

## MENTAL HEALTH STATUS OF TYPE 2 DIABETIC PATIENTS ATTENDING A SELECTED TERTIARY LEVEL HOSPITAL IN BANGLADESH

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**Abstract:** This study aimed to identify the mental health status of type 2 diabetic patients attending a selected tertiary-level hospital in Bangladesh. This cross-sectional study was conducted at Dhaka Medical College and Hospital from September to December 2019. A total of 135 diabetic patients who attended the hospital during the study period were selected using a convenience sampling technique. The data were collected using a semi-structured questionnaire by face-to-face interview. The mean age of the respondents was 58.1±11.6 years. More than three-tenths (36.3%) of the respondents had diabetes for 1-2 years, and little above half (51.1%) of the respondents had diabetes complications. About 75.4% had cardiovascular complications, and 31.1% of the respondents mentioned that their current diabetes management was lifestyle modification oral medications. About 77% of the respondents suffered from other diseases, and most of them suffered from hypertension (47.1%). The age, educational level, family monthly income, duration of suffering, diabetes complication, familial history of mental illness, and suffering from other diseases were found significantly associated with mental illness. The findings of our study reported that more than one-third of the respondents had a moderate level of depression, a little below two-fifths of the respondents had an average level of anxiety, and 8.9% of them had a severe level of stress.

**Keywords:** Diabetes Mellitus, Mental Health, Public Health, Hospital, Bangladesh

### Introduction

The prevalence of Diabetes Mellitus (DM) has risen dramatically over the past two decades. It is estimated that 537 million adults (20-79 years) are living with diabetes - 1 in 10. This number is predicted to rise to 643 million by 2030 and 783 million by 2045<sup>1</sup>. Bangladesh is an example of a low-resource country, where the current prevalence of diabetes is estimated to be 6.3%.

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This may be underreported because the prevalence is higher in other South East Asian Countries, such as 9.1% in India and 14.8% in Mauritius<sup>1</sup>. Several studies have shown that a range of social determinants, including poor health literacy, are critical in the epidemiologic transition of disease outcomes<sup>2,3,4</sup>. A growing body of evidence from knowledge, attitude, and practice (KAP) studies have supported the need for greater awareness of prevention, diagnosis, risk factor control, and disease management<sup>5,2,4</sup>. For example, a KAP study from India has shown that educated and diligent individuals with DM self-care gain longer-term control<sup>3</sup>. Most studies of KAP related to diabetes have focused on people with diagnosed DM or newly diagnosed DM attending urban clinics or hospitals<sup>2,3,5</sup>.

Depression is a serious and common illness that negatively affects how people feel, think, and act. People with depression might also present with anxiety, a feeling of tension and worried thoughts combined with physical changes and stress, a relationship between a person and their environment that is described to be exceeding their resources, thereby endangering their wellbeing<sup>6</sup>. These negative emotions affect the quality of life in all aspects, including sleep patterns, diet, education, career, relationship, and health, involving friends, family, and colleagues. In 2015, the WHO estimated the prevalence of depression and anxiety disorders to be around 4.4% and 3.6%, respectively<sup>7</sup>. In the last decade, several studies have reported the prevalence and risk factors of diabetes both in urban and rural areas of Bangladesh<sup>8,9,10</sup>. Bangladesh is an example of a low-resource country, where the current prevalence of diabetes is estimated to be 9.2%<sup>11</sup>. This study aims to identify the mental Health Status of Type 2 diabetic patients attending a selected tertiary-level hospital in Bangladesh.

### Methodology

#### Research Setting and Design:

This study was a cross-sectional study conducted at Dhaka Medical College and Hospital (DMCH), a public medical college and hospital located in Dhaka, the capital city of Bangladesh.

#### Study Period and Population:

From September 2019 to December 2019, three months were employed doing the study. All type 2 diabetes patients who visited Dhaka Medical College Hospital (DMCH) during the study's time frame made up the study population.

#### Selection Criteria, Sample Size, and Sampling Technique:

A total of 135 diabetic patients who attended DMCH during the study period were selected using a convenience sampling technique. We selected only the type-2 diabetic patients that attended DMCH during the study period and were willing to participate in this study. However, we excluded the patients that were severely ill.

#### Data Collection Procedure and Analysis:

The questionnaire used in this study was pre-tested before the data collection in another hospital. The data were collected using a semi-structured questionnaire by face-to-face interview. Verbal informed consent was taken before starting the data collection. After collecting data, all interviewed questionnaires were checked for completeness, correctness, and internal consistency to exclude missing or inconsistent data, and those were discarded. Corrected data was entered into Statistical Package for Social Sciences (SPSS) statistical software version 20 for the analysis.

#### Ethical considerations:

The study protocol was submitted to the Research Ethics Committee of the Faculty of Allied Health Sciences of Daffodil International University (REC-FAHS) for ethical clearance. It was approved by the committee. Notably, the anonymity of the study participants and the privacy of the information were strictly maintained.

#### Results

Table 1 showed that about 53.3% of the respondents were in the age group 46-56 years, and the mean age of the respondents was  $58.1 \pm 11.6$  years. About 71.9% of the respondents were male, and the remaining respondents were females (28.1%). More than half (51.9%) of the respondents lived in urban areas, and the remaining respondents lived in rural areas (48.1%). The majority of the respondents (68.1%) were married, and the rest were unmarried (31.9%). Mostly, the participants (80.7%), were Muslims. About 26.7% of the respondents had a primary level of education, followed by no formal education (23.7%), 20.0% of the respondents had a secondary school level of education, and 16.3% had higher secondary. Only 8.1% of them had bachelor's degrees & above. More than half (54.8%) of the respondent's family monthly income was 31000-41000 BDT, followed by 28.9% who had <30000 BDT. Thus, the mean monthly income of the respondent's family was  $38000.60 \pm 2100.8$  BDT.

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Table 1: Distribution of the respondents according to Socio-demographic Characteristics (n=135)

Variables	Frequency	Percent
<b>Age (years)</b>		
<45	28	20.7
46-56	72	53.3
57 & above	35	26.0
Mean± SD	58.1±11.6	
<b>Sex</b>		
Male	97	71.9
Female	38	28.1
<b>Residence</b>		
Urban	70	51.9
Rural	65	48.1
<b>Marital Status</b>		
Married	92	68.1
Unmarried	43	31.9
<b>Religion</b>		
Muslim	109	80.7
Non-Muslim	26	19.3
<b>Educational level</b>		
No formal education	32	23.7
Primary	36	26.7
Secondary	27	20.0
Higher Secondary	22	16.3
Bachelor & above	11	8.1
Others	7	5.2
<b>Family monthly income (BDT)</b>		
<30000	39	28.9
31000-41000	74	54.8
42000 & above	22	16.3
Mean± SD	38000.60±2100.8	

According to Table 2, 36.3% of respondents had diabetes for 1-2 years, followed by 27.4% for 3–4 years, and 19.3% for more than 4 years. A little over half of the respondents (51.1%) had complications from their diabetes. 75.4% of them had heart-related issues, 63.8% had diabetic nephropathy, 56.5% had diabetic retinopathy, 42.0% had diabetic foot ulcers, and 15.9% had additional issues. A little over 31.1% of those surveyed said that their current diabetes management consisted of lifestyle changes plus oral medications, 22.2% said it consisted of lifestyle changes plus oral medications plus insulin, 17.0% said it consisted of lifestyle changes plus insulin, 15.6% said it consisted of lifestyle changes, and 14.1% said it consisted of compliance with diabetes management. About 53.3% of them had a familial history of depression, anxiety, or stress. About 77% of the respondents were suffering from other diseases/illnesses (comorbidity). Most of them suffered from hypertension (47.1%).

Table 2: Distribution Based on Pattern of Diabetes (n=135)

Variables	Number	Percentage
<b>Duration of Diabetes</b>		
<1 year	23	17.0
1-2 years	49	36.3
3-4 years	37	27.4
>4 years	26	19.3
<b>Diabetes Complication</b>		
Yes	69	51.1
No	66	48.9
<b>If yes, what type of complication do you have? (Multiple Response)</b>		
Diabetic retinopathy	39	56.5
Diabetic nephropathy	44	63.8
Cardiovascular complications	52	75.4
Diabetic foot ulcers/amputation	29	42.0
Others	11	15.9
<b>Current diabetes management</b>		
Lifestyle modifications	21	15.6
Lifestyle modifications + oral medications	42	31.1
Lifestyle modifications + oral medications + insulin	30	22.2
Lifestyle modifications + insulin	23	17.0
Compliance with diabetes management	19	14.1
<b>Familial history of depression, anxiety, or stress</b>		
Yes	72	53.3
No	63	46.7
<b>Currently suffering from other disease/illness (comorbidity)</b>		
Yes	104	77.0
No	31	23.0
<b>If yes what type? (Multiple Response)</b>		
Cerebrovascular diseases (CVD)	8	7.7
Shoulder & Joint pain	6	5.8
Chronic kidney disease	5	4.8
Decrease vision	7	6.7
Hypertension	49	47.1
Cardiovascular Disease	11	10.6
Hypothyroidism	22	21.2
Dyslipidemia	7	6.7
Ischemic heart disease	8	7.7
Pulmonary TB	7	6.7
Others	9	8.7

Table 3 shows that about 36.3% of the respondents had a moderate level of depression, followed by 25.2% who had a mild level, 17.0% had a severe level, 8.2% had an extremely severe level, and 13.3% of them had a normal level of depression. About 39.3% of the respondents had a moderate level of anxiety, followed by 26.7% who had a severe level, 14.8% had an extremely severe level, 14.1% had a mild level, and 5.1% had a normal level of anxiety. Finally, about 36.2% of the respondents had a normal level of stress, followed by 30.4% who had a moderate level, 21.5% had a mild level, 8.9% had a severe level, and 3.0% of them had an extremely severe level of stress.

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Table 3: Depression, Anxiety and Stress Scale (DASS) (n=135)

Variables	Depression	Anxiety	Stress
Normal	18(13.3)	7(5.1)	49(36.2)
Mild	34(25.2)	19(14.1)	29(21.5)
Moderate	49(36.3)	53(39.3)	41(30.4)
Severe	23(17.0)	36(26.7)	12(8.9)
Extremely severe	11(8.2)	20(14.8)	4(3.0)
Total	135 (100.0)	135(100.0)	135(100.0)

Table 4 showed that the age of the respondents, educational level, family monthly income, duration of suffering, diabetes complication, familial history of depression, anxiety or stress, and suffering from other diseases were found significantly associated ( $P<0.05$ ) with the level of depression. However, the gender and residence were found not significant ( $P>0.05$ ). On the other hand, the age, residence, educational status, family monthly income, duration of suffering, diabetes complication, familial history of depression, anxiety or stress, and suffering from other diseases were found significantly associated ( $P<0.05$ ) with the level of anxiety. However, the gender was found insignificant ( $P>0.05$ ). On the other hand, the age, gender, educational status, family monthly income, duration of suffering, diabetes complication, familial history of depression, anxiety or stress, and suffering from other diseases were found significantly associated ( $P<0.05$ ) with the level of stress. Nevertheless, the residence was insignificant ( $P>0.05$ ).

Table 4: Association between DAS Status and Other variables (n=135)

Variables	Depression	Anxiety	Stress
		P-Value	
Age (years)	0.001	0.031	0.000
Gender	0.432	0.111	0.002
Residence	0.301	0.001	0.244
Educational level	0.002	0.001	0.001
Income	0.001	0.011	0.006
Duration of suffering	0.001	0.021	0.012
Diabetes complication	0.012	0.004	0.001
Familial history of depression, anxiety, or stress	0.001	0.020	0.003
Suffering from other diseases	0.011	0.031	0.015

### Discussion

This study aims to identify the mental health status of type 2 diabetic patients attending a selected tertiary-level hospital in Bangladesh. In the present study, the mean age of the respondents was  $58.10 \pm 11.60$  years, and 72.0% of the respondents were male. There has been a growing interest in the study of psychological distress and mental disorders in diabetes. Some epidemiological studies have found higher prevalence rates of depression and anxiety disorders in people with diabetes compared with the general population<sup>12</sup>. About 36.3% of the respondents had a moderate level of depression. About 39.3% of the respondents had a moderate level of anxiety. Finally, 8.9% had a severe level, and 3.0% of them had an extremely severe stress level. Diabetes is considered one of the most

psychologically demanding chronic medical illnesses because it requires strict daily treatment<sup>13</sup>. Psychiatric comorbidity can result in challenging clinical courses because it may affect adherence to medication and self-care regimes<sup>14</sup>.

The age of the diabetic patients, educational level, family monthly income, duration of suffering, diabetes complication, familial history of depression, and suffering from other diseases were found significantly associated with the level of depression, anxiety, and stress. People with diabetes are 2 to 3 times more likely to have depression than people without diabetes. Unfortunately, only 25% to 50% of people with diabetes who have depression get diagnosed and treated. But therapy, medicine, or both treatment is usually very effective. And without treatment, depression often gets worse, not better<sup>15</sup>. One of the most serious mental health comorbidities associated with diabetes is a major depressive disorder. The major depressive disorder affects 6.7% of US adults 18 years or older and is more likely to be diagnosed in US adults with diabetes<sup>16</sup>. Overall, rates of depression among individuals with type 1 or type 2 diabetes across the lifespan are two times greater than in the general population<sup>17</sup>. From economic, public health, and humanitarian perspectives, identifying and treating mental health comorbidities among patients with diabetes should be a priority. There is a need to create a significant opportunity to integrate mental health screening and treatment into multidisciplinary team diabetes care, improve patient and public health outcomes, and help decrease healthcare expenditures.

#### Conclusion and Recommendations

The findings of this study reported that more than one-third of the respondents had a moderate level of depression, little below two-fifths of the respondents had an average level of anxiety, and 8.9% of them had a severe level of stress. It further reveals that the age of the respondents, educational level, family monthly income, duration of suffering, diabetes complication, familial history of depression, and suffering from other diseases were found significantly associated with the level of depression, anxiety, and stress. There is a high prevalence of depression among the respondents of this study, more knowledge and awareness should be given to the patients regarding the effective diabetes self-management, create a significant opportunity to integrate mental health screening and treatment into multidisciplinary team diabetes care to improve patient and public health outcomes and to help decrease health care expenditures. Also, a further study with a larger sample size is recommended in this particular area of research.

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