ACHSM Asia-Pacific Journal of Health Management

RESEARCH ARTICLE

DOES EMPLOYMENT STATUS ASSOCIATE WITH PHYSICAL AND MENTAL HEALTH STATUS? A CROSS-SECTIONAL STUDY ON WORKING-AGE POPULATION

Nishad Nasrin[1], Kaniz Fatema[1], Fariha Farjana[1], Nurun Naher Moni[1], Md. Karimul Islam[2], Kaniz Fatima Mohsin[1] and Md. Shakil Ahmed[2]*

1. Economics Discipline, Social Science School, Khulna University, Bangladesh
2. BRAC Institute of Governance and Development, BRAC University, Dhaka, Bangladesh

Correspondence: karimulislamku@gmail.com

ABSTRACT

AIM:

The study aims to investigate the implication of employment status on individuals' mental and physical health status in Bangladesh.

METHOD:

Administering a semi-structured interview schedule, data were collected from 320 participants applying the multi-stage random sampling technique from the metropolitan area of Khulna city. An unpaired t-test was executed to observe the comparative scenario of mental health and socio-demographic conditions of different health-bearing classes. Also, logistic regression and the OLS model were executed to assess the association between employment status and physical and mental health status. BMI and Depression Anxiety Stress Scales 21 (DASS-21) were applied to measure the physical and mental health status, respectively.

RESULTS:

Results revealed that employed individuals were more exposed to physical and mental health disorders compared to unemployed individuals. The employed individuals were at higher risk of being unhealthy, and suffering from back pain and sickness than the unemployed individuals. Results suggested that the employed individuals were expected to get involved more in mental health risk behavior (0.766, $p < 0.01$); however, they possessed a lower extent of anxiety (-0.532, $p < 0.05$).

RECOMMENDATIONS:

Insurance coverage, motivational programs, change in lifestyle and workplace environment development can be initiated from both employer and government levels for better health outcomes.

KEYWORDS

employment, physical health, mental health, health risk behavior, Bangladesh

INTRODUCTION

Employment, within the context of its socio-economic dimension, is correlated with health as a cause and consequence of perceived health status. World Health Organization (WHO) recognizes and fixes employment as a socio-economic determinant of health, signifying that decent employment leads to upholding good physical and mental health status. Conversely, a less optimal job can also lead to poorer mental and physical health status [48,19].

Because of the recognized significance and pragmatism, a large body of literature has already evolved to explore the relationship between employment status and the state of health of workers. Available evidence shows that the health of the labor force is mediated through a host of factors related to employment status, for instance, type of employment, the physical environment of the workplace, quality of work, and employer-employee relationship [9 8]. Occupational stress as a risk factor for certain types of disease exposure is well documented by contemporary literature. This argument supports the view that the nature of employment determines the status of health [31, 30, 33, 51, 24]. Similarly, activity-limiting and accomplishment-limiting physical and mental health affect employment status [35]. There is another line of argument concentrating that people bearing sound physical and mental health are more capable of finding and retaining their jobs successfully [22].

Numerous studies explored the connection between employment status and perceived health status. The unemployed labor force is found to have a higher risk of experiencing degraded mental health compared to the employed labor force [39]. Besides, temporary employees had a higher risk of both non-optimal self-rated health and psychological distress as they suffered from job insecurity, low cash margin, and high job strain [55]. In contrast, employed individuals could secure a sound mental state through a wide range of refreshments, for instance, spending leisure time in physical activity. In this context, psychological contentment contributed much to being free of stress. The threatening concern of psychological work stress originated from occupational risk factors, which lead to numerous diseases and worsen health conditions [31]. It is concluded by literature [30, 33, 51] showing a similar physical health risk due to distress in work and occupational inconveniences. Diabetes, blood pressure, lipid fractions, smoking, alcohol consumption, physical inactivity, and cardiovascular disease risk factors were found to be more intensive among various occupations [30]. The common reasons for physical health distress among employees are a terrible workplace environment [50, 44], and occupational hazards [50, 28]. Irrespective of these reasons, employed people also suffered from particular diseases, like fibromyalgia [46], chronic obstructive pulmonary disease (COPD) [25], and vector disease transmission, like COVID-19 [5]. It is also argued that employment status can improve mental and physical health conditions. For example, employment and reemployment were strongly associated with better mental health status, whereas unemployment and joblessness were closely connected to poorer physical and mental health status [20]. In the UK, unemployed people suffered from mental disorders, and vocational schemes were recommended to overcome health problems [7].

To sum up, the available research substantiates that workers' physical and psychological wellbeing are largely determined by employment status. The observed association has many dimensions in different countries and contexts. However, the association of employment status with physical and mental health from the Bangladesh perspective is seldom studied. Considering this issue, the current study aims to investigate the hypothesis that employment does matter for the health status of individuals. Aligned with the research objective, the present study attempts to explore the research question of whether the employment status of an individual exerts any beneficial or detrimental effects on physical health status specifically in the context of Bangladesh Secondly, this research aims to explore the extent to which the employment status matters for one's mental health state.

METHODOLOGY

PARTICIPANTS AND SAMPLING

For the study, Khulna city (the third largest city) in Bangladesh [4] is purposely chosen because of the convenience of data collection. According to the census, the total population of Khulna City Corporation (KCC) was 975,000 in 2018 [23]. Also, the total number of working proprietorships was 1,55,550, where the male share is around 90 percent [15, District Report: Khulna). Data were collected from individuals with certain specifications: (i) must be a Bangladeshi citizen; (ii) living in KCC areas for more than two years; and (iii) must not be younger than 19

years of age. The participants were selected using a multi-stage random sampling technique. Firstly, four wards from the KCC were selected randomly; secondly, an inventory of employed and unemployed individuals was developed based on the information provided by the respective Ward Council Office; and finally, 40 individuals, each from employed and unemployed groups, were selected randomly. Therefore, the l sample size drawn from all four selected wards stood at 320. It is essential to consider that for a population of 100,000, the required sample size, at a 7% precision level with 95% confidence interval, is 204 [11]. However, this current study was unable to cover the representative data to generalize the findings, which is one of the limitations of this study.

DATA COLLECTION PROCEDURE

After a rigorous review of the existing literature, and specification of objectives and research questions, a semi-structured interview schedule (SSIS) in English was developed. The SSIS was pre-tested and finalized with minor editing. The SSIS was divided into four separate but integral parts; the first section contained questions about the socio-demographic background, i.e., age, gender, education, marital status, and family size; the second section accumulated data on anthropometric measures as well as information on the presence or absence of blood pressure, back pain, and other illnesses; the third section zoomed the lens in on employment status; and the final section considered the state of mental health of the participants. To evaluate the incidence of work-related stress on the mental health of the participants, the authors considered depression, anxiety, and stress as outcome variables. One member from each of the households was chosen for retrieving data on physical and mental health related indicators . The data were collected at the end of 2018. Depression Anxiety Stress Scales 21 (DASS-21) is instrumented for the assessment of mental health conditions. A face-to-face interview method was administered to collect data from the subjects.

DATA ANALYSIS

1. Descriptive statistics

The statistical data analysis covers descriptive statistics, including mean and standard deviation. The demographic and mental health-related variables are differentiated by physical health conditions, such as body mass index (BMI), blood pressure, and diabetes. Each health condition was grouped into two separate categories, i.e., healthy and unhealthy states. Precisely, the healthy or unhealthy state of households was determined by BMI [57]. Blood pressure was also recognized as one of the predictors of physical health in which one group has normal, and the other has abnormal blood pressure. Similarly, a class of households might suffer from diabetes, and the other class might have no prevalence of diabetes. This factor variable is also considered one of the prominent components of the health conditions of an individual. The study also presented the t-test results to evaluate the pattern of prevailing deviations between the two groups.

2. Econometric model specification

Multicollinearity and heteroscedasticity in the data were checked before conducting the econometric analysis to obtain robust results. After testing the prospective anomalies associated with data analysis, logistic and OLS regressions were executed to identify the pattern of incidence of the employment status on the participants' state of physical and mental health. STATA 14 was used to analyze the data.

In this study, BMI was classified using WHO-recommended categories of normal weight (18.5–24.9), overweight (25.0–29.9), obesity (≥30), and underweight (<18.5). The BMI scores were further categorized as healthy weight and unhealthy weight. Subjects with normal BMI scores were considered as healthy weight and subjects with extremely low BMI score (underweight) and extremely high BMI scores (i.e., Obese and overweight) were recognized as unhealthy weight. In the logistic regression, healthy weight took the value 1, and unhealthy weight contained the value 0. Conversely, the rest of the variables, i.e., blood pressure and back pain, take values equal to 1 if an individual suffers from the mentioned discomforts and 0 if otherwise. Moreover, sickness, another determining factor of health condition, took the value 1 if the subject experiences any illness that lasts for more than two days in the last three months and 0 if otherwise. Hence, in equation (i), Y_i is a dichotomous outcome variable (BMI), and the probability model can be specified as:

$$E(Y\_i)=(\llbracket \beta\_0+\Upsilon\_i \, D\_i+\Sigma\beta \rrbracket \_i \, x\_i+\varepsilon\_i) \qquad \text{(i)}$$

In equation (i), β_0 = Intercept or constant term, β_i = vector of the regression coefficient, x_i = vector of the explanatory variables which covers age, gender, educational status, monthly income, marital status, etc. Besides, Υ_i is the coefficient for the current employment status dummy of i^th individual, D is the vector of employment status (dummy), and ε_i = error term. For the rest of the dichotomous dependent variables, for instance, blood

pressure, back pain, and sickness, the set of explanatory variables remains the same and a logit model is executed to determine the probabilities.

To address the second research question, this paper evaluated the pattern of differences in health risk behavior. The health risk behavior was assessed covering multiple aspects, including smoking habit, involvement in physical exercise, sleep duration, and so on. In addition, the mental health status was also assessed carefully. Anxiety, depression, and stress were three outcome variables to evaluate the mental health status of employed and unemployed individuals. The data on health risk behavior and mental health related aspects were accumulated using the Likert scale. Here, under the broad heading of health risk, anxiety, depression, and stress, there are multitudinous questions. For instance, to determine the pattern of an individual's health risk, different aspects, i.e., smoking practice, screen use, and sleep inadequacy, were included. The answers for each of the sub-questions were also accumulated by using the idea of the Likert scale. Finally, unit-free standardized z scores were calculated. After that, this score was further used in the OLS regression model as an outcome variable. In contrast, the DASS-21, a clinical assessment for measuring mental health via depression, anxiety, and stress, was the short form of DASS-42 arrayed for mental health-related data collection. The entire SSIS consisted of three reliable 7-items scales, which were further rated on a 4-point Likert scale (0 = did not apply to me at all; 3 = applied to me most of the time). Finally, z scores were retrieved from those. These scores were finally used in the OLS models as outcome variables.

$$Z_i=\beta_0 〖+\alpha〗_i D_i+ 〖\Sigma\beta〗_i X_i+\omega_i \quad \text{..... (ii)}$$

Here, Z_i = z scores on the physical health risk behavior of the subjects. Here, β is the intercept term, X_i is the vector of explanatory variables and ω_i is the error term. In addition, D_i is the employment status of the subject (dummy). For the rest of the continuous z scores on mental health, the set of explanatory variables remained the same, and therefore, an OLS model was applied to determine the slope coefficients.

TABLE 1: LIST OF VARIABLES

Variable Name		Measurement Unit
Physical health	BMI	1 = Healthy weight, 0 = Unhealthy weight
	Blood pressure	1 = if the subject suffering from blood pressure and 0 = otherwise
	Back pain	1 = If subject has back pain and 0 = No back pain issues
	Frequency of sickness	1 = If respondent experience sickness for more than 2 days in last 3 months and 0 = otherwise
Mental health	Depression	Z score retrieve from DASS-21 scale
	Anxiety	Z score retrieve from DASS
	Stress	Z score retrieve from DASS
Health risk behavior	Smoking	Four-point Likert Scale further converted to Z score
	Screen use	Four-point Likert Scale further converted to Z score
	Sedentary behavior	Four-point Likert Scale further converted to Z score
	Unwillingness to do exercise	Four-point Likert Scale further converted to Z score
Socio-economic variables	Age	Years
	Gender	1 = male and 0 = Female
	Educational status	1 = up to SSC, 0 = Otherwise1 1 = Up to HSC, 0 = Otherwise 1 = Up to Undergraduate, 0 = Otherwise 1 = Masters and above, 0 = Otherwise
	Employment status	1 = Employed, 0 = Unemployed
	Marital status	1 = Married, 0 = Otherwise

	Family t ype	1 = Joint, 0 = Nuclear Family
	No. of children	Number of children
	Religion	1 = Muslim and 0 = Otherwise

Note: 1. Reference category

RESULTS

SOCIO-DEMOGRAPHIC, PHYSICAL AND MENTAL HEALTH VARIABLES

Table 2 shows that the socio-demographic characteristics, like age, were different for healthy and unhealthy; normal and abnormal blood pressure; and diabetic or non-diabetic strata. For instance, the healthy class has a lower age than the unhealthy group (4.947, $p < 0.05$). In the same way, the comparatively younger age class was devoid of blood pressure and diabetes. To illustrate, the mean age of the persons with diabetes was 46 years, around 12 years more than that of non-diabetic strata (-12.09, $p < 0.01$). Household income also varied, however, in different ways. The monthly income of the healthy (BDT 19,739) and non-diabetic (BDT 30,978) classes are less than that of the unhealthy (BDT 36,459) and diabetic groups (BDT 44,875). These differences are statistically significant ($p < 0.01$). Also, as a crucial composite of mental health, the health risk index revealed a significant difference between healthy and unhealthy (-3.379, $p < 0.01$) as well as diabetic and non-diabetic (1.690, $p < 0.01$) strata. The mean difference indicates that physical health status was often determined by mental health conditions. The depression index, a common symptomatic intensifier of mental health, establishes this relationship further by revealing a significant difference in average depression rate between the normal and hyper blood pressure classes. Usually, a lower degree of depression ensures normal blood pressure, and a higher degree results in the opposite—the mean difference in the depression index (-0.602, $p < 0.01$) satisfies this theorem.

RELATIONSHIP BETWEEN PHYSICAL HEALTH STATUS AND EMPLOYMENT

Table 3 presents the results of the association between physical health conditions and employment status as well as other socio-economic determinants. Physical health condition was classified into six binary variables (Table 3). To investigate the association, employment status, and other socio-demographic factors were assessed against each dependent variable, employing logistic regression. Results show that a negative association prevailed between healthy weight and employment ($p < 0.01$). The employed individuals were at a higher risk of being unhealthy compared to the unemployed. They also tend to suffer from back pain and sickness more than the jobless group ($p < 0.01$). This direct relationship indicates the physical inconveniences subject to being employed. Age may exacerbate physical health concerns in this context. Individuals lose control over their food, exercise, and body-fitness activities as they get older. Furthermore, it increases the risk of comorbidity in the aged population. Thus, higher age intensifies the suffering of high blood pressure ($p < 0.01$). On the other hand, higher age contributes to lessening the extent of back pain ($p < 0.01$) and headache ($p < 0.01$). The increased age was also predicted to improve the health status of individuals in terms of gaining a healthy weight ($p < 0.05$).

Males, compared to females, were found to be exposed more to having diabetes, however, males had less frequency of sickness ($p < 0.10$). Compared to the unmarried, the married were directly exposed to the risk of suffering from diabetes, back pain, and headache. Furthermore, these health risks were expected to reduce the probability of bearing a healthy weight ($p < 0.01$).

In the extended family, the participants were found to have higher blood pressure and serious headaches than those from the nuclear family. Therefore, if family size increases, the risk of intensive blood pressure is heightened, and the probability of having a healthy weight shrinks. However, an indirect association was also found significant between the family size and the frequency of sickness. In addition to the family size, the number of children was negatively associated with the healthy weight ($p < 0.05$). The higher the number of children, the greater the risk of suffering from abnormal blood pressure ($p < 0.05$) and diabetes ($p < 0.01$).

TABLE 2: STATISTICS OF DEMOGRAPHIC AND MENTAL HEALTH VARIABLES STRATIFIED BY PHYSICAL HEALTH

					Physical health condition						
	BMI				Blood Pressure				Diabetes		
Variables	Healthy (20.31%)	Unhealthy (79.69%)	MD		Normal (47.81%)	Abnormal (52.19%)	MD		Non-diabetic (85%)	Some diabetic (15%)	MD
Demographic characteristics	*Mean*	*Mean*	*H_0:0*		*Mean*	*Mean*	*H_0:0*		*Mean*	*Mean*	*H_0:0*
Age	33.523	36.184	4.947**		31.673	39.281	-7.608***		33.831	45.917	-12.09***
Family size	4.938	4.800	-0.079		4.549	5.084	-0.535		4.805	4.958	-0.153
Schooling year	15.384	15.623	-0.238		16.035	15.072	0.964***		15.257	17.375	-2.118***
Monthly income	19739	36459	25583***		34686	31574	3111		30978	44875	-13897***
Mental health-related variables											
Health risk[a]	3.391	-0.864	-3.379***		-0.310	0.284	-0.595		0.254	-1.44	1.690***
Anxiety index[a]	0.649	-0.165	-0.814		-0.088	0.081	-0.168		-0.044	0.250	-0.294
Depress index[a]	0.125	-0.032	-.0157		-0.314	0.288	-0.602**		-0.020	0.113	-0.133
Stress index[a]	-0.025	0.006	0.0317		-.0095	0.087	-0.184		-0.102	0.578	-0.680

Note: ***. p < 0.01; **. p < 0.05; *. p < 0.10*

Standardized value; MD. Mean difference

TABLE 3: ASSOCIATION BETWEEN PHYSICAL HEALTH AND EMPLOYMENT STATUS INCLUDING SOCIO-DEMOGRAPHIC DETERMINANTS

Variables	Physical health status					
	BMI Base: unhealthy	Blood pressure Base: normal	Diabetes Base: Non-diabetic	Backpain Base: low-never	Headache Base: low-never	Sickness Frequency Base: low-never
Current employment status (1= employed, 0 otherwise)	-4.725***	-0.839	--	4.281***	0.909	1.147*
	(0.984)	(0.536)	--	(1.078)	(0.620)	(0.645)
Age (years)	0.111**	0.104***	-0.0648	-0.202***	-0.113***	-0.0366
	(0.0555)	(0.0365)	(0.0609)	(0.0620)	(0.0431)	(0.0416)
Gender (1= male, 0 otherwise)	-0.321	0.237	1.198*	-0.580	0.122	-0.654*
	(0.446)	(0.355)	(0.663)	(0.525)	(0.369)	(0.397)
Religion (1= Muslim, 0 otherwise)	0.987***	1.557***	-0.252	-0.169	-0.829**	0.335
	(0.382)	(0.306)	(0.620)	(0.402)	(0.333)	(0.334)
Marital status (1= married, 0 otherwise)	-1.731***	-0.799**	1.668***	0.935**	1.428***	0.848**
	(0.384)	(0.339)	(0.608)	(0.407)	(0.334)	(0.343)
Family type (1= extended, 0 otherwise)	0.285	1.329***	-0.900	0.607	1.059***	-0.184
	(0.421)	(0.357)	(0.726)	(0.484)	(0.396)	(0.393)
Family size (number)	0.497**	0.438**	-0.496	-0.210	0.103	-0.577***
	(0.230)	(0.193)	(0.410)	(0.251)	(0.208)	(0.207)
No of children (number)	-0.914**	0.839**	2.204***	0.264	0.234	0.671
	(0.454)	(0.375)	(0.595)	(0.469)	(0.383)	(0.414)
Years of schooling =12	2.031**	1.510**	--	-1.153	-1.176	-1.973**
	(0.999)	(0.735)	--	(1.186)	(0.828)	(0.942)
Years of schooling =16	0.677	1.234**	-1.774**	-0.746	-0.0521	-1.489*
	(0.917)	(0.582)	(0.845)	(1.117)	(0.715)	(0.842)
Years of schooling=18	2.004*	0.639	--	-0.850	0.113	-1.759*
	(1.062)	(0.791)	--	(1.239)	(0.917)	(1.029)
Constant	-6.129***	-7.562***	3.792	8.957***	3.451**	6.301***
	(2.058)	(1.458)	(3.547)	(2.319)	(1.541)	(1.630)
Observations	320	320	134	320	320	320

Note: Standard errors are in parentheses ***. p < 0.01, **. p < 0.05, *. p < 0.1

Years of schooling affect physical health conditions both positively and negatively. For instance, individuals with 12 years of education, compared to the individuals with a secondary level of education (maximum ten years), positively relate to healthy weight ($p < 0.05$) and high blood pressure ($p < 0.05$). Similarly, individuals with 16 or more years of schooling enhanced the likelihood of gaining healthy weight ($p < 0.10$) and reduced the possibility of sickness ($p < 0.10$).

RELATIONSHIP BETWEEN MENTAL HEALTH STATUS AND EMPLOYMENT

Apart from physical health, mental health conditions were also investigated to see whether employment status and other demographic factors influence them. Table 4 displays the OLS result of this association. Mental health was divided into four classes, i.e., health risk, anxiety, depression, and stress, against the outcome variables.

TABLE 4: EMPLOYMENT AND SOCIO-DEMOGRAPHIC DETERMINANTS OF MENTAL HEALTH

Variables	Mental Health Status			
	Health risk	Anxiety	Depression	Stress
Current employment status (1= employed, 0 otherwise)	0.766***	-0.532**	0.0264	0.280
	(0.201)	(0.226)	(0.231)	(0.222)
Age (years)	-0.0266*	0.0169	-0.00850	0.00974
	(0.0135)	(0.0153)	(0.0156)	(0.0150)
Gender (1= male, 0 otherwise)	0.462***	0.183	0.0122	-0.0455
	(0.119)	(0.135)	(0.137)	(0.132)
Religion (1= Muslim, 0 otherwise)	-0.242**	-0.0342	0.0516	-0.0338
	(0.115)	(0.130)	(0.132)	(0.127)
Marital status (1= married, 0 otherwise)	0.792***	-0.0832	-0.0469	-0.100
	(0.121)	(0.136)	(0.139)	(0.133)
Family type (1= extended, 0 otherwise)	0.202	0.307**	0.296**	0.208
	(0.130)	(0.147)	(0.150)	(0.144)
Family size (number)	-0.269***	0.0173	-0.0294	0.0257
	(0.0703)	(0.0792)	(0.0808)	(0.0777)
No. of children (number)	-0.114	-0.300**	0.0378	0.0614
	(0.132)	(0.148)	(0.151)	(0.146)
Years of schooling =12	0.151	0.259	0.514	-0.0752
	(0.271)	(0.306)	(0.312)	(0.300)
Years of schooling =16	0.596***	0.342	0.360	-0.240
	(0.208)	(0.234)	(0.239)	(0.229)
Years of schooling=18	0.280	0.551*	0.318	-0.204
	(0.287)	(0.323)	(0.330)	(0.317)
Constant	0.610	-0.917*	-0.0669	-0.418
	(0.493)	(0.555)	(0.566)	(0.544)
Observations	320	320	320	320
R-squared	0.262	0.064	0.024	0.099

Note: Standard errors in parentheses

***. $p < 0.01$; **. $p < 0.05$; *. $p < 0.1$

The results show that employed people were 0.76 points more vulnerable to mental health risks than unemployed people ($p < 0.01$). They were, nevertheless, 0.53 points less anxious than the unemployed ($p < 0.05$). It is worth noting that the study found no evidence of a link between employment status and depression or stress. The increase in age was negatively associated with mental health risk behavior by 0.03 ($p < 0.10$) points. Similarly, the Muslim people were less exposed to health risks than other religious communities (-0.242, $p < 0.05$). This may happen because Muslim people usually refrain from health risk behaviors

such as smoking, drinking alcohol and so on due to religious bindings, which is evident in the literature [58]. However, male participants have more health risks than females (0.462, $p < 0.01$). Likewise, this risk was also higher for a married person than for an unmarried one (0.792, $p < 0.01$). The study also found that family size was negatively linked with health risk behavior (-0.269, $p < 0.01$). However, the extended family has a positive linkage with anxiety (0.307, $p < 0.05$) and depression (0.296, $p < 0.05$). On the other hand, the participants who had completed 16 years of formal education were (0.60 points) more prone to mental health risk behavior than the people with less than ten years of schooling ($p < 0.01$).

DISCUSSION

From the descriptive statistics, it is found that healthy weight was prevalent more among the younger age group. Also, lower-aged individuals experienced minimum cases of blood pressure and diabetes. It indicates the predominance of different sorts of diseases among aged adults in the context of Bangladesh. The prevalence of mental health risk was higher among individuals with diabetes. The current study successfully connects physical health status with mental health, which may be reciprocally related to each other. This finding is supported by the literature [38]. Consistent with the literature, the present study, for instance, observed an apparent relationship between depression rate (mental health component) and blood pressure (physical health component).

PHYSICAL HEALTH STATUS

Literature suggests that better health is the combination of better physical and mental health conditions of individuals [38], such as healthy weight, less stress, no depression, no anxiety, and less incidence of sickness. This study found a statistically significant negative association between health status (BMI) and employment status. Specifically, employed people were at higher risk of having unhealthy weight than unemployed people. However, the finding contradicts [14] and complies with the literature [35]. In addition, back pain was also positively interlinked with employment status, which complies with the findings of the literature [34]. As an employed person needs to stay at the office for a longer time compared to an unemployed person; hence, they are most likely to suffer from back pain. Moreover, if employed persons perform a desk job, they usually need to spend a long time on a chair. It may negatively affect their physical health, for instance, back pain, migraine, stress and so on. This finding is coherent with the literature [40]. In addition, the frequency of sickness was also higher for employed people, which indicates that if the persons are employed, then they can get less scope of physical mobility, for example, participation in physical exercise and taking sufficient rest for maintaining a healthy lifestyle. The findings are backed by literature [12]. It is prescribed that exercise is a medicine to fight against 26 different types of diseases [37].

The current study found the frequency of sickness is higher for employed individuals. Because, in the context of Bangladesh, due to heavy workload, the employed people often take food from restaurants (in most cases where hygiene is not usually practiced), and they get a limited scope of participation in physical exercise and entertainment. However, these findings contradict the literature [29]. Moreover, higher age levels intensify the risk of comorbidity as they lose physical strength to combat different diseases, including high blood pressure, diabetes, and so on [3, 40].

The male-headed households were more exposed to diabetes than the female-headed households, but surprisingly the case is reversed for the experience of frequency of sickness. According to the social structure of Bangladesh, males are breadwinners, and they are supposed to work outside their homes, therefore, they get less scope for physical exercise and refreshments. This may lead to an intensification in the probability of suffering from diabetes. However, in the study area, the male experiences less sickness than the female, which is contradictory to the findings of the literature [16]. It may happen due to the contextual differences between males and females. Also, the married person was more exposed to diabetes, back pain, headache, and frequency of sickness, which were also expected because, after marriage, responsibility surges along with a greater workload, which can be detrimental to an individual's health. This finding complies [27] however contradicts [56] the existing literature.

Similarly, the extended family (where with spouse and children, other members belong jointly) experienced higher blood pressure and headache compared to nuclear families (where usually husband, wife, and their children belong to). Having large family size involves in availing of less opportunity to feed all the members with nutritious food, which is common in the lower economic strata of the population in Bangladesh [13]. However, the

extended family size was negatively associated with the frequency of sickness. The probable reasons for such association might evolve from the scope of more entertainment, sharing, and caring with the extended family members. This opportunity may increase the mental and physical wellbeing of the family members to prevent diseases. The higher number of children increases the probability of gaining weight. One of the reasons may be that children generally insist on fast food intake [42]. Due to more availability and convenience, parents and family members often entertain their children with fast food. Similarly, this incidence heightens abnormal blood pressure and diabetes, and the finding also complies with the literature [26].

Moreover, education is a determining factor that contributes positively to upholding a healthy weight. Compared to individuals with a secondary level of education, individuals with 12 years of schooling possess healthier weight, at the same time, suffer from blood pressure, which is contradictory to the literature [27]. Besides, individuals having 16 or more years of schooling have a higher probability of gaining healthy weight and reduce the likelihood of frequency of sickness. It is expected that highly educated people can take care of their health and care for eating behavior which is supported by the literature [53].

MENTAL HEALTH STATUS

This study found interesting findings while linking current employment status with mental health risk behavior and anxiety. Employed individuals were more vulnerable to a higher mental health risk behavior than unemployed persons. Though, this finding contradicts the literature [14]. Conversely, employed individuals were less anxious than unemployed people. A parallel conclusion is drawn by another study [2]. In this respect, maintaining a healthy lifestyle is recommended to attain better mental health status [12]. In addition, employed people, compared to unemployed, generally become more aggressive at their work which is also evident [47]. The employed person usually depends on on-screen sources for entertainment and also their official tasks. They are more likely to smoke cigarettes, as observed in the literature [18]. Employment reduces the scope of physical exercises [52]. More surprisingly, the employed persons rarely visit a doctor for consultation when they feel sick; however, this finding contradicts the literature [1]. One of the reasons for getting such a finding can be time management, i.e., after an official workload, people may not be interested in investing more time to consult with a doctor.

In contrast, after getting a job, individuals often feel mentally relieved from searching for a livelihood option, which usually reduces anxiety. Individuals who are not yet employed become more anxious about getting a job and securing their future life because they may feel pressure from their social expectations, a predominant issue in the social settings of Bangladesh. It is observed that unemployed or job seekers often feel pressure from their social settings in Bangladesh [43]. However, the study does not find any form of association between employment status and depression.

Males get more involved in health risk behavior than females because, in the social context of Bangladesh, males are treated as breadwinners. Due to livelihood purposes, they usually leave the family back home and often smoke to relieve mental pressure, watch TV, or browse the internet. This may lead to performing/engaging in more aggressive behavior among employed individuals than among unemployed persons, which is consistent with the literature [59, 17]. Moreover, married individuals are more likely to be involved in health risk behavior which is also coherent with the findings of the literature [45]. Usually, married persons are more responsible for their families than unmarried individuals who can also contribute to an increasing burden on the former, thereby increasing health risk behaviors.

The study also found that family size was negatively linked with health risk behavior, i.e., an increased number of family members may contribute to a reduction in mental health-related ailments because of sharing among and caring for each other. However, surprisingly, the extended family has a positive association with anxiety and depression. In Bangladesh, an extended family usually faces more complex power dilemmas compared to a nuclear family, and that may trigger a higher prevalence of anxiety and depression. In addition, individuals with 16 years of formal education were more prone to mental health risk behavior than people with less than ten years of schooling. It may occur because after having a bachelor's degree, generally, people engage in income-generating activities which foster the probability of health risk behavior.

STRENGTHS AND LIMITATIONS

This current study explored the relationship between employment status and an individual's physical and

mental health status, which has rely been explored in the context of Bangladesh, more precisely, from the southwestern part of Bangladesh. In doing so, 320 respondents covering a small territorial area were selected; however, for generalization of the study findings, this number of observations may not be representative which is a limitation of this study. Also, the pattern of occupation may have a different impact on health status, which is not covered in this study. Moreover, for triangulation purposes, this study needs to be supplemented by a qualitative one that is absent here.

In contrast, this study followed a random sampling technique which is a strong part of this research. Moreover, based on the study findings, this study prescribes some policy options which can be undertaken by the individual, institutional, and government levels, which is another strength of this study. Apart from the small sample size, the study findings provided some reflection of the nexus between employment-mental-physical health status of the individuals, which can assist future research on this issue.

CONCLUSION AND POLICY RECOMMENDATIONS

The study aims to explore the pattern of associations between individuals' employment status with their mental and physical health. Both the mental and physical health status of employed and unemployed individuals should be prioritized since both outcome variables define individual well-being. Since the data revealed that employed individuals were more risk prone to physical and mental health issues compared to unemployed individuals. Besides, the employed individuals were more struggling with multitudinous negative health outcomes (unhealthy BMI, back pain, and sickness) than the unemployed individuals. Therefore, a call for cluster-specific policy is crucial. For instance, the employer should cover a reasonable health insurance premium to support the medical cost of their employee. In addition, improvement of the office environment, arrangement of good quality easily adjustable back supporting chairs, and secured job contracts can help reduce the vulnerability to physical and mental health disorders. On the other hand, national-level policy reform focusing on physical and mental wellbeing for all people irrespective of employment status should be prioritized. Based on the age structure, provision of free or partially free yearly routine checkups in public hospitals should be instrumentalized by the government. The data also claims that an additional schooling year increases anxiety which affects mental health. This issue requires further empirical analysis considering cross-country panel data collection. If the findings resemble our findings, then the government should think about how to reduce the academic stress of the students. The arrangement of motivational programs on television and other social networking sites can also be helpful. It will motivate people to understand the significance of a healthy lifestyle, dietary patterns, and physical activity. An intensive investigation of the impact of job strain on physical and mental health is suggested to assist the policy interventions in the context of Bangladesh. Finally, further research on this issue can be carried out using a larger sample size from a wider range of territorial coverage and applying both quantitative and qualitative methods of research, which will provide more robust results.

CONFLICTS OF INTEREST/COMPETING INTERESTS

The authors have no conflicts of interest to declare.

ETHICAL APPROVAL

Ethical issues are considered carefully throughout the study, and the ethical clearance committee of the Khulna University of Bangladesh approved this study through certificate (Ref. No. – KUECC–2021/05/19). Prior to data collection, participants' consent was taken, and they were well informed about the study objective, confidentiality, and other issues.

References

1. Åhs A, Burell G, Westerling R. Care or not care—that is the question: predictors of healthcare utilisation in relation to employment status. International journal of behavioral medicine. 2012 Mar;19(1):29-38.
2. Al Yassin A, Ouyang B, Temes R. Depression and anxiety following aneurysmal subarachnoid hemorrhage are associated with higher six-month unemployment rates. The Journal of neuropsychiatry and clinical neurosciences. 2017 Jan;29(1):67-9.
3. American Diabetes Association. Standards of medical care in diabetes—2016 abridged for primary care providers. Clinical diabetes: a publication of the American Diabetes Association. 2016 Jan;34(1):3.
4. Bari QH, Hassan KM, Haque R. Scenario of solid waste reuse in Khulna city of Bangladesh. Waste management. 2012 Dec 1;32(12):2526-34.
5. Becker AD, Grantz KH, Hegde ST, Bérubé S, Cummings DA, Wesolowski A. Development and dissemination of

infectious disease dynamic transmission models during the COVID-19 pandemic: what can we learn from other pathogens and how can we move forward? The Lancet Digital Health. 2020 Dec 7.
6. Berniell MI. The effects of working hours on health status and health behaviors. 15th IZA European Summer School in Labor Economics. 2012 Mar.
7. Boardman J. Work, employment and psychiatric disability. Advances in Psychiatric Treatment. 2003 Sep;9(5):327-34.
8. Boden LI, Spieler EA, Wagner GR. The changing structure of work: implications for workplace health and safety in the US. InFuture of Work Symposium, US Department of Labor 2016 Mar 7.
9. Burgard SA, Lin KY. Bad jobs, bad health? How work and working conditions contribute to health disparities. American Behavioral Scientist. 2013 Aug;57(8):1105-27.
10. Cai L, Kalb G. Health status and labour force participation: evidence from the HILDA data. Melbourne Institute of Applied Economic and Social Research; 2004 Mar.
11. Cochran WG. Sampling techniques, new york, 1953. Statistical Surveys E. Grebenik and CA Moser. 1963.
12. Cole JA, Tully MA, Cupples ME. "They should stay at their desk until the work's done": a qualitative study examining perceptions of sedentary behaviour in a desk-based occupational setting. BMC research notes. 2015 Dec;8(1):1-9.
13. D'Souza A, Tandon S. Intrahousehold nutritional inequities in rural Bangladesh. Economic Development and Cultural Change. 2019 Apr 1;67(3):625-57.
14. Drydakis N. The effect of unemployment on self-reported health and mental health in Greece from 2008 to 2013: a longitudinal study before and during the financial crisis. Social science & medicine. 2015 Mar 1;128:43-51.
15. Economic Census. District report 2013, Khulna. Available: http://203.112.218.65:8008/WebTestApplication/userfiles/Image/EcoCen13/DistReport/Khulna.pdf (Accessed on 19/07/2021)
16. Evans J, Frank B, Oliffe JL, Gregory D. Health, illness, men and masculinities (HIMM): a theoretical framework for understanding men and their health. Journal of Men's Health. 2011 Mar;8(1):7-15.
17. Ford K, Butler N, Hughes K, Quigg Z, Bellis MA, Barker P. Adverse childhood experiences (ACEs) in Hertfordshire, Luton and Northamptonshire. Liverpool: Liverpool John Moores University. 2016 May.
18. Golden SD, Perreira KM. Losing jobs and lighting up: Employment experiences and smoking in the Great Recession. Social Science & Medicine. 2015 Aug 1;138:110-8.
19. Grzywacz JG, Dooley D. "Good jobs" to "bad jobs": replicated evidence of an employment continuum from two large surveys. Social science & medicine. 2003 Apr 1;56(8):1749-60.
20. Hergenrather KC, Emmanuel D, McGuire-Kuletz M, Rhodes SD. Employment as a social determinant of health: Exploring the relationship between neurocognitive function and employment status. Rehabilitation Research, Policy, and Education. 2018 Jun 1;32(2):101-22.
21. Hicks GE, Simonsick EM, Harris TB, Newman AB, Weiner DK, Nevitt MA, Tylavsky FA. Cross-sectional associations between trunk muscle composition, back pain, and physical function in the health, aging and body composition study. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences. 2005 Jul 1;60(7):882-7.
22. Kalisch R, Baker DG, Basten U, Boks MP, Bonanno GA, Brummelman E, Chmitorz A, Fernàndez G, Fiebach CJ, Galatzer-Levy I, Geuze E. The resilience framework as a strategy to combat stress-related disorders. Nature human behaviour. 2017 Nov;1(11):784-90.
23. Khulna City Corporation. Khulna, Bangladesh Metro Area Population 1950-2021, 2018. Available: https://www.macrotrends.net/cities/20124/khulna/population (Accessed 19/07/2021).
24. Landsbergis PA, Dobson M, Koutsouras G, Schnall P. Job strain and ambulatory blood pressure: a meta-analysis and systematic review. American journal of public health. 2013 Mar;103(3):e61-71.
25. Lee AL, Harrison SL, Goldstein RS, Brooks D. An exploration of pain experiences and their meaning in people with chronic obstructive pulmonary disease. Physiotherapy theory and practice. 2018 Oct 3;34(10):765-72.
26. Lee H, Wildeman C, Wang EA, Matusko N, Jackson JS. A heavy burden: the cardiovascular health consequences of having a family member incarcerated. American journal of public health. 2014 Mar;104(3):421-7.
27. Liu SY, Buka SL, Linkletter CD, Kawachi I, Kubzansky L, Loucks EB. The association between blood pressure and years of schooling versus educational credentials: test of the sheepskin effect. Annals of Epidemiology. 2011 Feb 1;21(2):128-38.

28. Mette J, Garrido MV, Harth V, Preisser AM, Mache S. Healthy offshore workforce? A qualitative study on offshore wind employees' occupational strain, health, and coping. BMC Public Health. 2018 Dec;18(1):1-4.
29. Mewes R, Rief W, Brähler E, Martin A, Glaesmer H. Lower decision threshold for doctor visits as a predictor of health care use in somatoform disorders and in the general population. General hospital psychiatry. 2008 Jul 1;30(4):349-55.
30. Mohsen A, Hakim S. Workplace stress and its relation to cardiovascular disease risk factors among bus drivers in Egypt. Eastern Mediterranean Health Journal. 2019;25(12):878-86.
31. Mirmohammadi SJ, Taheri M, Mehrparvar AH, Heydari M, Kanafi AS, Mostaghaci M. Occupational stress and cardiovascular risk factors in high-ranking government officials and office workers. Iranian Red Crescent Medical Journal. 2014 Aug;16(8).
32. Niedzwiedz CL, Knifton L, Robb KA, Katikireddi SV, Smith DJ. Depression and anxiety among people living with and beyond cancer: a growing clinical and research priority. BMC cancer. 2019 Dec;19(1):1-8.
33. Nyberg ST, Fransson EI, Heikkilä K, Alfredsson L, Casini A, Clays E, De Bacquer D, Dragano N, Erbel R, Ferrie JE, Hamer M. Job strain and cardiovascular disease risk factors: meta-analysis of individual-participant data from 47,000 men and women. PloS one. 2013 Jun 20;8(6):e67323.
34. Oberlinner C, Yong M, Nasterlack M, Pluto RP, Lang S. Combined effect of back pain and stress on work ability. Occupational Medicine. 2015 Mar 1;65(2):147-53.
35. Pacheco G, Page D, Webber DJ. Mental and physical health: re-assessing the relationship with employment propensity. Work, employment and society. 2014 Jun;28(3):407-29.
36. Patel V, Chisholm D, Parikh R, Charlson FJ, Degenhardt L, Dua T, Ferrari AJ, Hyman S, Laxminarayan R, Levin C, Lund C. Addressing the burden of mental, neurological, and substance use disorders: key messages from Disease Control Priorities. The Lancet. 2016 Apr 16;387(10028):1672-85.
37. Pedersen BK, Saltin B. Evidence for prescribing exercise as therapy in chronic disease. Scandinavian journal of medicine & science in sports. 2006 Feb;16(S1):3-63.
38. Penedo FJ, Dahn JR. Exercise and wellbeing: a review of mental and physical health benefits associated with physical activity. Current opinion in psychiatry. 2005 Mar 1;18(2):189-93.
39. Pharr JR, Moonie S, Bungum TJ. The impact of unemployment on mental and physical health, access to health care and health risk behaviors. International Scholarly Research Notices. 2012;2012.
40. Pradhan A, Shrestha N. Working hour and its impact on backache from gender perspective. Dhaulagiri Journal of Sociology and Anthropology. 2010;4:235-46.
41. Qaseem A, Wilt TJ, Rich R, Humphrey LL, Frost J, Forciea MA, Clinical Guidelines Committee of the American College of Physicians and the Commission on Health of the Public and Science of the American Academy of Family Physicians*. Pharmacologic treatment of hypertension in adults aged 60 years or older to higher versus lower blood pressure targets: a clinical practice guideline from the American College of Physicians and the American Academy of Family Physicians. Annals of internal medicine. 2017 Mar 21;166(6):430-7.
42. Quick VM, Byrd-Bredbenner C, Neumark-Sztainer D. Chronic illness and disordered eating: a discussion of the literature. Advances in Nutrition. 2013 May;4(3):277-86.
43. Rafi M, Mamun MA, Hsan K, Hossain M, Gozal D. Psychological implications of unemployment among Bangladesh Civil Service job seekers: a pilot study. Frontiers in psychiatry. 2019 Aug 12;10:578.
44. Ramli AH. Work environment, job satisfaction and employee performance in health services. Business and Entrepreneurial Review. 2019 Aug 24;19(1):29-42.
45. Reczek C, Pudrovska T, Carr D, Thomeer MB, Umberson D. Marital histories and heavy alcohol use among older adults. Journal of health and social behavior. 2016 Mar;57(1):77-96.
46. Reisine S, Fifield J, Walsh S, Forrest DD. Employment and health status changes among women with fibromyalgia: A five-year study. Arthritis Care & Research. 2008 Dec 15;59(12):1735-41.
47. Restubog SL, Zagenczyk TJ, Bordia P, Bordia S, Chapman GJ. If you wrong us, shall we not revenge? Moderating roles of self-control and perceived aggressive work culture in predicting responses to psychological contract breach. Journal of Management. 2015 May;41(4):1132-54.
48. Ross CE, Mirowsky J. Does employment affect health?. Journal of Health and social Behavior. 1995 Sep 1:230-43.
49. Ruhm CJ. Healthy living in hard times. Journal of health economics. 2005 Mar 1;24(2):341-63.
50. Rushton L. The global burden of occupational disease. Current environmental health reports. 2017 Sep;4(3):340-8.

51. Sara JD, Prasad M, Eleid MF, Zhang M, Widmer RJ, Lerman A. Association between Work-Related stress and coronary heart disease: a review of prospective studies through the job strain, Effort-Reward balance, and organizational justice models. Journal of the American Heart Association. 2018 Apr 27;7(9):e008073.
52. Thorp AA, Healy GN, Winkler E, Clark BK, Gardiner PA, Owen N, Dunstan DW. Prolonged sedentary time and physical activity in workplace and non-work contexts: a cross-sectional study of office, customer service and call centre employees. International journal of behavioral nutrition and physical activity. 2012 Dec;9(1):1-9.
53. Variyam JN, Blaylock JR, Smallwood DM, Basiotis PP. USDA's Healthy Eating Index and nutrition information. 1998.
54. Velten J, Lavallee KL, Scholten S, Meyer AH, Zhang XC, Schneider S, Margraf J. Lifestyle choices and mental health: a representative population survey. BMC psychology. 2014 Dec;2(1):1-1.
55. Waenerlund AK, Virtanen P, Hammarström A. Is temporary employment related to health status? Analysis of the Northern Swedish Cohort. Scandinavian journal of public health. 2011 Jul;39(5):533-9.
56. Williams L, Zhang R, Packard KC. Factors affecting the physical and mental health of older adults in China: the importance of marital status, child proximity, and gender. SSM-population health. 2017 Dec 1;3:20-36.
57. Little M, Humphries S, Patel K, Dewey C. Factors associated with BMI, underweight, overweight, and obesity among adults in a population of rural south India: a cross-sectional study. BMC obesity. 2016 February; 3:1-13.
58. Sinha JW, Cnaan RA, Gelles, RJ. Adolescent risk behaviors and religion: Findings from a national study. Journal of adolescence. 2007 April; 30(2):231-249.
59. Bowen P, Edwards P, Lingard H, Cattell K. Workplace stress, stress effects, and coping mechanisms in the construction industry. Journal of Construction Engineering and Management. 2014 Mar 1;140(3):04013059.