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**The association between financial hardship and mental health difficulties among adult wage earners during the COVID-19 pandemic in Bangladesh: Findings from a cross-sectional analysis**

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**Highlights:**

- Wage earners' anxiety and depressive symptoms were inextricably linked with financial hardship during the COVID-19 pandemic.
- The prevalence of anxiety (58.6%) and depressive symptoms (55.9%) among the adult wage earners in Bangladesh is significantly high; and the female earners were at higher risk for anxiety and depressive symptoms.
- Low family income, getting no salary and having no income were significant factors for mental health difficulties.
- Perceiving upcoming financial crisis due to COVID-19 and dealing with financial problem as stressors were found to be potential risk factors of anxiety and depressive symptoms.

## **Abstract**

### **Background:**

The ongoing COVID-19 pandemic has created several challenges including the financial burden which may result in mental health conditions.

### **Aim:**

This study was undertaken to gauge the mental health difficulties during the COVID-19 pandemic to gain an insight into wage earners' mental health as they are responsible for maintaining the finance of their families in this critical situation.

### **Method:**

This cross-sectional study was conducted through an online survey, a total of 707 individual Bangladeshi wage earners were enrolled in between 20 May 2020 and 30 May 2020. The questionnaire had sections on sociodemographic information, COVID-19 related questions, PHQ-9 & GAD-7 scales to assess depressive symptoms & anxiety, respectively. STATA version 14.1 program was used to carry out all the analyses.

### **Results:**

The study revealed that 58.6% and 55.9% of the respondents had moderate to severe anxiety and depressive symptoms, respectively. The total monthly income less than 30,000 BDT (353.73USD) displayed increased odds of suffering from depressive symptoms (OR=4.12; 95% CI: 2.68-6.34) and anxiety (OR=3.31; 95% CI: 2.17-5.03). Participants who didn't get any salary, had no income source during lockdown, had financial problem, inadequate food supply were more likely to suffer from anxiety and depressive symptoms ( $p \leq .01$ ). Perceiving the upcoming financial crisis as a stressor was a potential risk factor for anxiety (OR=1.91; 95% CI:1.32-2.77) and depressive symptoms (OR=1.50; 95% CI:1.04-2.16).

### **Conclusion:**

Wage earners in a low resource setting like Bangladesh require mental health attention. Furthermore, financial consideration from the state or their workplace may help them to deal with mental health difficulties during this pandemic.

**Keywords:** COVID-19; Anxiety; Depressive symptoms; Financial crisis; Wage earners, Bangladesh.

## 1. Introduction

COVID 19 pandemic has led many people to the concern of job insecurities and financial challenges globally. With the rapidly increasing number of infected cases, the governments of most of the countries declared many public health approaches including nationwide lockdown, declaration of general holidays, social distancing, etc. in this critical situation. These strategies interrupted ordinary social life and works as the root of psychological fear followed by a nondescript period (Thakur & Jain, 2020).

Few studies including Bangladesh and Pakistan reported that people committed suicide for fear of COVID-19 infection, social stigma, isolation, anxiety, depression, emotional disharmony as well as economic shutdown, financial, and future insecurities (Bhuiyan et al., 2020; Mamun & Ullah, 2020; Thakur & Jain, 2020). Therefore, it has been anticipated by the United State that the economic recession as a consequence of this ongoing pandemic is more powerful to take lives than the COVID-19 itself as a huge rise (4.6 million) in unemployment has been asserted during this outbreak (Reger et al., 2020). As a result, peoples' mental health is becoming unstable. The economic fallout triggered by the pandemic can no longer be avoided from research for its potentially negative consequences.

While people in many high-income and welfare states had access either to public funds (social benefits, unemployment benefits, sickness benefits, universal basic income, etc.) or the COVID-19 related income support from the government, the people in less developed and developing countries undoubtedly remain more vulnerable as numerous small and medium shaped businesses became smashed and resulted in bankrupt (Fernandes, 2020; OECD, 2020) & Bangladesh is no way different. It needs to be noted here that the governments in many low- and middle-income countries declared COVID-19 related income supports. However, the situation in Bangladesh is more fragile as a report from 2018-2019 economic year revealed that 20% and 10.5% people in Bangladesh live below the poverty line and in extreme poverty, respectively, the unemployment rate is 4.4% among the general population and the percentage of people living from hand-to-mouth is remarkably high (70%) (Daily Jugantor, 2019; Kamruzzaman, 2020; The Financial Express, 2019). This poor situation is likely to get more serious for the extreme fallout in economic sectors among Bangladeshi people due to the COVID-19 emergency as per capita income declined 82% from \$1.30 (US) in February to \$0.32 in early April among the slum dwellers and 79% fallout from \$1.05 to \$0.39 among poor rural people (Kamruzzaman, 2020). Consequently, there is a chance of a 1.10% downfall in GDP (approximately \$3 billion loss in GDP) which is the cruel outcome of the COVID-19 pandemic (H. R. Banna, 2020). Additionally, the price of the daily commodities is rising day by day as the production and supply have been disrupted seriously. The poor people are the main sufferers of this as it is so tough for them to survive with lower or no income at all during this pandemic situation and financial uncertainty is more experienced by them (Bhuiyan et al., 2020; Khan et al., 2020). Price hike and income fallout together are creating challenges on people especially on those who strive to live for the basic needs of their family. The most serious concern is that no one knows when this financial crisis, unemployment problem, as well as the concern of job insecurity will be resolved.

There is an urgent need to understand the possible mental health issues that are faced by the wage-earning members of families as the financial challenges have risen in this outbreak. However, to the best of our knowledge, no detailed study on the mental health difficulties of earners during the pandemic has been conducted to date in Bangladesh. Thus, the current study seeks to explore the mental health difficulties of the wage earners in the country Bangladesh to report their anxiety level & depressive symptoms, and identify some potential factors linked with those mental issues during the COVID-19 outbreak.

## **2. Methodology**

### ***2.1 Study design & participants***

This cross-sectional study was conducted through online survey, a total of 707 individual Bangladeshi wage earners were enrolled in between 20 May 2020 and 30 May 2020. The study was conducted following the Checklist for Reporting Results of Internet ESURVEYS (CHERRIES) guidelines (Eysenbach, 2004). The target population of the study was Bangladeshi earners (not restricted to any division or district) living in the country during the COVID-19 outbreak. Other inclusion criteria include: (1) willing to participate; (2) providing informed consent; (3) age  $\geq 18$  years; (4) able to understand Bangla language. An online convenience sampling technique was chosen to meet the study aims.

### ***2.2 Data collection tool***

An online semi-structured questionnaire was developed using google forms which was used as a data collection tool. The questionnaire was drafted in Bangla first. Then translation and back translation from Bangla to English and vice versa was done by bilingual experts. A pilot test was performed on 30 respondents to confirm the reliability of the questionnaire and further modifications were done in the questionnaire. Survey link was disseminated on approximately 30 Facebook groups including different alumni and organizational groups (i.e., Jahangirnagar University Alumni Association) where the group members were mostly wage-earners from different occupations. An information sheet describing the aim and process, right to refuse their participation from the study was presented on the first page of the survey attaching a consent form with it. The questionnaire had sections on sociodemographic information, COVID-19 related questions, PHQ-9 & GAD-7 scales to assess depressive symptoms & anxiety, respectively. Participants were informed that their information will only be used for the research purpose. Anonymity and confidentiality was fully ascertained. All the participants provided written consent prior to their participation. All the procedures of this study complied with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for any experiments involving human. The protocol of this study was reviewed & supported by the Department of Public Health and Informatics, Jahangirnagar University, Savar, Dhaka, Bangladesh.

### ***2.3 Measure***

#### ***2.3.1 Socio-Demographic Measures***

Socio-demographic information was gathered from all the respondents through both open-ended and closed-ended questions, including their sex, age, religion, marital status (i.e., married,

unmarried, divorced, widow), educational status, occupation, monthly family income, area of residence (rural or urban), name of the district, number of family members and number of earning member in the family.

### ***2.3.2 Current income status-related data***

Participants were asked to choose answers (multiple choices were applicable) as per their current income status from 4 options (i.e., “I am not getting any salary in this lockdown situation”; “I have no source of income currently”; “My income is not enough for my family” and “I’m satisfied with my income”).

### ***2.3.3 Perceived social & financial stressor-related data***

Respondents were asked to choose some factors related to socio-economics that were putting them in psychological discomfort such as “I’m getting no salary in this lockdown situation”, “food supply is not enough for my family”, “dealing with the financial problem”, “future financial crisis”, “price increment in daily necessary commodities” and “hamper in my children’s study”. Multiple-choice answers were offered in this question.

### ***2.3.4 Depressive symptoms***

The nine-item scale, Bangla Patient Health Questionnaire (PHQ-9) corresponding to DSM-IV Diagnostic Criteria of symptoms for the major depressive disorder was used to measure the level of depressive symptoms of the participants (Chowdhury, Ghosh, & Sanyal, 2004; Kroenke et al., 2010). Respondents were asked to answer on a 4-point Likert scale (from “0 = not at all” to “3 = nearly every day”) based on the over past two weeks, whereby 0-27 score range is possible. A score of 0 indicates the absence of depressive symptoms and a total score of 27 indicates daily depressive symptoms. The five cut-off points were used for the categorization of depressive symptoms as: i) ‘0–4’ for ‘normal’; ii) ‘5–9’ for ‘mild depressive symptoms’; iii) ‘10–14’ for ‘moderate depressive symptoms’; iv) ‘15–19’ for ‘moderately severe depressive symptoms’; and finally, v) ‘20 or higher’ for ‘severely severe depressive symptoms’. A cut-off score  $\geq 10$  was set to denote “depression positive” for analysis in this study (Ngasa et al., 2017). In the present study, the Cronbach's alpha was 0.85.

### ***2.3.5 Anxiety Disorder***

The seven-item scale, Bangla Generalized Anxiety Disorder (GAD-7) which was reported to have good sensitivity (89%) and specificity (82%) for assessing the severity of anxiety in both the clinical and general population was used in this study (Anjum et al., 2019; Löwe et al., 2008). Participants were asked how often they were bothered by the symptoms of GAD-7 based on the over past two weeks to respond on a 4-point Likert scale the same as PHQ-9, where score range 0-21 was possible. The cut-off points for the categorization of the level of GAD symptoms were as follows: i) ‘0–4’ for normal, ii) ‘5–9’ for mild, iii) ‘10–14’ for moderate and iv) ‘15–21’ for severe. A cut-off score  $\geq 10$  was set to denote “anxiety positive” for analysis in this study (Wege, Muth, Li, & Angerer, 2016). In the present study the Cronbach's alpha was high (0.84).

## ***2.4 Statistical analysis***

Descriptive statistics such as frequency, percentage were obtained to describe participants' characteristics. Both bivariate and multivariate logistic regression was performed to explore potential influencing factors associated with anxiety and depressive symptoms. All variables were entered into a binary logistic regression model with 'depressive symptoms' and 'anxiety' as the dependent variable. Odds ratio (OR), adjusted odds ratio (AOR), and 95% confidence interval (95% CI) were obtained from logistic regression models. P-value less than or equal to .05 was considered to be statistically significant for all analyses. The STATA version 14.1 program (StataCorp LP., College Station, TX, USA) was used to carry out all analyses.

### **3. Results**

#### ***3.1. Sociodemographic characteristics, anxiety and depressive symptoms***

Responses came from 707 citizens (age range: 18–75 years, with a mean of  $31.41 \pm 8.73$  years) from 50 districts of Bangladesh with a 99.2% response rate. The majority of the respondents belonged to age group 25 to 35 (62.38%), were male (77.23%), Govt. or Pvt. Service holders (60.82%). Most of the respondents were living in urban setting (85.86%) in a family consisting of less than 5 members (43.28%) or 5 to 7 members (44.70%). Almost half of the respondents reported to earn less than 30,000 BDT (48.94%) and almost one-third of the respondents were only earner of their family (33.66%). (Table 1)

We found that 28.43% of the participants suffered from severe anxiety, while 30.13% were found to experience moderate anxiety, 24.05% were found to be experiencing mild anxiety at the time of data collection (Figure 1). Furthermore, it is found that 10.89% of the participants suffered from severely severe depressive symptoms, while 18.81% were found to experience moderately severe depressive symptoms, 26.17% of the participants were found to be experiencing moderate depressive symptoms, 23.48% were found to be experiencing mild depressive symptoms at the time of data collection (Figure 2).

It was seen that respondents aged below 25 were more likely to be experiencing depressive symptoms in reference to respondents aged above 35 (OR=2.29; 95% CI: 1.38-3.83). Females had higher likelihood for both anxiety (AOR=1.69; 95% CI: 1.11-2.58) and depressive symptoms (AOR=1.97; 95% CI: 1.28-3.01). Similarly, respondents earning less than 30,000 BDT (353.26 USD) monthly were about two or three times more likely to in depressive symptoms (AOR=2.86; 95% CI: 1.73-4.67) and anxiety (AOR=3.12; 95% CI: 1.90-5.17). The average monthly income ranging from 30,000-70,000 BDT was significantly associated with anxiety (AOR=1.78; 95% CI: 1.12-2.84) and depressive symptoms (AOR=2.04; 95% CI: 1.27-3.27). Apart from all these, businessmen, having education below honors and being only earning member of the family had significant association with anxiety or depressive symptoms or both with higher odds. (Table 1)

#### ***3.2 Current financial situation, anxiety and depressive symptoms***

One-fourth of the respondents were not getting any salary due to the critical pandemic situation (25.32%) and they were more likely to be in anxiety (AOR=1.69; 95% CI: 1.10-2.61) and depressive symptoms (AOR=1.95; 95% CI: 1.27-3.00) in reference to those getting salary in some way. Similarly, respondents (34.65%) having no source of earning during the pandemic were also



more likely to be in anxiety (AOR=1.64; 95% CI: 1.11-2.43) and depressive symptoms (AOR=2.03; 95% CI: 1.37-2.99) in reference to respondents with an earning source. Additionally, salary not being enough for family which might be reduced for pandemic situation and being unsatisfied with current earning had significant association with anxiety or depressive symptoms or both with higher likelihood. (Table 2)

### ***3.3 Social & financial stressors, anxiety and depressive symptoms***

About 27% of respondents reported dealing with financial problems as stressor and they had higher odds for anxiety (AOR=2.82; 95% CI: 1.83-4.36) and depressive symptoms (AOR=2.45; 95% CI: 1.61-3.72) in reference to their counterparts. Increased price of daily commodities (55.87%), inadequate food supply (77.93%), children's educational loss (29.42%) were significantly associated with anxiety or depressive symptoms or both with higher odds. Furthermore, respondents (79.63%) perceiving upcoming financial crisis were two-fold more likely to be in anxiety (AOR=2.01; 95% CI: 1.34-3.01) and one-fold more likely to be in depressive symptoms (OR=1.50; 95% CI: 1.04-2.16) in reference to respondents not perceiving any future financial crisis.

## **4. Discussion**

This study upholds the most updated scenario of Bangladeshi wage-earners' mental health difficulties amid a period of financial stress during the ongoing COVID-19 pandemic. The findings of the present study indicate that anxiety and depressive symptoms are high among wage earners, with a prevalence of 58.6% and 55.9%, respectively. There was a clear upward trend in the prevalence of anxiety and depressive symptoms compared to previous studies conducted during the COVID-19 outbreak (González-Sanguino et al., 2020; Wang et al., 2020).

A study which was conducted on workers in United State found that 16% of the respondents had depression (Simmons & Swanberg, 2009), 26.3% depression was found in a population-based study in German (Dragano et al., 2008), 0.4 to 15.7% depression was found in a multilevel study of 187,496 individuals from 53 countries (Rai et al., 2013). All of the aforementioned studies reported less prevalence of depression compared to the present study. The financial crisis and socioeconomic stressors may play a significant role behind the high percentage of anxiety and depression among respondents. Previously increased depression was reported in Greece due to economic crisis (Economou et al., 2016; Economou, Madianos, Peppou, Patelakis, & Stefanis, 2013), all of the prevalences of depression were lower than the present study. A study on Bangladeshi job seekers found a greater percentage of depression (81.1%) and anxiety (61.5%) compared to the present study (Mamun et al., 2020). Moreover, another study on Bangladeshi adult peoples' mental health during COVID-19 revealed a higher percentage of depression (57.9%) compared to the present study (M. H. A. Banna et al., 2020).

This study identified eight critical risk factors behind earners' anxiety and depressive symptoms such as 'being female', 'being in younger age (<25 years)', 'having lower education', 'being businessmen', 'belonging to the middle-sized family (5-7 members)', 'being the only earner of the family', 'family income both less than 30,000BDT (353.73USD) and ranging from 30,000BDT to

70,000BDT compared to >70,000BDT' (Table 1). The present study reported a much higher OR of depressive symptoms and anxiety among younger earners (<25 years) than the older ones which is identical to previously published studies reporting that psychological symptoms are linked to younger age (Mirowsky & Ross, 2001). Economic crisis might appear as less depressing to older adults for their greater maturity, patience, and experience derived from the vicissitudes of life (Mirowsky & Ross, 2001). Furthermore, elevated rates (11.92%) of youth unemployment in Bangladesh can make younger adults more prone to depression compared to the older individuals (Statista, 2020).

Besides, in agreement with the findings of previous report and study (Wang et al., 2020; World Health Organization (WHO), 2012), the present study found that female earners were 1.78 times more likely to be anxious and 2.29 times more likely to be depressed than the male counterparts (Table 1). Working females are responsible for dealing with both household responsibilities and work responsibilities in Bangladesh which makes them burdened with different stresses which may be the reason for the increased anxiety and depressive symptoms. Further research is required to clarify the reasons and mechanisms behind this finding. Moreover, women are thought to be more sensitive to stress hormones which disrupt their ability to cope up with stressful situations than men (Zhou et al., 2013).

The finding of our study agrees with the observation that higher education works as a protective factor for both anxiety and depression (Alegría et al., 2000). Higher educational level buffers the negative psychological effect as a higher level of education provides more cognitive abilities with a better social position which decreases the negative impacts of a stressful life situation on the psychological state (Mandemakers & Monden, 2010). Furthermore, cognitive skills, attitudes, and shaped values regarding health-related behaviors all are gifts of education which buffers depression (Lahelma et al., 2006).

Both unadjusted and adjusted estimates in regression analysis showed that earners who were businessmen had higher odds of both anxiety & depressive symptoms (Table 1). Some job holders are still getting salary, but businessmen are unlikely to have any income source in this pandemic situation and they are going through the drastic loss in their business. A previous report claimed that worrying about cash flow is mentally challenging for the business owners (Small business media). As consistently reported previously, the present study reveals that respondents who were married had a more significant linkage with anxiety (Overbeek et al., 2006). According to Family stress model, spouses' distress increases when dealing with daily economic difficulties and result in negative feelings like unhappiness, grudge and disappointment about future which could be the reason for marital conflicts and less supportive behavior to his/her partner and marital conflict has been reported as linked to mental problems (Conger et al., 2002). In this study, respondents who belonged to the family consists of 5-7 members were found to be significantly associated with anxiety compared to respondents who belonged to <5 membered family. The bigger family has bigger financial needs and that may trigger anxiety to the earning members of the family. Our study revealed a significant finding that respondents becoming the only earning member in the entire family were 1.47 times more likely to be anxious (Table 1).

Our results are in line with the results of other investigations (Alegría et al., 2000; Butterworth et al., 2009; Sareen et al., 2011) reporting that who had comparatively low salary (less than 30,000BDT in this study) had the highest likelihood to be depressed and anxious. A study reported that low-income elderly were 2.35 times more likely to experience depressive symptoms compared to the higher income counterparts which is somewhat identical to the present study (Murata et al., 2008). Again, respondents whose salary was not enough for their family had significantly higher ORs for anxiety and depressive symptoms (Table 2). As regards depressive symptoms, income was more strongly associated with depressive symptoms than education which was observed in a previous study as well (Murata et al., 2008). The reason behind the less prevalence of depressive symptoms and anxiety may be that the higher income jobs allow having greater social prestige and working conditions are better in terms of both psychological and physical perspectives (Zimmerman et al., 2004).

In terms of current income status, consistent with our expectation, "getting no salary" variable was found to be significantly associated with both anxiety and depressive symptoms. However, a recent Bangladeshi study showed that the economy and jobs were significantly affected by the perception that the pandemic disrupted life event (M. H. A. Banna et al., 2020). It also suggests that respondents who had no source of income were more likely to be anxious and depressed. These results may be relevant for the earners in other developing countries too as lockdown due to the COVID-19 pandemic has disrupted employment status to a great extent. Other studies were in agreement with this finding reporting that unemployment was responsible for negative mental health impacts (Konstantakopoulos et al., 2019; Mirowsky & Ross, 2001). Another epidemiological study found that unemployed people had elevated prevalence of major depression as 58% and 53% when it was compared to the economically active and inactive people, respectively (Economou et al., 2016). This study also showed that respondents who were not satisfied with their income were suffering from anxiety and depressive symptoms. This could be because of the concern about the future financial crisis as 79.63% of respondents perceived the upcoming financial crisis as a stressor (Table 3). Financial uncertainty was reported as significantly associated with anxiety and depression (Khan et al., 2020). The particular interest of the current study was to explore the association between financial hardship and mental health difficulties. Consequently, the present study reported that "dealing with financial problem" variable was very significantly associated with anxiety and depressive symptoms (Table 3). A previous study mentioned that individuals displayed increased odds of suffering from major depression in 2011 who went through financial distress (Economou et al., 2013).

Our findings also indicated a relatively strong association of inadequate food supply with anxiety and depressive symptoms. Butterworth et al. reported in 2009 with the agreement of our study that food insecurity causes most serious mental health effects (Butterworth et al., 2009). Furthermore, perceiving inadequate food supply as a stressor was significantly associated with both anxiety and depressive symptoms in the present study which is consistent with a recent study which was conducted on Bangladeshi students (Khan et al., 2020). Although the multivariate analysis did not find any significant relationship of the stressor "increased price in daily commodities" with anxiety, it was found to be strongly associated with depressive symptoms even in multivariate regression. Although there are few studies concerning mental illness, we are unaware of any

previous studies in Bangladesh evaluating anxiety and depression in pandemic situation among wage earners and so we are unable to compare previous data from Bangladesh with the present study. Respondents reported their children's educational loss as a stressor were found to be depressed and anxious. This finding will hopefully help in making suitable policies with significant relevance. Finally, it is worth mentioning that the upcoming financial crisis which was also a stressor for the earners was found to be associated with both anxiety and depressive symptoms. This major finding bears implications to deal with future mental health crisis even after this pandemic as the effects of financial loss is not very temporary.

#### ***4.1 Strength & Limitations***

The study reported pandemic-related economic crisis and the mental state of the earning members of the family which received scant research attention in Bangladesh. To our best knowledge, no other study has been published on this issue with this specific group of population. A strength of this study lies in the usage of validated assessment tools to measure mental health difficulties.

However, the study has several limitations that should be taken into account. The major limitation of this study is participation in the study needed access to smartphone/computer which indicates that the respondents from lower socio-economic subgroup couldn't be included. Secondly, this study relied on self-reported data and not absolutely free of recall or report biases. Thirdly, the possibility of selection bias should be considered as the study was conducted online by using a convenience sampling technique. Finally, the cross-sectional design of the study includes method bias as a causal relationship can't be elucidated accurately in this design. Future qualitative and longitudinal studies are needed to uncover the true scenario in the context of the COVID-19 pandemic.

#### **5. Conclusion**

The study provides important findings that wage earners may experience elevated level of anxiety and depressive symptoms during COVID-19 outbreak. Current income status, socio-economic stressors & negative perception of the earners about the emerging financial stress played a significant role to develop mental health difficulties. This upward trend of anxiety and depressive symptoms indicates that wage earners in society require adequate mental health support. Furthermore, financial consideration from the state or their workplace may help them to deal with mental health difficulties during this unprecedented crisis.

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## **Authors' statement**

### **CRediT authorship contribution statement**

**Mst. Sadia Sultana:** Conceptualization, Methodology, Investigation, Data curation, Writing - original draft, Writing - review & editing, Validation., **Abid Hasan Khan:** Investigation, Formal analysis, Data curation, Writing - original draft, Validation., **Sahadat Hossain:** Conceptualization, Supervision, Writing - review & editing, Validation., **Tauhidul Islam:** Investigation, Data curation, Writing - original draft, Validation., **M. Tasdik Hasan:** Writing - review & editing, Validation., **Helal Uddin Ahmed:** Writing - review & editing, Validation., **Jahangir A. M. Khan:** Writing - review & editing, Validation.

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## **Ethics and consent to participate**

Ethical standards were maintained to the highest possible extent whilst the study was conducted. All participants read, understood a consent form and agreed to participate in the study. Furthermore, this research is supported by the Department of Public Health and Informatics, Jahangirnagar University, Bangladesh.

## **Declaration of competing interest**

The authors declare that they have no conflict of interest.

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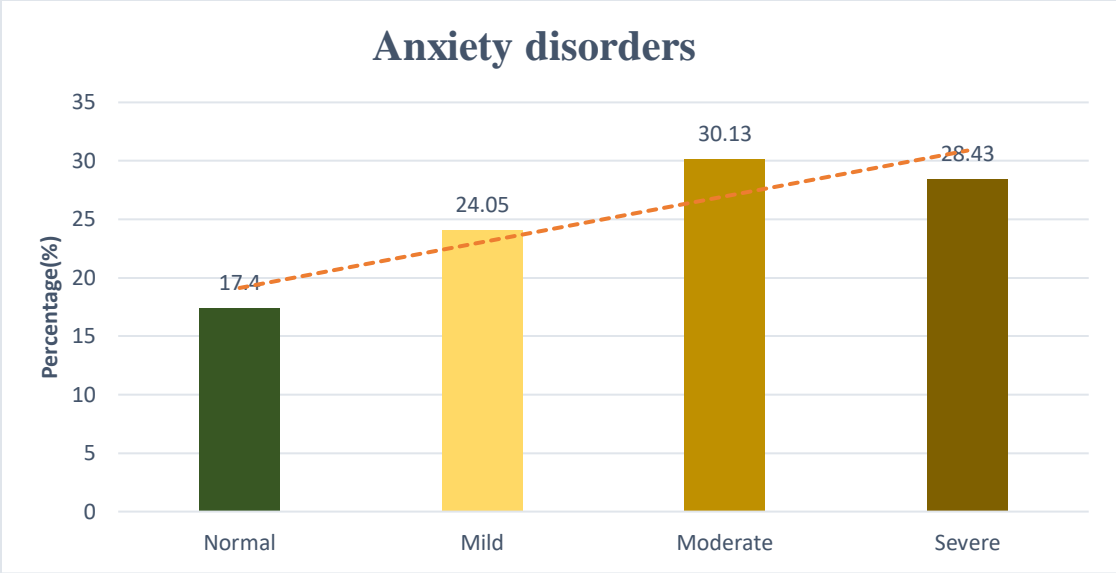


Figure 1: Distribution of participants by anxiety disorders

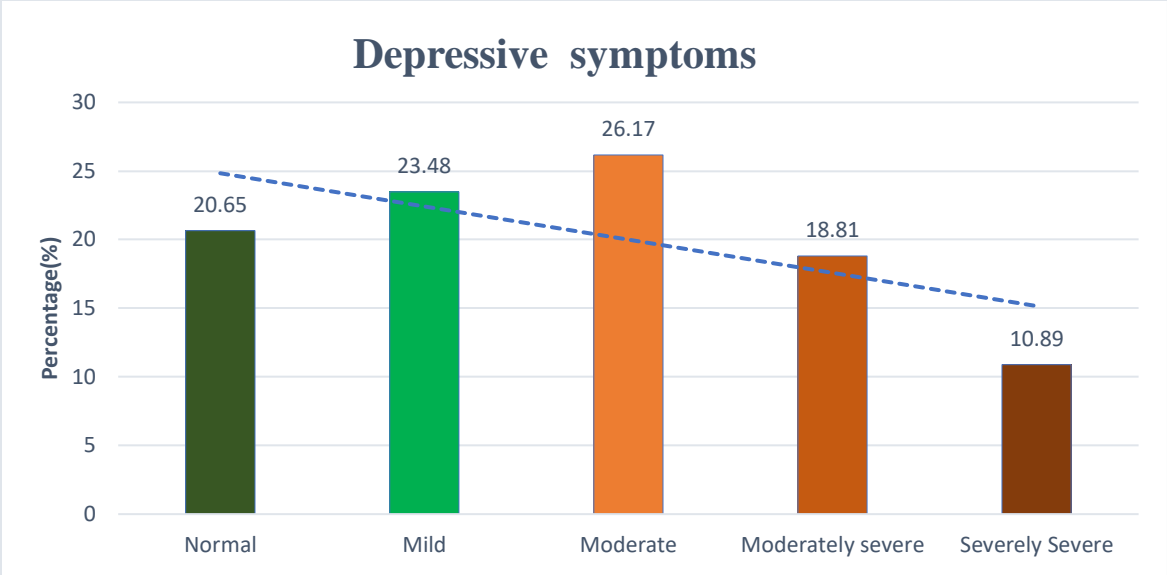


Figure 2: Distribution of participants by depressive symptoms

Table 1: Association among socio-demographics, anxiety and depressive symptoms among adult wage earners in Bangladesh.

Variables	n (%) (N=707)	Anxiety <sup>§</sup>		Depressive symptoms <sup>§§</sup>	
		OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
<b>Age (years)</b>					
<25	112 (15.84%)	1.26 (0.68-1.44)	1.30 (0.66-2.57)	2.29** (1.38-3.83)	1.69 (0.85-3.36)
25-35	441 (62.38%)	0.99 (0.77-2.09)	1.16 (0.73-1.86)	1.19 (0.83-1.72)	1.30 (0.82-2.05)
>35	154 (21.78%)	Ref.	Ref.	Ref.	Ref.
<b>Gender</b>					
Female	161 (22.77%)	1.78** (1.22-2.59)	1.69* (1.11-2.58)	2.29** (1.57--3.34)	1.97** (1.28-3.01)
Male	546 (77.23%)	Ref.	Ref.	Ref.	Ref.
<b>Education</b>					
Up to Higher secondary	167 (23.62%)	2.30** (1.57-3.37)	1.22 (0.77-1.93)	3.22** (2.17-4.76)	1.95** (1.22-3.10)
Honors or above	540 (76.38%)	Ref.	Ref.	Ref.	Ref.
<b>Occupation</b>					
Businessman	88 (12.45%)	3.31** (1.78-6.14)	2.40** (1.22-4.73)	2.66** (1.47-4.81)	2.25* (1.16-4.39)
Govt./Pvt. Service holders	430 (60.82%)	1.53 (0.99-2.34)	1.18 (0.74-1.88)	1.51 (0.98-2.32)	1.26 (0.79-2.01)
Others <sup>†</sup>	86 (12.16%)	1.46 (0.82-2.60)	1.03 (0.54-1.98)	1.99* (1.11-3.56)	1.41 (0.72-2.74)
HCW <sup>‡</sup>	103 (14.57%)	Ref.	Ref.	Ref.	Ref.
<b>Marital Status</b>					
Married/divorced /widowed	362 (51.20%)	1.36* (1.01-1.84)	1.32 (0.88-1.96)	0.97 (0.72-1.31)	1.00 (0.67-1.48)
Unmarried	345 (48.80%)	Ref.	Ref.	Ref.	Ref.
<b>Living setting</b>					
Urban	607 (85.86%)	1.08 (0.70-1.65)	1.46 (0.91-2.34)	0.99 (0.65-1.52)	1.45 (0.90-2.33)

Rural	100 (14.14%)	Ref.	Ref.	Ref.	Ref.
<b>Number of family members</b>					
>7	85 (12.02%)	1.23 (0.75-1.99)	1.54 (0.89-2.64)	0.97 (0.60-1.58)	1.05 (0.61-1.80)
5-7	316 (44.70)	1.64** (1.19-2.26)	1.76** (1.23-2.51)	1.24 (0.90-1.70)	1.20 (0.84-1.71)
<5	306 (43.28%)	Ref.	Ref.	Ref.	Ref.
<b>Number of earning family members</b>					
Only earner	238 (33.66%)	1.47* (1.07-2.03)	1.57* (1.09-2.27)	1.14 (0.83-1.56)	1.25 (0.87-1.79)
More than one earner	469 (66.34%)	Ref.	Ref.	Ref.	Ref.
<b>Average monthly family income (BDT)</b>					
<30,000	346 (48.94%)	3.31** (2.17-5.03)	3.12** (1.90-5.17)	4.12** (2.68-6.34)	2.86** (1.73-4.67)
30,000-70,000	232 (32.81%)	1.67* (1.08-2.58)	1.78* (1.12-2.84)	2.11** (1.35-3.30)	2.04** (1.27-3.27)
>70,000	129 (18.25%)	Ref.	Ref.	Ref.	Ref.

\*P-value ≤0.05; \*\*P-value ≤0.01

Abbreviations: OR=Odds ratio; AOR=Adjusted odds ratio; CI= Confidence interval

<sup>§</sup>Anxiety was defined as individuals who scored ≥ 10.

<sup>§§</sup>Depressive symptoms was defined as individuals who scored ≥ 10.

<sup>†</sup>Included researchers, journalists, farmers, tutors.

<sup>††</sup>Included doctors, nurses and medical technologists.

Table 2: Association among current financial situation, anxiety and depressive symptoms among adult wage earners in Bangladesh.

Variables	n (%) (N=707)	Anxiety <sup>§</sup>		Depressive symptoms <sup>§§</sup>	
		OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
<b>Not getting any salary</b>					
Yes	179 (25.32%)	2.84** (1.94-4.17)	1.69* (1.10-2.61)	3.05** (2.09-4.45)	1.95** (1.27-3.00)
No	528 (74.68%)	Ref.	Ref.	Ref.	Ref.
<b>No earning source</b>					
Yes	245 (34.65%)	2.78** (1.98-3.90)	1.64** (1.11-2.43)	3.09** (2.21-4.32)	2.03** (1.37-2.99)
No	462 (65.35%)	Ref.	Ref.	Ref.	Ref.
<b>Salary not enough for family</b>					
Yes	311 (43.99%)	2.27** (1.67-3.10)	1.45 (0.97-2.16)	2.26** (1.66-3.07)	1.71** (1.15-2.56)
No	396 (56.01%)	Ref.	Ref.	Ref.	Ref.
<b>Satisfied with earning</b>					
No	455 (64.36%)	3.88** (2.80-5.36)	2.20** (1.39-3.48)	3.47** (2.51-4.78)	1.58 (0.99-2.51)
Yes	252 (35.64%)	Ref.	Ref.	Ref.	Ref.

\*P-value  $\leq 0.05$ ; \*\*P-value  $\leq 0.01$

Abbreviations: OR=Odds ratio; AOR=Adjusted odds ratio; CI= Confidence interval

<sup>§</sup>Anxiety was defined as individuals who scored  $\geq 10$ .

<sup>§§</sup>Depressive symptoms was defined as individuals who scored  $\geq 10$ .

Table 3: Association among social & financial stressors, anxiety and depressive symptoms among adult wage earners in Bangladesh.

Variables	n (%) (N=707)	Anxiety <sup>§</sup>		Depressive symptoms <sup>§§</sup>	
		OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
<b>Not getting any salary</b>					
Yes	215 (30.41%)	2.64** (1.86-3.75)	2.05** (1.40-3.01)	3.08** (2.17-4.38)	2.45** (1.68-3.57)
No	492 (69.59)	Ref.	Ref.	Ref.	Ref.
<b>Dealing with financial problem</b>					
Yes	188 (26.59%)	3.66** (2.47-5.42)	2.82** (1.83-4.36)	3.37** (2.31-4.91)	2.45** (1.61-3.72)
No	519 (73.41%)	Ref.	Ref.	Ref.	Ref.
<b>Increased price of daily necessary commodities</b>					
Yes	395 (55.87%)	1.52** (1.12-2.05)	1.23 (0.87-1.72)	1.64** (1.22-2.22)	1.44* (1.03-2.02)
No	312 (44.13%)	Ref.	Ref.	Ref.	Ref.
<b>Inadequate food supply</b>					
Yes	551 (77.93%)	4.24** (2.72-6.59)	2.27** (1.39-3.70)	4.00** (2.62-6.11)	2.19** (1.37-3.49)
No	156 (22.07%)	Ref.	Ref.	Ref.	Ref.
<b>Children's educational loss</b>					
Yes	208 (29.42%)	1.80** (1.28-2.53)	1.61** (1.10-2.36)	1.65** (1.18-2.31)	1.39 (0.96-2.03)
No	499 (70.58%)	Ref.	Ref.	Ref.	Ref.
<b>Upcoming financial crisis</b>					
Yes	563 (79.63%)	1.91** (1.32-2.77)	2.01** (1.34-3.01)	1.50* (1.04-2.16)	1.47 (0.99-2.19)
No	144 (20.37%)	Ref.	Ref.	Ref.	Ref.

\*P-value ≤0.05; \*\*P-value ≤0.01

Abbreviations: OR=Odds ratio; AOR=Adjusted odds ratio; CI= Confidence interval

<sup>§</sup>Anxiety was defined as individuals who scored ≥ 10.

<sup>§§</sup>Depressive symptoms was defined as individuals who scored ≥ 10.