

Depression in Diabetes: A Cross Sectional Survey among Patients Attending Diabetes Clinics

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ABSTRACT

Background: Diabetes is a chronic disease that affects millions of people. Depression is reported to be a common comorbidity in diabetic patients. Depression in diabetic patients is associated with worse glycemic control, and increased risk of diabetes complications, including cardiovascular disease, neuropathy, and retinopathy

Study design: It is a cross-sectional study conducted at Department of Medicine, Amna Inayat Medical College, Lahore for the duration of six months from April 2022 to September 2022.

Material and Methods: The study included 150 diabetic patients who visited department of endocrinology and metabolism Services Hospital Lahore. There were 70 males and 80 females included in the study. 66 patients were in the range of 20-40 years and 84 were older than 40 years. 95 of them were illiterate while 55 were educated.

Results: Total numbers of patients enrolled in this study were 150; among them 69 were type 1 diabetics while 81 had type 2 diabetes. Among type 1 diabetes 29 (42%) out of 69 patients were diagnosed with signs of depression whereas among type 2 diabetes the 40 (49%) patients were diagnosed with signs of clinical depression. It was found that there were 81 patients (54%) who were not diagnosed with any signs of clinical depression. Whereas 38 patients were suffering from mild form of depression.

Conclusion: It was found that 46% of the diabetic patients suffered from depression. There were 54% diabetic patients that had no clinical signs of depression. There is a need to assess the signs of depression among diabetes patients. It can be an obstacle for the proper treatment of patient as such patients show non-adherence to their diabetes treatment because of poor mental health state.

Keywords: Diabetes mellitus, depression and the blood glucose level

INTRODUCTION

Diabetes is a chronic disease that affects millions of people worldwide and its prevalence is increasing rapidly. Type 1 diabetes is an inborn disease that typically appears in infancy or adolescence.¹ Type 2 diabetes is the prevalent type, making up approximately 90% of all cases. Depression is reported to be a common comorbidity in diabetic patients, and it is estimated that up to 30% of diabetic patients experience depression. Depression in diabetic patients is associated with worse glycemic control, and increased risk of diabetes complications, including cardiovascular disease, neuropathy, and retinopathy²⁻³. It is a major public health concern globally and is projected to be the second leading cause of disability by the year 2022. Multiple studies has been conducted to understand the relationship between diabetes and depression. Diabetes patients have a higher risk of developing depression than those who do not have the disease. According to some studies⁴⁻⁵, up to one-third of people with diabetes may experience depression symptoms at some point in their lives. The prevalence of depression in diabetic patients varies widely across different populations, with some studies reporting a prevalence as high as 45%. The prevalence of depression in diabetic patients in Pakistan is not well documented, and the few available studies have reported a wide range of prevalence rates, ranging from 8.7% to 58.3%. The variability in reported prevalence rates may be due to differences in the population studied, the screening tools used, and the diagnostic criteria for depression⁶⁻⁸. But besides this, depression in diabetics frequently remains undiagnosed and untreated. The relationship between depression and glycemic control in diabetic patients is bidirectional, with depression leading to poor glycemic control, and poor glycemic control leading to depression. Depression can worsen diabetes symptoms and increase the risk of complications such as heart disease and stroke. According to a study depression, is affiliated with a 60% enhanced risk of type 2 diabetes. Some other meta-analysis⁹ discovered that depressed individuals were 37% more likely to develop type 2 diabetes mellitus. The study aimed to study the several factors linked to an increased risk of depression in diabetic

patients. The study emphasizes the significance of treating depression in diabetics. Medical practitioners could provide intervention programs and assistance to manage the diabetes care strategies by diagnosing those who are at risk of developing depressive disorder.

MATERIAL AND METHODS

The study included 150 diabetic patients who visited the Department of Medicine, Amna Inayat Medical College, Lahore for the duration of six months from April 2022 to September 2022. The patients were diagnosed and categorized into type 1 and type 2 diabetes in accordance to the guideline provided by American Diabetes Association. Total 150 patients were selected for the study. There were 70 males and 80 females included in the study. 66 patients were in the range of 20-40 years and 84 were older than 40 years. 95 of them were illiterate while 55 were educated. The incidence of depression was evaluated using the Patient Health Questionnaire (PHQ)-9¹⁰ scale. Many researchers have used the PHQ-9 scale to assess depression particularly in primary care. The PHQ-9 scale has a high internal consistency, 88% sensitivity, and 88% selectivity for serious forms of depression. According to the inclusion criteria following patients were included in the study:

- The patients diagnosed with type 1 and type 2 diabetes mellitus
- The patients of age 20 years or above
- The patients who were able to communicate alone

According to the exclusion criteria following patients were excluded from the study:

- The individuals with different types of diabetes
- The patients younger than 20 years

The characteristics of the study population were summed up by using descriptive and inferential statistics. Relying on the PHQ-9, the depressive prevalence was measured. Findings from logistic regression assessments were used to pinpoint elements linked to a greater likelihood of developing depression. The hospital's

ethical and review board gave the approval of the study. Prior to participating in the study, each participant gave their written consent.

RESULTS

Most of the students belonged to middle class while 35 belonged to upper class. The BMI of patients was greater than 25 in case of 105 patients. There were 69 patients that were suffering from type 1 diabetes mellitus while 81 had diabetes type 2 as shown in table no.1.

Table 1: Demographic features of patients

Demographic features	No. of patients n=150
Gender (male/female)	70,80
Age (20-40),(40-60)years	66,84
Education	
Illiterate	95
Educated	55
Financial status	
Upper class	35
Middle class	95
Lower class	20
BMI <25, >25	45,105
Diabetes	
Type 1 diabetes mellitus	69
Type 2 diabetes mellitus	81

After performing patient health questionnaire scale 9, depression was assessed among diabetes patients. It was found that there were 81 patients (54%) who were not diagnosed with any sign of clinical depression whereas 38 patients were suffering from mild form of depression. 21 patients (14%) suffered from moderate depression and 10 (6%) of them reported about severe form of depression and were taking counselling sessions regularly as shown in table no.2.

Table 2: Occurrence and severity of depression among patients after analysis of patient health questionnaire scale 9

Severity of depression	No. of patients	Percentage
Patients with no symptoms of depression	81	54%
Mild depression	38	25%
Moderate depression	21	14%
Severe depression	10	6%

The severity of depression was analyzed as per type 1 and type 2 patients it was found that most of the patients from type 1 diabetes mellitus were not diagnosed with any sign of clinical depression while 18 had mild form of depression. There were 20 patients in type 2 group that showed mild depression signs and 9 of them suffered from severe form of depression. Among type 1 diabetes 29 (42%) out of 69 patients were diagnosed with depression whereas among type 2 diabetes the 40 (49%) patients were diagnosed with signs of clinical depression.

Table 3: Presence of depression among type 1 and type 2 diabetes patients

Range of depression	Type 1 diabetes	Type 2 diabetes
Patients with no symptoms of depression	40	41
Mild	18	20
Moderate	10	11
Severe	1	9

DISCUSSION

Depression is one of the most prevalent form of psychiatric disorder that effects people in a negative way and ultimately leads to disturbance in the quality of their life. In this analysis a cross sectional study was carried out to find the occurrence and prevalence of depression among diabetes mellitus patients. It was found that the rate of depression among patients in our study came out to be 46%. In a study that was carried out to find the link

between depression and diabetes the occurrence rate of diabetes came out to be 30%¹¹. In another study the prevalence of depression was 28% among diabetes patients¹². Our study was carried out by taking data from patients upon permission. The patients who were not fulfilling inclusion criteria were excluded from the study. The diabetic association criteria were followed for all the patients. In our study 66 patients were in the range of 20-40 years and 84 were older than 40 years. 95 of them were illiterate while 55 were educated. Most of the students belonged to middle class while 35 belonged to upper class.

The BMI of patients was greater than 25 in case of 105 patients. In another study that was carried out to find the signs of depression among diabetic patients the BMI was found to be greater than 25 in case of 80% of the patients¹³⁻¹⁴. There were 69 patients that were suffering from type 1 diabetes mellitus while 81 had diabetes type 2 as shown in table no.1. Similar percentage of patients was also taken in previous studies where there were more type 2 patients as compared to type 1 patients in their study¹⁵. In our study after performing patient health questionnaire scale 9, depression was assessed among diabetes patients. Similar criteria and protocol were followed as used by previous studies. It was found that there were 81 patients (54%) who were normal without any signs of depression. In previous studies it was observed that there were 45% patients that were normal without any symptoms of depression among diabetic patients¹⁶⁻¹⁷. In our study 38 patients were suffering from mild form of depression as opposed to 34% of previous studies. 21 patients (14%) suffered from moderate depression and 10 (6%) of them reported about severe form of depression and were taking counselling sessions regularly as shown in table no.2. In a study it was found that there were 25% diabetic patients that reported about severe depression and they were taking regular counseling sessions from their therapist¹⁸. There was a major gap in studies where there was need to study either type 1 or type 2 diabetes patients are differently effected by depression¹⁹.

In our study we found that as depression signs were both found among type 2 and type 1 patients however, there was only 1 patient in type 1 group that reported about severe form of depression but in case of type 2 group there were 9 patients that reported about severe depression. The severity of depression was analyzed as per type 1 and type 2 patients in our study it was found that most of the patients from type 1 diabetes mellitus were normal without any signs of depression while 18 had mild form of depression. There were 20 patients in type 2 group that showed mild depression signs and 9 of them suffered from severe form of depression. The depression studies can be different based on the sociodemographic profile of the patients. As financial condition, lifestyle of patient plays an important role in depression therefore it should be kept in mind to keep patients from different financial class in the study²⁰. As people who have financial burden face difficulty to carry on with their treatment. As per studies it was found that people who have diabetic complications face depression more than early diabetic patients²¹. In our study gender, literacy level and BMI was also studied to see its effect on depression. There is a limitation in our study, if the history of patients was taken for duration longer than 1 year, their depression state or mental health condition could be more precisely evaluated. Moreover, study from patients of different hospitals could help give better results.

CONCLUSION

In this study the effect of diabetes on the mental health of patients was assessed. It was found that 46% of the diabetic patients suffered from depression. There were 54% diabetic patients that had no clinical signs of depression. Depression can be an obstacle for the proper treatment of patient as such patients show non-adherence to their diabetes treatment because of poor mental health state.

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