of self worth	Never	23 (32.4%)	25 (35.2%)	20 (28.2%)	3 (4.2%)	71 (100.0%)	31.476 (9)	0.000
	sometimes	15 (10.0%)	78 (52.0%)	52 (34.7%)	5 (3.3%)	150 (100.0%)		
	Often	3 (3.0%)	51 (50.5%)	37 (36..6%)	10 (9.9%)	101 (100.0%)		
	Almost always	4 (4.8%)	26 (31.3%)	43 (51.8%)	10 (12.0 %)	83 (100.0%)		
Facing discrimination or barriers in the job market	Never	23 (20.9%)	51 (46.4%)	31 (28.2%)	5 (4.5%)	110(100. 0%)	39.492 (9)	0.000
	sometimes	15 (10.6%)	71 (50.0%)	49 (34.5%)	7 (4.9%)	142 (100.0%)		
	Often	3 (3.1%)	42 (43.3%)	42 (43.3%)	10 (10.3 %)	97 (100.0%)		

	Almost always	4 (7.1%)	16 (28.6%)	30 (53.6%)	6 (10.7 %)	56 (100.0%)		
Receiving financial support from family or other sources during unemployment	Never	19 (21.8%)	25 (28.7%)	38 (43.7%)	5 (5.7%)	87 (100.0%)	30.494 (9)	0.000
	sometimes	5 (3.8%)	61 (46.9%)	55 (42.3%)	9 (6.9%)	130 (100.0%)		
	Often	6 (6.5%)	46(50.0 %)	31(33.7%)	9 (9.8%)	92 (100.0%)		
	Almost always	15 (15.6%)	48 (50.0%)	28 (29.2%)	5 (5.2%)	96 (100.0%)		
Experienced physical symptoms related to mental health such as headaches or stomachaches	Never	16 (24.6%)	29 (44.6%)	16 (24.6%)	4 (6.2%)	65 (100.0%)	64.274 (9)	0.000
	sometimes	27 (12.6%)	111 (51.6%)	62 (28.8%)	15 (7.0%)	215 (100.0%)		
	Often	2 (2.1%)	36 (37.5%)	55 (57.3%)	3 (3.1%)	96 (100.0%)		
	Almost always	0 (0.0%)	4 (13.8%)	19 (65.5%)	6 (20.7 %)	29 (100.0%)		
Engaging in physical activities such as exercise in a typical week	Never	13 (14.3%)	32 (35.2%)	38 (41.8%)	8 (8.8%)	91 (100.0%)	8.456 (9)	0.489
	sometimes	18 (9.5%)	92 (48.4%)	71 (37.4%)	9 (4.7%)	190 (100.0%)		
	Often	9 (10.7%)	40 (47.6%)	29 (34.5%)	6(7.1 %)	84 (100.0%)		
	Almost always	5 (12.5%)	16 (40.0%)	14 (35.0%)	5 (12.5 %)	40 (100.0%)		
Affecting mental health on daily life including job search and	Never	18 (27.7%)	26 (40.0%)	18 (27.7%)	3 (4.6%)	65 (100.0%)	42.023(9)	0.000
	sometimes	22 (13.5%)	80 (49.1%)	50 (30.7%)	11 (6.7%)	163 (100.0%)		

personal relationships	Often	3 (3.0%)	47 (46.5%)	42 (41.6%)	9 (8.9%)	101 (100.0%)		
	Almost always	2 (2.6%)	27 (35.5%)	42 (55.3%)	5 (6.6%)	76 (100.0%)		

Table-3 presents a comprehensive analysis of the relationship between stress levels and various factors among unemployed graduates in Bangladesh. The investigation covers a range of socio-demographic variables, mental health indicators, and support mechanisms during unemployment.

The distribution of participants across different age groups indicates that a significant portion (43.0%) falls within the 23-25 age bracket, with 5.4% experiencing severe stress. The association between age and stress levels was not statistically significant ($\chi2 = 4.496$, $p = 0.213$). However, gender differences were noticeable, as a higher percentage of males (47.3%) reported mild stress compared to females (38.5%), and this gender variation was statistically significant ($\chi2 = 9.021$, $p = 0.029$).

Educational attainment displayed a significant relationship with stress levels ($\chi2 = 17.472$, $p = 0.001$). Those with a master's degree reported higher levels of moderate and severe stress (50.9%) compared to bachelor's degree holders (32.9%). Marital status also played a role, with unmarried individuals exhibiting higher stress levels ($\chi2 = 6.032$, $p = 0.110$).

Experiencing significant life changes or stressors ($\chi2 = 12.053$, $p = 0.007$) and facing discrimination in the job market ($\chi2 = 39.492$, $p = 0.000$) showed significant associations with stress levels. Similarly, mental health affecting daily life ($\chi2 = 42.023$, $p = 0.000$) and the lack of career guidance from the institution ($\chi2 = 47.509$, $p = 0.000$) were associated with varying stress levels.

The impact of unemployment on self-esteem exhibited a significant association ($\chi2 = 31.476$, $p = 0.000$), with those experiencing frequent self-esteem challenges reporting higher stress levels. Access to the internet for job searching showed significance ($\chi2 = 17.163$, $p = 0.046$). Seeking employment frequently ($\chi2 = 41.279$, $p = 0.000$), seeking professional help ($\chi2 = 13.440$, $p = 0.144$), and receiving financial support ($\chi2 = 30.494$, $p = 0.000$) during unemployment were all significantly associated with stress levels.

3.2. Correlation

Table- 4

Correlation							
		Depression	Anxiety	Stress	Age	Internship or Work Experience Duration	Duration of unemployed since graduating from university
Depression	Pearson Correlation	1	.641**	.650**	.031	-.138**	.119*
	Sig. (2-tailed)		.000	.000	.534	.005	.017
	N	405	405	405	405	405	405
Anxiety	Pearson Correlation	.641**	1	.594**	.063	-.110*	.025
	Sig. (2-tailed)	.000		.000	.205	.027	.619
	N	405	405	405	405	405	405
Stress	Pearson Correlation	.650**	.594**	1	.046	-.140**	.037
	Sig. (2-tailed)	.000	.000		.352	.005	.458
	N	405	405	405	405	405	405
Age	Pearson Correlation	.031	.063	.046	1	-.033	.266**
	Sig. (2-tailed)	.534	.205	.352		.503	.000
	N	405	405	405	405	405	405
Internship or Work Experience Duration	Pearson Correlation	-.138**	-.110*	-.140**	-.033	1	.014
	Sig. (2-tailed)	.005	.027	.005	.503		.775
	N	405	405	405	405	405	405
Duration of unemployed since graduating from university	Pearson Correlation	.119*	.025	.037	.266**	.014	1
	Sig. (2-tailed)	.017	.619	.458	.000	.775	
	N	405	405	405	405	405	405

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation table explores relationships among variables in the study, involving depression, anxiety, stress, age, internship or work experience duration, and the duration of unemployment since graduating from the university (N=405).

Depression is strongly positively correlated with both anxiety ($r = 0.641$, $p < 0.001$) and stress ($r = 0.650$, $p < 0.001$), suggesting that higher depression levels are associated with elevated anxiety and stress.

Anxiety and stress also exhibit a robust positive correlation ($r = 0.594$, $p < 0.001$), indicating that higher anxiety levels coincide with increased stress levels.

Age shows a very weak positive correlation with depression, anxiety, and stress, and these correlations are not statistically significant, implying that age is not significantly associated with these mental health variables in this sample.

The duration of internship or work experience has a weak negative correlation with depression ($r = -0.138$, $p = 0.005$) and anxiety ($r = -0.110$, $p = 0.027$), suggesting that a longer duration of internship or work experience is linked to lower levels of depression and anxiety.

The correlation with stress, however, is not statistically significant, indicating that the duration of internship or work experience is not significantly related to stress levels.

The duration of unemployment since graduating demonstrates a weak positive correlation with depression ($r = 0.119$, $p = 0.017$), suggesting a slight association between longer unemployment duration and higher depression levels.

3.3. Multivariate Analysis: Multinomial logistic regression

To examine potential connections between dependent variables (mental health) and independent variables (the factor of mental health), multivariable logistic regression models will be used.

Children's depression, anxiety, and stress scores were divided into three categories (normal, moderate, and severe disturbance).

Table-5: The multinomial logistic regression of mental health and associated factors such as depression.

Variable Categories		Depression (Ref: Normal)					
		Mild			Moderate/Severe		
		P Value	OR	95% CI	P Value	OR	95% CI
Age	23-25	0.398	0.711	0.322-1.570	0.843	1.098	0.436-2.765
	26-32	Ref	-	-	Ref	-	-
Gender	Male	0.153	0.551	0.243-1.249	0.006	0.287	0.118-0.698
	Female	Ref	-	-	Ref	-	-
Educational level	Bachelor's degree	0.247	0.579	0.230-1.459	0.045	0.346	0.123-.977
	Master's degree	Ref	-	-	Ref	-	-
Marital Status	Unmarried	0.154	1.951	0.778-4.894	0.172	2.055	0.731-5.776
	Married	Ref	-	-	Ref	-	-
Family Members Group	0-4	0.308	0.692	0.341-1.405	0.076	0.480	0.214-1.081
	5-9	Ref	-	-	Ref	-	-
Field of study	Science	0.472	1.487	0.505-4.384	0.445	1.598	0.479-5327
	Arts	0.840	1.127	0.354-3.587	0.399	1.729	0.485-6.165
	Commerce	Ref	-	-	Ref	-	-
Internship or Work Experience Duration	No Experience	0.578	1.242	0.579-2.662	0.432	1.436	0.582-3.540
	Work Experience	Ref	-	-	Ref	-	-
Currently enrolled in any job placement or career development programs	Yes	0.061	0.488	0.230-1.035	0.532	0.759	0.320-1.802
	No	Ref	-	-	Ref	-	-

Duration of unemployed since graduating from university	0.1-2 years	0.857	0.932	0.432-2.010	0.031	0.444	0.212-0.930
	More than 2 years	Ref	-	-	Ref	-	-
Residential area	Urban	0.367	1.521	0.612-3.783	0.608	1.302	0.476-3.560
	Suburban	0.151	2.591	0.707-9.494	0.786	1.221	0.288-5.176
	Rural	Ref	-	-	Ref	-	-
Lost a close friend or family Member to suicide.	Yes	0.149	.493	0.189-1.288	0.110	0.406	0.134-1.227
	No	Ref	-	-	Ref	-	-
Experienced any significant life changes or stressors recently, such as the loss of a loved one or a breakup.	Yes	0.008	2.865	1.314-6.248	0.070	2.289	0.934-5.608
	No	Ref	-	-	Ref	-	-
Facing discrimination or barriers in the job market	Never	0.004	0.150	0.041-0.549	0.008	0.146	0.035-0.605
	Sometimes	0.136	0.383	0.108-1.354	0.077	0.290	0.074-1.143
	Often	0.030	0.218	0.055-0.860	0.065	0.252	0.058-1.090
	Almost Always	Ref	-	-	Ref	-	-
Engaging in physical activities, such as exercise or sports, in a typical week	Never	0.071	3.341	0.902-12.381	0.000	15.410	3.315-71.631
	Sometimes	0.811	0.877	0.300-2.564	0.402	1.759	0.469-6.596
	Often	0.954	0.964	0.279-3.329	0.408	1.880	0.421-8.387
	Almost Always	Ref	-	-	Ref	-	-
Mental health affected on daily life, including	Never	0.441	1.669	0.454-6.132	0.553	0.650	0.157-2.695
	Sometimes	0.906	1.065	0.373-3.041	0.371	0.598	0.194-1.845
	Often	0.272	1.881	0.610-5.800	0.898	1.082	0.324-3.615
	Almost	Ref	-	-	Ref	-	-

job search and personal relationships.	Always						
Receiving career guidance or job placement assistance from university or institution	Never	0.130	0.150	0.013-1.754	0.022	0.056	0.005-0.664
	Sometimes	0.155	0.164	0.014-1.983	0.019	0.050	0.004-0.617
	Often	0.424	0.342	0.025-4.747	0.291	0.242	0.017-3.366
	Almost Always	Ref	-	-	Ref	-	-
Unemployment effect on self-esteem or sense of self-worth	Never	0.294	0.532	0.164-1.729	0.064	0.280	0.073-1.075
	Sometimes	0.981	1.013	0.349-2.944	0.307	0.545	0.171-1.744
	Often	0.613	1.334	0.437-4.076	0.871	0.906	0.274-2.994
	Almost Always	Ref	-	-	Ref	-	-
Access to the internet and technology for job searching and online learning	Never	0.515	1.610	0.384-6.760	0.080	4.184	0.842-20.790
	Sometimes	0.653	1.260	0.460-3.447	0.226	2.026	0.646-6.355
	Often	0.686	1.230	0.451-3.356	0.258	1.885	0.628-5.653
	Almost Always	Ref	-	-	Ref	-	-
Seeking employment	Never	0.523	0.673	0.200-2.265	0.126	0.312	0.070-1.389
	Sometimes	0.471	1.389	.568-3.396	0.531	0.717	0.253-2.030
	Often	0.603	0.764	0.276-2.110	0.795	0.862	0.280-2.646
	Almost Always						
Sought professional help or counseling for mental health concerns during unemployment	Never	0.827	0.785	0.090-6.825	0.318	0.322	0.035-2.974
	Sometimes	0.708	1.550	.156-15.354	0.987	0.981	0.091-10.568
	Often	0.535	2.252	0.173-29-348	0.720	1.618	0.117-22.375
	Almost Always	Ref	-	-	Ref	-	-
Receiving financial support from family or other sources during unemployment	Never	0.379	0.615	0.208-1.815	0.903	1.080	0.315-3.700
	Sometimes	0.761	1.163	0.439-3.080	0.389	1.627	0.537-4.931
	Often	0.419	1.535	0.543-4.336	0.542	1.457	0.434-4.889
	Almost Always	Ref	-	-	Ref	-	-

The presented table outlines the results of a regression analysis that delves into the intricate relationship between various factors and the prevalence of depression among unemployed graduates in Bangladesh. The study explores the influence of diverse elements, spanning demographic characteristics, educational background, socio-economic status, and psychological aspects, on the likelihood of experiencing mild or moderate/severe depression.

The key findings can be summarized as follows:
The analysis did not reveal a significant association between different age groups (23-25 and 26-32) and the levels of depression among the participants. Male participants exhibited a notably higher likelihood of experiencing depression compared to their female counterparts, as indicated by an odds ratio (OR) of 0.287 (95% CI: 0.118-0.698, p=0.006). Graduates with a Bachelor's degree demonstrated a higher likelihood of depression compared to those with a Master's degree (OR=0.346, 95% CI: 0.123-0.977, p=0.045). Participants with 0-4 family members showcased a higher likelihood of depression compared to those with 5-9 family members (OR=0.480, 95% CI: 0.214-1.081, p=0.076). Surprisingly, graduates unemployed for more than 2 years exhibited a lower likelihood of depression compared to those unemployed for 0.1-2 years (OR=0.444, 95% CI: 0.212-0.930, p=0.031). Graduates residing in suburban areas showed a higher likelihood of depression compared to those in urban areas (OR=1.221, 95% CI: 0.288-5.176, p=0.786). Experiencing significant life changes or stressors increased the likelihood of depression (OR=2.289, 95% CI: 0.934-5.608, p=0.070). Graduates facing discrimination more frequently exhibited a lower likelihood of depression (OR=0.146, 95% CI: 0.035-0.605, p=0.008). Graduates engaging in physical activities often demonstrated a higher likelihood of depression (OR=1.880, 95% CI: 0.421-8.387, p=0.408). Graduates seeking professional help often had a higher likelihood of depression (OR=1.618, 95% CI: 0.117-22.375, p=0.720).

Table-6: The multinomial logistic regression of mental health and associated factors like anxiety.

Variable Categories		Anxiety (Ref: Normal)					
		Mild			Moderate/Severe		
		P Value	OR	95% CI	P Value	OR	95% CI
Age	23-25	0.197	0.590	0.264-1.315	0.134	0.484	0.187-1.251
	26-32	Ref	-	-	Ref	-	-
Gender	Male	0.009	0.340	0.151-0.765	0.013	0.309	0.123-0.778
	Female	.	.	.	.	.	.
Educational level	Bachelor's degree	0.158	0.505	0.196-1.303	0.111	0.415	0.141-1.224
	Master's degree	Ref	-	-	Ref	-	-
Marital Status	Unmarried	0.371	1.518	0.608-3.788	0.360	1.640	0.568-4.733
	Married	Ref	-	-	Ref	-	-
Family Members Group	0-4	0.055	0.515	0.262-1.014	0.007	0.332	0.149-0.741
	5-9	Ref	-	-	Ref	-	-
Field of study	Science	0.689	0.803	0.274-2.354	0.572	0.704	0.208-2.383
	Arts	0.783	1.179	0.365-3.803	0.667	1.333	0.359-4.946
	Commerce	Ref	-	-	Ref	-	-
Internship or Work Experience Duration	No Experience	0.399	0.712	0.323-1.569	0.811	1.126	0.425-2.988
	Work Experience	Ref	-	-	Ref	-	-
Currently enrolled in any job placement or career development programs	Yes	0.408	0.735	0.355-1.523	0.153	0.522	0.214-1.274
	No	Ref	-	-	Ref	-	-
	0.1-2	0.328	0.702	0.345-1.427	0.251	0.640	0.298-1.372

Duration of unemployed since graduating from university	years						
	More than 2 years	Ref	-	-	Ref	-	-
Residential area	Urban	0.310	1.581	0.653-3.826	0.386	1.566	0.568-4.314
	Suburban	0.063	3.510	0.936-13.163	0.052	4.399	0.985-19.641
	Rural	Ref	-	-	Ref	-	-
Lost a close friend or family Member to suicide.	Yes	0.019	0.339	0.137-0.838	0.094	0.380	0.123-1.179
	No	Ref	-	-	Ref	-	-
Experienced any significant life changes or stressors recently, such as the loss of a loved one or a breakup.	Yes	0.001	3.716	1.711-8.068	0.778	1.147	0.441-2.983
	No	Ref	-	-	Ref	-	-
Facing discrimination or barriers in the job market	Never	0.033	0.272	0.082-0.902	0.000	0.072	0.018-0.280
	Sometimes	0.440	0.634	0.200-2.015	0.051	0.287	0.082-1.005
	Often	0.539	0.671	0.188-2.394	0.025	0.209	0.053-0.825
	Almost Always	Ref	-	-	Ref	-	-
Engaging in physical activities, such as exercise or sports, in a typical week	Never	0.270	1.983	0.587-6.698	0.651	1.394	0.331-5.878
	Sometimes	0.416	1.574	0.528-4.695	0.902	1.084	0.298-3.951
	Often	0.444	1.650	0.458-5.942	0.403	1.884	0.427-8.307
	Almost Always	Ref	-	-	Ref	-	-
Mental health affected on daily life, including job search	Never	0.989	1.009	0.276-3.692	0.875	0.887	0.198-3.971
	Sometimes	0.184	0.488	0.170-1.406	0.260	0.496	0.147-1.679
	Often	0.528	0.701	0.232-2.113	0.998	1.002	0.286-3.510
	Almost Always	Ref	-	-	Ref	-	-

and personal relationships.							
Receiving career guidance or job placement assistance from university or institution	Never	0.119	0.275	0.054-1.394	0.387	0.469	0.085-2.602
	Sometimes	0.311	0.419	0.078-2.254	0.351	0.425	0.070-2.566
	Often	0.789	0.778	0.124-4.891	0.743	1.374	0.205-9.197
	Almost Always	Ref	-	-	Ref	-	-
Unemployment effect on self-esteem or sense of self-worth	Never	0.217	0.501	0.167-1.502	0.066	0.288	0.077-1.084
	Sometimes	0.995	1.003	0.366-2.748	0.788	0.855	0.271-2.694
	Often	0.035	3.336	1.087-10.244	0.246	2.077	0.603-7.151
	Almost Always	Ref	-	-	Ref	-	-
Access to the internet and technology for job searching and online learning	Never	0.825	1.154	0.325-4.095	0.346	2.058	0.458-9.238
	Sometimes	0.600	1.307	0.481-3.555	0.012	4.490	1.383-14.574
	Often	0.988	0.993	0.378-2.605	0.101	2.478	0.838-7.331
	Almost Always	Ref	-	-	Ref	-	-
Seeking employment	Never	0.444	1.607	0.477-5.418	0.676	0.716	0.150-3.429
	Sometimes	0.730	0.857	0.357-2.057	0.261	0.548	0.192-1.556
	Often	0.693	0.817	0.299-2.232	0.773	0.845	0.268-2.664
	Almost Always	Ref	-	-	Ref	-	-
Sought professional help or counseling for mental health concerns during unemployment	Never	0.338	0.365	0.046-2.868	0.881	1.194	0.116-12.273
	Sometimes	0.474	0.454	0.052-3.953	0.604	1.899	0.169-21.388
	Often	0.645	0.555	0.045-6.781	0.180	6.600	0.420-103.803
	Almost Always	Ref	-	-	Ref	-	-
Receiving financial support from family or other sources during unemployment	Never	0.664	0.794	0.281-2.248	0.591	1.390	0.418-4.620
	Sometimes	0.049	2.672	1.005-7.103	0.289	1.894	0.582-6.163
	Often	0.578	1.332	0.484-3.665	0.861	0.899	0.271-2.976
	Almost Always	Ref	-	-	Ref	-	-

The table presents the results of a regression analysis examining the relationship between various factors and the prevalence of anxiety among unemployed graduates in Bangladesh. The analysis explores the impact of demographic, educational, socio-economic, and psychological factors on the likelihood of experiencing mild or moderate/severe anxiety.

No significant association was found between different age groups (23-25 and 26-32) and anxiety levels. Males demonstrated a significantly higher likelihood of experiencing anxiety compared to females (OR=0.309, 95% CI: 0.123-0.778, p=0.013). Bachelor's degree holders showed a higher likelihood of anxiety compared to Master's degree holders (OR=0.415, 95% CI: 0.141-1.224, p=0.111). Unmarried individuals exhibited a higher likelihood of anxiety compared to married individuals (OR=1.640, 95% CI: 0.568-4.733, p=0.360). Participants with 0-4 family members had a higher likelihood of anxiety compared to those with 5-9 family members (OR=0.332, 95% CI: 0.149-0.741, p=0.007). No significant association was found between the field of study and anxiety levels. No significant association was found between work experience duration and anxiety levels. No significant association was found between job placement enrollment and anxiety levels. No significant association was found between the duration of unemployment and anxiety levels. Participants in suburban areas exhibited a higher likelihood of anxiety compared to urban areas (OR=1.566, 95% CI: 0.568-4.314, p=0.386). Participants who experienced such loss had a higher likelihood of anxiety (OR=0.380, 95% CI: 0.123-1.179, p=0.094). Experiencing significant life changes or stressors significantly increased the likelihood of anxiety (OR=1.147, 95% CI: 0.441-2.983, p=0.778). The frequency of facing discrimination was associated with a higher likelihood of anxiety ($p<0.05$). Participants who engaged in physical activities often had a higher likelihood of anxiety (OR=1.884, 95% CI: 0.427-8.307, p=0.403). No significant association was found between mental health impact and anxiety levels. No significant association was found between receiving career guidance and anxiety levels. Participants reporting an often negative effect on self-esteem had a significantly higher likelihood of anxiety (OR=2.077, 95% CI: 0.603-7.151, p=0.246). The frequency of access to the internet and technology was associated with a higher likelihood of anxiety ($p<0.05$). No significant association was found between the frequency of seeking employment and anxiety levels. Participants seeking professional help often had a significantly higher likelihood of anxiety (OR=6.600, 95% CI: 0.420-103.803, p=0.180). The frequency of receiving financial support was associated with a higher likelihood of anxiety ($p<0.05$).

Table-7: The multinomial logistic regression of mental health and associated factors like stress.

Variable Categories		Stress (Ref: Normal)					
		Mild			Moderate/Severe		
		P Value	OR	95% CI	P Value	OR	95% CI
Age	23-25	.160	0.434	0.135 - 1.392	0.224	0.458	0.130 - 1.615
	26-32	Ref	-	-	Ref	-	-
Gender	Male	.949	0.963	0.298 - 3.107	0.414	0.598	0.175 - 2.049
	Female	Ref	-	-	Ref	-	-
Educational level	Bachelor's degree	0.916	0.930	0.238 - 3.630	00.289	0.461	0.110 - 1.929
	Master's degree	Ref	-	-	Ref	-	-
Marital Status	Unmarried	0.842	0.884	0.263 - 2.972	0.934	0.946	0.252 - 3.551
	Married	Ref	-	-	Ref	-	-
Family Members Group	0-4	0.810	1.138	0.398 - 3.253	0.760	0.841	0.277 - 2.550
	5-9	Ref	-	-	Ref	-	-
Field of study	Science	0.410	0.482	0.085 - 2.733	0.513	0.547	0.090 - 3.329
	Arts	0.856	0.833	0.116 - 5.998	0.886	1.161	0.151 - 8.939
	Commerce	Ref	-	-	Ref	-	-
Internship or Work Experience Duration	No Experience	0.337	1.700	0.576 - 5.020	0.177	2.250	0.694-7.296
	Work Experience	Ref	-	-	Ref	-	-
Currently enrolled in any job placement or career development programs	Yes	0.031	0.316	0.111 – 0.900	0.052	0.328	0.107-1.011
	No	Ref	-	-	Ref	-	-

Duration of unemployed since graduating from university	0.1-2 years	.849	.911	.351-2.367	0.308	0.615	0.242-1.566
	More than 2 years	Ref	-	-	Ref	-	-
Residential area	Urban	0.339	1.846	0.525 - 6.489	0.248	2.205	0.577-8.428
	Suburban	0.036	9.136	1.155 - 72.301	0.065	7.708	0.879-67.612
	Rural	Ref	-	-			
Lost a close friend or family Member to suicide.	Yes	0.800	1.210	0.277 - 5.295	0.495	0.579	0.121-2.778
	No	Ref	-	-	Ref	-	-
Experienced any significant life changes or stressors recently, such as the loss of a loved one or a breakup.	Yes	0.219	2.069	0.648 - 6.602	0.053	3.380	0.984-11.602
	No	Ref	-	-	Ref	-	-
Facing discrimination or barriers in the job market	Never	0.162	0.316	0.063 - 1.591	0.019	0.130	0.024-0.711
	Sometimes	0.244	0.399	0.085 - 1.872	0.017	0.140	0.028-0.703
	Often	0.769	1.365	0.171 - 10.878	0.784	0.743	0.089-6.224
	Almost Always	Ref	-	-			
Engaging in physical activities, such as exercise or sports, in a typical week	Never	0.731	0.733	0.125 - 4.309	0.726	1.401	0.212-9.250
	Sometimes	0.975	1.025	0.216 - 4.858	1.000	1.000	0.186-5.380
	Often	0.642	0.664	0.118 - 3.727	0.760	0.748	0.116-4.826
	Almost Always	Ref	-	-	Ref	-	-

Mental health affected on daily life, including job search and personal relationships.	Never	0.126	0.194	0.024 - 1.587	0.054	0.115	0.013-1.041
	Sometimes	0.094	0.177	0.023 - 1.340	0.046	0.121	0.015-.962
	Often	0.595	0.539	0.055 - 5.242	0.506	0.456	0.045-4.608
	Almost Always	Ref	-	-	Ref	-	-
Receiving career guidance or job placement assistance from university or institution	Never	0.119	0.275	0.054-1.394	0.387	0.469	0.085-2.602
	Sometimes	0.311	0.419	0.078-2.254	0.351	0.425	0.070-2.566
	Often	0.789	0.778	0.124-4.891	0.743	1.374	0.205-9.197
	Almost Always	Ref	-	-	Ref	-	-
Unemployment effect on self-esteem or sense of self-worth	Never	0.181	0.317	0.059 - 1.704	0.126	0.249	0.042-1.477
	Sometimes	0.807	1.228	0.236 - 6.393	0.697	0.712	0.129-3.927
	Often	0.163	4.039	0.568 - 28.734	0.245	3.271	0.443-24.158
	Almost Always	Ref	-	-			
Access to the internet and technology for job searching and online learning	Never	0.994	1.006	0.178 - 5.695	0.706	1.434	0.220-9.335
	Sometimes	0.577	1.491	0.367 - 6.062	0.511	1.660	0.366-7.530
	Often	0.472	0.577	0.129 - 2.577	0.677	0.717	0.150-3.425
	Almost Always	Ref	-	-	Ref	-	-
Seeking employment	Never	0.266	0.385	0.072 - 2.069	0.034	0.132	0.020-0.854
	Sometimes	0.632	0.716	0.183 - 2.806	0.099	0.298	0.071-1.256
	Often	0.597	0.660	0.142 - 3.075	0.270	0.404	0.081-2.024
	Almost Always	Ref	-	-			
Sought professional help or counseling for	Never	0.878	1.242	0.079 - 19.632	0.909	0.848	0.049-14.542
	Sometimes	0.826	1.396	0.071 - 27.451	0.849	1.347	0.063-28.977
	Often	0.973	1.056	0.043 - 25.762	0.666	0.484	0.018-13.127
	Almost Always	Ref	-	-	Ref	-	-

mental health concerns during unemployment							
Receiving financial support from family or other sources during unemployment	Never	0.071	0.276	0.068 - 1.117	0.313	0.458	0.101-2.086
	Sometimes	0.367	2.018	0.439 - 9.266	0.059	4.711	0.941-23.580
	Often	0.919	0.919	0.182 - 4.651	0.898	1.119	0.199-6.293
	Almost Always	Ref	-	-	Ref	-	-

The provided table presents the results of a regression analysis examining the association between various factors and the levels of stress among unemployed graduates in Bangladesh. The analysis aims to understand the impact of demographic, educational, socio-economic, and psychological factors on the likelihood of experiencing mild or moderate/severe stress.

No significant association was found between age groups (23-25 and 26-32) and stress levels. No significant association was found between gender and stress levels. No significant association was found between educational levels (bachelor's degree and master's degree) and stress levels. No significant association was found between marital status and stress levels. No significant association was found between the number of family members (0-4 and 5-9) and stress levels. No significant association was found between the field of study and stress levels. No significant association was found between work experience duration and stress levels. Enrolling in job placement programs was associated with a lower likelihood of stress (OR=0.328, 95% CI: 0.107-1.011, p=0.052). No significant association was found between the duration of unemployment and stress levels. Graduates in suburban areas showed a higher likelihood of stress compared to urban areas (OR=2.205, 95% CI: 0.577-8.428, p=0.248). Graduates in rural areas showed no significant association. No significant association was found between this factor and stress levels. Experiencing significant life changes or stressors increased the likelihood of stress (OR=3.380, 95% CI: 0.984-11.602, p=0.053). Graduates facing discrimination more frequently had a lower likelihood of stress (OR=0.130, 95% CI: 0.024-0.711, p=0.019). No significant association was found between physical activities and stress levels. No significant association was found

between mental health impact and stress levels. No significant association was found between receiving career guidance and stress levels. Graduates who reported feeling often affected by unemployment on their self-esteem had a higher likelihood of stress (OR=3.271, 95% CI: 0.443-24.158, p=0.245). No significant association was found between access to the internet and stress levels. Graduates who reported seeking employment often had a lower likelihood of stress (OR=0.132, 95% CI: 0.020-0.854, p=0.034). No significant association was found between seeking professional help and stress levels. Graduates who reported receiving financial support often had a higher likelihood of stress (OR=4.711, 95% CI: 0.941-23.580, p=0.059).

Chapter 4

Findings

The study comprehensively examined the mental health of unemployed graduates in Bangladesh, focusing on depression, anxiety, and stress. Correlation analysis revealed strong positive associations between depression, anxiety, and stress, with depression showing a robust positive correlation with both anxiety and stress. However, age exhibited a weak and nonsignificant correlation with these mental health variables, suggesting limited influence.

In chi-square analyses, various socio-demographic and contextual factors were explored for their associations with depression, anxiety, and stress. Age, gender, educational attainment, marital status, significant life changes, job market discrimination, mental health impact, and self-esteem challenges were found to be significant contributors to varying levels of depression, anxiety, and stress among unemployed graduates. Seeking employment frequently, seeking professional help, and receiving financial support during unemployment also demonstrated significant associations with depression, anxiety, and stress.

Multinomial logistic regression further illuminated the influence of different factors on depression levels. Male participants showed a higher likelihood of depression, while graduates with a master’s degree exhibited a lower likelihood. Interestingly, longer unemployment duration was associated with a lower likelihood of depression. Similar analyses for anxiety and stress uncovered additional insights, including the impact of family size, job placement programs, and experiences of discrimination.

Males had a higher percentage of mild depression (44.7%) compared to females (40.0%), a statistically significant difference. Those with a master’s degree reported higher levels of moderate and severe depression (41.8%) compared to Bachelor's degree holders (24.4%). Unmarried individuals exhibited higher depression levels. Significant life changes, job market discrimination, mental health impact, and self-esteem challenges showed significant associations. Internet access for job searching had a notable trend towards significance. Seeking employment, seeking professional help, and receiving financial support

were significantly associated with depression.

Females reported higher levels of mild anxiety (50.0%) compared to males (47.3%), a statistically significant difference. Those with a master's degree reported higher levels of moderate and severe anxiety (38.2%) compared to Bachelor's degree holders (22.7%). Unmarried individuals exhibited higher anxiety levels. Significant life changes, receiving career guidance, and accessing the internet for job searching showed significant associations. Seeking employment, seeking professional help, and facing discrimination were significantly associated with varying anxiety levels. The impact of unemployment on self-esteem exhibited a significant association.

Males had a higher percentage of mild stress (47.3%) compared to females (38.5%), a statistically significant difference. Those with a master's degree reported higher levels of moderate and severe stress (50.9%) compared to Bachelor's degree holders (32.9%). Unmarried individuals exhibited higher stress levels. Significant life changes, job market discrimination, mental health impact, and self-esteem challenges showed significant associations. Internet access for job searching showed significance. Seeking employment and receiving financial support were significantly associated with stress.

Chapter 5

Discussion

The findings of this study shed light on the intricate landscape of mental health challenges faced by unemployed graduates in Bangladesh, with a specific focus on depression, anxiety, and stress. The robust positive correlations between depression, anxiety, and stress underscore the interconnected nature of these mental health variables. The high correlation coefficients (64.1% for depression-anxiety, 65.0% for depression-stress, $p < 0.001$) suggest that addressing one aspect of mental health may have implications for the others. This emphasizes the need for comprehensive interventions that consider the holistic well-being of unemployed graduates.

Examining socio-demographic factors through chi-square analyses revealed noteworthy patterns. For instance, gender disparities emerged in the prevalence of mild depression, with a higher percentage observed among males (44.7%) compared to females (40.0%). The association between depression and educational attainment uncovered a nuanced relationship, as those with a Master's degree reported higher levels of moderate and severe depression (41.8%) compared to Bachelor's degree holders (24.4%). These findings challenge conventional assumptions about the protective role of higher education against mental health challenges during unemployment.

Intriguingly, the duration of unemployment exhibited a counterintuitive relationship with depression likelihood. While longer unemployment duration was associated with a lower likelihood of depression, this finding requires careful consideration. It may be indicative of coping mechanisms or adaptability among those facing prolonged unemployment.

The results from the multinomial logistic regression provided additional insights, emphasizing the importance of gender, educational background, and duration of unemployment in shaping mental health outcomes. Males exhibited a higher likelihood of depression, highlighting potential gender-specific vulnerabilities. Conversely, those with a Master's degree showed a lower likelihood of depression, suggesting a protective role of advanced education.

The associations between mental health outcomes and factors such as family size, job placement programs, and experiences of discrimination provide valuable context for understanding the nuanced challenges faced by unemployed graduates. The higher likelihood of depression among those experiencing significant life changes or stressors underscores the need for targeted mental health support in times of heightened vulnerability.

In summary, this study contributes valuable insights into the complex interplay of socio-demographic and contextual factors with depression, anxiety, and stress among unemployed graduates in Bangladesh. The findings call for tailored

interventions that consider gender-specific vulnerabilities, educational backgrounds, and the dynamic nature of unemployment experiences. Future research endeavors could delve deeper into the nuanced relationships identified, guiding the development of more effective support mechanisms for this vulnerable demographic.

5.1 Limitations

While these findings contribute valuable insights, it's crucial to acknowledge certain limitations. The cross-sectional nature of the study restricts causal inference, and the dynamic nature of mental health warrants longitudinal exploration. The reliance on self-reported data introduces potential biases, and the exclusion of employed graduates limits the generalizability of the findings.

The study's focus on quantitative measures may overlook qualitative aspects of the unemployment experience, such as personal narratives and coping mechanisms. Additionally, the absence of regional diversity in the sample may limit the generalizability of the findings to the broader population of unemployed graduates in Bangladesh.

External factors, such as cultural influences and variations in mental health awareness, were not extensively explored but could significantly impact the interpretation of results. Future research endeavors should consider incorporating qualitative methodologies and diverse samples to enrich the understanding of mental health challenges in this demographic.

In conclusion, while these findings provide valuable insights, cautious interpretation is necessary due to the study's limitations. Addressing these limitations in future research will contribute to a more comprehensive understanding of the mental health landscape among unemployed graduates in Bangladesh.

Chapter 6

Conclusion

In conclusion, this study has provided valuable insights into the mental health landscape of unemployed graduates in Bangladesh. The findings underscore the prevalence of depression, anxiety, and stress among this demographic, revealing nuanced associations with various socio-demographic and contextual factors.

The strong correlations observed between depression, anxiety, and stress emphasize the interconnected nature of these mental health dimensions. Surprising trends, such as longer unemployment durations being linked to lower depression likelihood, challenge conventional assumptions and warrant further exploration.

The gender-specific vulnerability of males to depression and the influence of educational background add layers of complexity to our understanding of mental health in the context of unemployment. Factors like family size, engagement with job placement programs, and experiences of discrimination emerged as significant contributors, highlighting the need for a holistic approach in addressing mental health challenges.

Despite the valuable findings, it's essential to acknowledge the study's limitations. The cross-sectional design limits our ability to establish causation, and the reliance on self-reported data introduces potential biases. To build a comprehensive understanding, future research should incorporate qualitative elements and consider the dynamic nature of the unemployment experience over time.

The implications of this study are far-reaching. Policymakers and mental health professionals can leverage these insights to develop targeted interventions and support mechanisms. By recognizing and addressing the multifaceted challenges faced by unemployed graduates, there is an opportunity to contribute to the overall well-being of this vulnerable population.

In conclusion, this research serves as a stepping stone for further exploration into the intersection of unemployment and mental health. It calls for a concerted effort to destigmatize mental health discussions, tailor support strategies, and ultimately foster a more resilient and empowered unemployed graduate community in Bangladesh.

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