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PREVALENCE OF DEPRESSION AMONG PATIENTS WITH DIABETES MELLITUS ATTENDING AN URBAN HEALTH CENTRE, TAMILNADU

Community Medicine

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ABSTRACT

Background: Diabetes mellitus is considered to be one of the most common Non-Communicable diseases having a growing disease burden. Among 340 million Diabetics all over the world, 65 million are in India. Diabetics with co-morbid depression leads to lack of adherence to treatment, lost to follow up and poor compliance to lifestyle modifications. Therefore it is very important to assess the prevalence of depression among patients with Diabetes.

Objectives: To study the prevalence of depression among Diabetics and its associated factors. Methodology: A cross-sectional study was conducted among 160 Diabetics attending the Urban Health Centre under SMIMS, Kulasekharam from December 2018 to January 2019. Depression was assessed using a previously validated PHQ-9 questionnaire. Data were analyzed. Percentages and proportions were calculated.

Result: Out of the 160 patients, 158 were taken for the study and 63.3% of them were women. 57% of them were married and living with their spouse. 40.5%of them were having depression. Among those had depression, 27% had mild depression, 7.6% had moderate depression, 2.5% had moderately severe depression and 2.5% had severe depression. Age, Gender, Marital Status, Duration of Diabetes, Family history, Glycemic control, Medications, and Co-morbidities were found to be significantly associated with depression with a p-value (<0.05). In binary logistic regression Gender, Duration of Diabetes, Glycemic control, Medications, and Co-morbidities was found to be having a significant association with depression.

Conclusion: There is a high prevalence of depression among patients with Diabetes. Prevalence of Diabetes and Depression show significant association with Glycemic control, Medications, and Duration of Diabetes. The early detection and prompt treatment with lifestyle modifications can prevent depression among diabetics.

KEYWORDS

Diabetes Mellitus, Depression, Prevalence

INTRODUCTION

Diabetes is considered to be the most common chronic metabolic disease that is characterized by hyperglycemia. It may lead to behavioral as well as psychological changes in the affected individuals. Diabetes is considered to be one of the most common non-communicable diseases having a growing disease burden[1]. Among 425 million Diabetics all over the world, 69.1 million people are in India.[2] Depression is a common psychiatric disease which is characterized by poor concentration, inadequate sleep, low mood, fatigue, inadequate sleep and pessimistic ideas leading to low self esteem[3]. There are about 350 million people affected by depression globally and depression possesses a lifetime risk of about 7%[4]. About 4.4% of the world's population has depression. One-fourth of the global cases of depression are contributed by The South-East Asian region alone and India accounts for about 18% of them. All the symptoms of diabetes along with depression eventually lead to poor quality of life[5,6]. Depression is expected to be one of the leading causes of disability by 2030 globally[7]. It is most likely to cause an increase of 5.7% in the global burden of disease by 2020[8].

In patients with chronic non-communicable diseases, the prevalence of depression varies from 22% to 33% thereby increasing the chances of developing depression six times in comparison to the general population[9]. Studies reported that there is a significant association between depression and diabetes. Depression in diabetic patients is often associated with poor glycemic control, poor adherence to medication, increased diabetic complication, and a higher risk of mortality[10]. Diabetics with co-morbid depression lead to poor compliance with lifestyle modifications[11]. Therefore it is very important to assess the prevalence of depression among Diabetics. Hence this study was conducted to find out the prevalence of depression among the patients with diabetes mellitus attending the urban health center Peruvallikadavu, Kanyakumari district, Tamilnadu and the factors associated with it.

OBJECTIVE

1) To study the prevalence of depression among patients with diabetes mellitus attending the outpatient department of the Urban health center, Peruvallikadavu using PHQ-9 questionnaire.
2) To find out the factors associated with depression among the study participants.

MATERIAL AND METHODS

A cross-sectional study was carried out from December 2018 to January 2019. The study was done among diabetic patients of age more than 18 years and were diagnosed with diabetes mellitus for at least one year, attending the Urban health center Peruvallikadavu. The sample size was calculated by the formula $p= Z_{\alpha}^2 pq/L^2$. The prevalence of depression among diabetics was taken as 39.7%[1], Z_{α}^2 of 3.84 and an allowable error of 20% and rounded off to160 and were selected by convenient sampling technique.The variables studied were Sociodemographic details, history of diabetes mellitus, family history of diabetes mellitus, duration, regular medication and co morbidities. Patients who had been diagnosed with cancer, psychotic diseases, pregnancy, renal diseases, depression, and dementia were excluded from the study. All patients who had given completed consent form were included in the study.

Depression was assessed using a previously validated questionnaire, the Patient Health Questionnaire –9 (PHQ-9). PHQ-9 is a 9 item questionnaire with a score ranging from 0 to 27. This score is divided into 5 categories where a score of 0 - 4 represent no depression, a score of 5 – 9 represent mild depression, a score of 10-14 represent moderate depression, a score of 15-19 represent moderately severe depression and a score of more than 20 represent severe depression[12]. Data were entered in Ms. Excel 2013 and analyzed using statistical software SPSS 20.0. In order to minimize recall bias questions concerning daily habits as well as depressive symptoms of not more than two weeks duration were included. Descriptive statistics and frequencies for each variable were calculated and represented as percentages. Statistical tests were used to find associations between all the variables with depression (depressed or not depressed), intensity of depression (none, mild, moderate, moderately severe or severe), and the total score obtained with PHQ-9. A p-value of less than 0.05 was considered to be significant.

RESULTS

Out of 160 individuals,158 patients with diabetes participated in this study, with a response rate of 98.75%. All the diabetic patients of age more than 18 years and of both sexes attending the Outpatient department of Urban health center Peruvallikadavu, Kanyakumari were included in the study. Out of the 158 diabetic patients, 100(63%) were women and 58(37%) were men. The mean age of the study

patients was 65.98±8.631. Most of them belonged to the age group of more than 66 years(64.5%). 66(41.8%) patients belonged to lower middle class of socioeconomic status according to modified Kuppuswamy scale. 90(57%) participants were married and living with their spouse. 112 (70.9%) had a positive family history of diabetes mellitus. The mean duration of diabetes mellitus was 6.09±2.78. Majority 97(61.4%) of the study participants had hypertension for more than 6 years and 111(70.3%) were on regular medication. 79 (50.0%) had uncontrolled glycemic status with HbA_1C value more than 7% and 122 (77.2%) had one or more co-morbidities.

Depression was classified using the cut-off score of depression as more than or equal to 5. Out of the 158 study participants, 64 (40.5%) had depression. Among the 64 patients with depression, 44(27.8%) had mild depression, 12(7.6%) had moderate depression, 4(2.5%) had moderately severe depression and 4(2.5%) had severe depression. The prevalence and percentage distribution of depression in each category are shown in Table 1.

Table 1: Prevalence of depression among the study subjects, N=158.

Depression	Frequency (n)	Percentage (%)
No depression	94	59.5
Mild depression	44	27.9
Moderate depression	12	7.6
Moderately severe depression	4	2.5
Severe depression	4	2.5
Total	**158**	**100**

The association between depression and its associated factors were analyzed using the Fisher exact test and Chi-square test. The factors showed significant association with the measure of risk as shown in Table 2. Factors such as positive family history of DM, regular medication and the presence of comorbidities, were found to be significantly associated with depression ($p<0.05$). Whereas age less than 66 years, male gender, married and living with their spouse, control of blood sugar and duration of DM less than 6 years are showing significantly associated protective effect. In binary logistic regression the factors that were found to be associated with depression were positive family history, duration of hypertension less than or equal to 6 years and the presence of comorbidities ($p<0.05$).

Table 2: Factors found significantly associated with depression among the study subject

Factors	Category	Depressive n (%)	Nondepressive n (%)	p-value	OR (CI)
Age	< 66 years	16 (28.6%)	40(71.4%)	0.024	0.450 (0.244-0.904)
	>66years	48 (47.1%)	54 (52.9%)		
Gender	Males	17 (29.3%)	41 (70.7%)	0.029	0.468 (0.235 - 0.931)
	Females	47 (47.0%)	53 (53.0%)		
Marital status	Living with spouse	29 (32.2%)	61 (67.8%)	0.015	0.488 (0.234-0.858)
	Single	35 (51.5%)	33 (48.5%)		
Family history	Present	47 (49.5%)	48(50.5%)	0.005	2.650 (1.972 – 6.585)
	Absent	17 (27.0%)	46 (73.0%)		
Glycemic control	Controlled	24 (26.7%)	66(73.3%)	<0.001	2.55 (1.30 – 4.68)
	Uncontrolled	40(58.8%)	28 (41.2%)		
Duration of BP	< 6 years	2(3.3%)	59 (96.7%)	<0.001	0.19 (0.04-0.83)
	>6 years	62 (63.9%)	35 (36.1%)		
On Medication	No	29 (61.7%)	18 (38.3%)	<0.001	3.498 (1.717-7.126)
	Yes	35 (31.5%)	76 (68.5%)		
Comorbidities	Present	2 (5.6%)	34 (94.4%)	<0.001	5.71 (1.3-2.47)
	Absent	62 (50.8%)	60 (49.2%)		

DISCUSSION

In the present study, 158 diabetics participated with a response rate of 98.75%. 63% were women and 37% were men. The mean age of the study patients was 65.98±8.631 and 64.5% belonged to the age group of more than 66 years. 57% were married and living with their spouse. In a study done by Aminu et al[12] in South India it was observed that the mean age of the study participants was 63±11.478, 54% were females and 57% were married and living with their spouse. In a study done by Eashwar et al[13] found that the mean age of the study participants was 53±9.5 and 54 % were females. Both these studies were comparable with the present study.

In the current study, the prevalence of depression among patients with diabetes mellitus was 40.5% .27.8% had mild depression, 7.6% had moderate depression, 2.5% had moderately severe depression and 2.5% suffered from severe depression. In another study by Aminu et al[11], Eashwar et al[13] and Teshome et al[1] the prevalence of depression among diabetes mellitus patients was 37.5%, 39.7%, and 39.73% respectively. In the study done by Aminu et al 21% had mild depression and 4.5% had moderate depression[11]. In Eashwar et al[13] study 17.3% had mild depression and 2.7% had moderate depression. In another similar study done by Habtewold et al[14] it was observed that 28.4% had mild depression, 12.1% had moderate depression, 2.7% had moderately severe depression, and 1.5% had severe depression. Yet another study by Alshehri et al[15] reported that 56.81% were females, with a mean age of 50.28±11.43 years. The prevalence of depression was 20.68%, with 12.83%, 7.07%, and 0.79% having moderate, moderately severe, and severe depression, respectively.

In the present study, factors like Age, Gender, Marital Status, Duration of Diabetes, Family history, Glycemic control, Medications, and Co-morbidities were found to be significantly associated with depression among diabetics ($p<0.05$).In binary logistic regression the factors that were found to be associated with depression were positive family history, duration of hypertension less than or equal to 6 years and the presence of comorbidities ($p<0.05$). In another study done by Aminu et al[11] Gender, Unemployment, marital status, diabetes complication and other chronic diseases were significantly associated with depression. In Eashwar et al[13] study observed that Fasting blood sugar, Diabetic complications, female gender, diabetic treatment were significantly associated with depression among diabetics. Mossie et al[16] reported that anxiety disorder, poor medication adherence, and coexistence of other physical illness as risk factors for depression.

The current study had few limitations like firstly, the presence of depression was assessed by a questionnaire based screening tool rather than diagnosed by a psychiatrist. Secondly, as the cross-sectional study design was used , the risk factors found out may be further tested using case-control study. Thirdly, self-reported symptoms are liable to recall bias.

CONCLUSION

In the present study, there is a high prevalence of depression among patients with diabetes (40.5%). Depression was found to be significantly associated with age, female gender, marital status, duration of diabetes, family history of diabetes mellitus, glycemic control, medications and presence of co-morbidities. Depression can affect the effectiveness of treatment of diabetes as it could lead to non-adherence to treatment by the patients. It is important that patients with diabetes should be screened, treated where necessary, for depression and other common mental disorders. This will improve treatment adherence and overall better management of diabetes .

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