

## ORIGINAL ARTICLE

## FREQUENCY OF DEPRESSIVE SYMPTOMS IN PATIENTS WITH DIABETES MELLITUS

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**Background:** Co-morbid depression in diabetics is associated with hyperglycaemia, diabetic complications and poor compliance. Aim of study is to access the frequency of clinically relevant depressive symptoms in adults with type 1 and 2 diabetes and find their association with gender and age of the patient. **Method:** It was a cross-sectional study. The study was conducted in outpatient department of CMH Lahore for a period of six months. We included patients diagnosed with diabetes type 1 or 2 along with depressive symptoms. Any known case of depressive or personality disorder diagnosed before the onset of diabetes and those having a significant known medical history prior to/along with the development of diabetes were excluded from the study. Depression was gauged using Diagnostic and Statistical Manual of Mental Disorder-IV (DSM-IV) criteria. Chi square test was used to access the association between depression among diabetics with age and gender. **Results:** A total of 340 patients, 191 (56.2%) males and 149 (43.8%) females were included, out of which 304 (90.9%) qualified DSM-IV criteria for having depression. Out of 191 males, 160 presented with depressive symptoms whereas all female diabetics had depression. Chi-square value for gender association was 27 (statistically significant,  $p=0.000$ ) and for age Chi-square value was 1.391, (statistically significant,  $p=0.014$ ) with a peak at 55 years of age and a count of 40 patients. **Conclusion:** Presence of diabetes increases the frequency of depression along with significant association of age and gender of diabetics with co-morbid depression.

**Keywords:** Diabetes mellitus, Depression, Hyperglycaemia, Co-morbid, Complications

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## INTRODUCTION

Diabetes is a chronic disease. It is a group of metabolic disorder with persistent hyperglycemia.<sup>1</sup> Diabetes is a serious complex condition which can affect the entire body. It has a significant impact on quality of life and reduces life expectancy. Depression during diabetes results in self-care reduction, poor diet control, no exercise, poor self-monitoring of glucose levels, inadequate foot care and less visits to the doctor.<sup>2</sup> Depression is a treatable disorder.

Diabetes is the leading cause of kidney failure and dialysis, and blindness in working age adults. It increases the risk of heart attack and stroke by up to four times and is a major cause of limb amputations. It affects mental health as well as physical health. Depression, anxiety, and distress occur in more than 30% of all people with diabetes.<sup>3</sup> Depression can be treated in addition to whatever other illnesses a person might have, including diabetes.

Various researches have linked depression in diabetes with hyperglycaemia and with an increased risk for complications of metabolic disorder. There is evidence from three controlled trials to suggest that the treatment of depression improves the glycaemic control.<sup>4</sup>

An accurate estimation of diabetes is needed to help gauge the potential impact of diabetes on

frequency of symptoms of depression. The stress and worry of coping with a serious illness can lead to depression.<sup>5</sup> Mental disorders, such as bipolar and anxiety disorder, may occur in people with diabetes, and they too can be effectively treated.<sup>6</sup> Major risk factors being age, sex, poor social status, illiteracy, functional impairment etc.<sup>7</sup> The global prevalence of diabetes among adults has risen from 4.7 to 8.5% with advancing age association.<sup>8</sup>

This study will identify people suffering from symptoms of depression in diabetes. Also because of high prevalence of the disease as well as consequences on general population; a potential association of concomitant prevalence of both will have substantial impact on the treatment and distribution of disease.

## METHODS

This was a cross-sectional study. Sample size was calculated to be 340. Patients with type 1 or 2 diabetes were selected from outpatient setting of CMH Lahore. Male and female patients without any other significant previous medical/surgical history or any depressive/personality disorder were selected and assessed for the depressive symptoms using the DSM-IV criteria. Analysis was conducted using SPSS-16 and frequency along with association of depression among diabetics with age and gender was calculated after applying  $\chi^2$  test, and  $p<0.05$  was taken as statistically significant.

## RESULTS

A total of 340 patients, 191 (56.2%) males and 149 (43.8%) females were included in the study. Out of these, 304 (90.9%) qualified DSM-IV criteria for having depression. In males, 160 presented with depressive symptoms whereas all female diabetics had depression (Table-1).

Chi-square value for gender association was 27 ( $p=0.000$ ) statistically significant and for age, chi-square value 1.391 ( $p=0.014$ ), statistically significant with a peak at 55 years of age and a count of 40 patients, at 95% CI. Overall response rate was 309 (90.9%). Highest frequency of patients (150) was seen in the age group of 51–60 years (Table-2).

**Table-1: Patient qualifying or not qualifying DSM IV criteria for depression according to gender segregation**

Gender	Qualifying	Not qualifying	Total
Male	160	31	191
Female	149	0	149
Total	309	31	340

**Table-2: Frequency of diabetic patients fulfilling DSM-IV criteria according to age groups**

Age (Years)	Frequency	Percentage
0–20	0	0
21–30	20	5.9
31–40	3	.9
41–50	63	18.5
51–60	150	44.12
61–70	90	26.5
71–80	10	2.9
81–90	4	1.18
TOTAL	340	100

## DISCUSSION

The frequency of depressive symptoms in our study among the diabetic patients was 90.9% with a significant association of age and gender with depressive symptoms. These rates were determined by sex, age, depression assessment criteria (DSM-IV) and results displayed in the form of frequency tables and Chi-square test. Patients who did not have depression had better glycaemic control, both random and fasting. The compliance for medications intake was better in these patients. According to a research conducted in 2006, poor glycaemic control in diabetes mellitus is associated with depression and poor quality of life. In that study, a total of 110 well-controlled subjects and 112 poorly controlled subjects were recruited. It was found that 9.5% of poorly controlled subjects were depressed linking poor glycaemic control with depression.<sup>9</sup>

Female gender is more predisposed to comorbid depression accounting for a greater prevalence, incidence and morbidity risk of depressive disorders than in males.<sup>10</sup> It is well supported by our results where females had a higher

frequency of depression in comparison to males. The findings are in conjunction with earlier work in other parts of the world linking diabetes with depression in adults. A cross-sectional study was carried out to determine the prevalence and predictors of depression, anxiety and stress symptoms in type 2 diabetics attending government primary care facilities in the urban area of Klang Valley, Malaysia in which the prevalence of depression, anxiety and stress symptoms among type 2 diabetics were noted to be 11.5%, 30.5% and 12.5% respectively.<sup>11</sup> Studies have demonstrated that depression and its associated symptoms constitute a major risk factor in the development of type 2 diabetes and may accelerate the initialization of diabetes.<sup>12</sup> Yet another study showed that the rates of depressive disorder in patients with diabetes are increased two-fold.<sup>13</sup>

## CONCLUSION & RECOMMENDATIONS

Presence of diabetes increases the frequency of depression along with significant association of age and gender of diabetics with co-morbid depression. It is recommended that depression counselling session along with appropriate treatment options for diabetics should be started as soon as they start presenting with any of depressive episodes. This will help to increase the compliance of medication intake and reduce progression and burden of the disease.

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