A STUDY OF FREQUENCY AND FACTORS ASSOCIATED WITH DEPRESSION AMONG ADULT DIABETICS IN URBAN AREAS OF DAVANGERE, KARNATAKA

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ABSTRACT

Background: Diabetes is growing epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. Diabetes mellitus (DM) is one of such chronic medical conditions that could be associated with depressive syndromes. , recognition of depression is important

Objective: Objectives of the study were to determine the prevalence of depression among adult diabetic patients and to study the associated socio-demographic and clinical factors with depression among adult diabetic patients.

Materials and Methods: This Community based cross-sectional study was conducted among 90 diabetic patients in Urban Health training Centre located in the field practice area of JJM Medical College who gave informed written consent.

Results: Among 90 study participants 52%) were males and 43 (48%) were females. The prevalence of depression among the study subjects was found to be 47%. However, severe depression was found in only 26% of diabetic patients.

Conclusions: Depression, found among nearly half of the subjects, was associated with factors like higher age, female gender, lower socioeconomic status, presence of complications/ co-morbidities, longer duration of treatment and treatment with insulin. Although majority of diabetic patients were potential cases of depression, the great majority were under-recognized and undertreated.

Key Words: Type 2 Diabetes Mellitus, Depression, Urban slums.

INTRODUCTION

Diabetes is growing epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease[1,2]. In 2014 the global prevalence of diabetes was estimated to be 9% among adults aged 18+ years[3].

Diabetes mellitus (DM) is one of such chronic medical conditions that could be associated with depressive syndromes[4] which can disrupt self-management and worsen glycemic control resulting in poor treatment outcomes[5,6,7].

Therefore, recognition of depression is important to improve diabetic care because effective treatment is available and cost-effective. Unfortunately the detection rate of depression in patients with diabetes, which is an important condition for treatment, is still low.

OBJECTIVES

Objectives of the study were to determine the prevalence of depression among adult diabetic patients and to study the associated socio-demographic and

clinical factors with depression among adult diabetic patients.

METHODOLOGY

It is a Community based Cross-sectional study conducted from March to September 2013. There are 12 slums under the Urban Health training Centre located in the field practice area of JJM Medical College among them three slums were selected by using simple random sampling. From these 3 slums all confirmed Type 2 Diabetic patients were identified and contacted for personal interview and depression was assessed by PHQ-9 (Patient Health Questionnaire-9). PHQ-9 is self-administered 9 item depression scale and score ranges from 0 to 27. Score with 5 to 9 is considered as mild depression, 10-14 moderate depression, 15-19 moderately severe depression and 20-27 severe depression. The questionnaire was translated to Kannada and back translated to English for validation. The validation was done by investigator[8].

Operation definition of 'Confirmed cases of T2DM: Known cases of diabetes or using insulin or oral hypoglycemic drugs.

Inclusion Criteria were confirmed cases of Type II diabetes mellitus (Type 2 DM); more than 20 years of age; and taking insulin or Oral hypoglycemic drugs for > 1year.

Exclusion Criteria were history of psychiatric problems before diagnosis of diabetes; family history of depression; type I diabetes mellitus patients; and seriously ill patients were excluded from the study.

Data collection from these 90 diabetic patients was started after getting institutional ethical review board clearance. Slums were visited with pre intimation and participants were interviewed using pre-designed, pre-tested, semi-structured questionnaire after obtaining informed verbal consent. The questionnaire included information regarding their basic socio-demographic data, clinical details such as duration of illness, modality of treatment and presence of other co-morbidities or complications due to DM. BMI (Body mass index) was calculated by measuring Standing body height (to the nearest 0.1 cm) with a stadiometer and a bathroom weighing scale with an accuracy of ±100 g was used to measure body weight.

Data was analysed using SPSS v17.0 P value of <0.05 was considered statistically significant. The study was approved by Institutional Ethics Committee.

RESULTS

In the present study, out of 90 diabetics, 47(52%) were males and 43 (48%) were females.

Table 1: socio-demographic characteristics of study participants

Variable	Participants (n=90)(%)
Age group	
30-40	25 (27.8)
41-50	36 (40)
51-60	21 (23.3)
61-70	8 (8.9)
Education	
Illiterate	7 (7.8)
Primary school	14 (15.6)
High school	41 (45.5)
PUC/Diploma	28 (31.1)
Occupation	
Professional	10 (11.1)
Semi-Professional	13 (14.4)
Skilled	29 (32.2)
Unskilled	15 (16.8)
Retired	4 (4.4)
Housewives	19 (21.1)
Socioeconomic status*	
Class II	9 (10)
Class III	17 (18.9)
Class IV and V	64 (71.1)
Marital status	
Married	76 (84.5)
Unmarried	9 (10)
Divorced/Separated	5 (5.5)

*Modified BG Prasad socio-economic classification

Table 2: Distribution of study subjects according to their Complications or co-morbidities due to Diabetes Mellitus

Complications/ comorbidities	Participants (n=90)(%)
Neuropathy	21 (23.3)
Nephropathy	12 (13.3)
Cataract/ Retinopathy	14 (15.6)
Diabetic foot	24 (26.7)
Amputation	9 (10)
Hypertension	41 (45.6)
IHD or CAD*	22 (24.4)

*IHD= Ischemic Heart Disease, CAD= Coronary Artery Disease, Multiple comorbidities/ Complication

Table 3: Distribution of study subjects according to presence of Depression

Characteristics	Participants (%)
Depression (n=90)	
Yes#	42 (46.7)
No	48 (53.3)
Depression Severity (n=42)	
Moderate Depression	31 (73.8)
Severe Depression	11 (26.2)
Awareness about Depression (n=42)	
Yes	26 (61.9)
No	16 (38.1)

cut off of PHQ-9: < 5 no depression and ≥5 depression present.

Most of the participants (40%) were in the age group of 41-50 years followed by 30-40 years (28%). In our study 45% of participants had education upto high school, 16% upto primary education and 8% were illiterate. Majority (32%) of the participants were involved in skilled type of occupation and 21% were housewives. In our study 85% were married and 10% were unmarried. In the present study 71% of the study population belonged to Class IV and V, 19% belonged to Class III according to modified B G Prasad socio-economic classification. (See table1)

In the present study 46% of participants had hypertension, 27% diabetic foot, 24% had neuropathy and 24% had ischemic Heart Disease (IHD)/Coronary Artery Disease (CAD) as complication/ comorbidities. (see Tab 2)

The prevalence of depression among the study subjects was found to be 47%. However, out of this 47%, 74% had moderate depression and 26% had severe depression. Out of 47% who had depression, 62% were aware about depression. (Table 3)

Social factors like higher age, Female gender, lower socioeconomic status were found to be significantly associated with depression. (Table 4)

Presence of complications/comorbidities, longer duration of treatment, treatment with insulin and stress due to life events was found to be significantly associated with depression. (Table 5)

DISCUSSION

In present study, the prevalence of depression among diabetic patient was 47%. Our study result is higher than study conducted by Tesfa Dejenie Habtewold et al[9] (13), Amit Raval et al[10] (23%), Naseer Ali et al[11] (27.05%), Jameel Nasser et al[12] (33.3%), Al Ghamdi AA[13] (34%), Waleed M Sweileh et al[14] (40%), Kiran Niraula et al[15] (40.3%), Subhash Das et al[16] (41%), and lower than study by Madhu Mathew et al[17] 49%, Carlos Tovilla-Za rate et al[18] (48.27%).This difference could be due to difference in sociodemographic characteristics, ethnicity, geographical area and life style of individuals.

In present study prevalence of severe depression was 26%. Our study result is higher than study conducted by Tesfa Dejenie Habtewold et al[9] (4%), Subhash Das et al[16] (4%), Amit Raval et al[10] (23%).

In our study depression was significantly associated was higher age, Female gender, lower socioeconomic status, presence of complications/comorbidities and similar findings were observed by Aaron A Lee et al[19], Amit Raval et al[10], Waleed M Sweileh et al[14] and Jameel Nasser et al[12].

Table 4: Association of Depression with age, gender, marital status, education and socio- economic status

Determinants	Depression (%)		P value
	Yes (n=42)	No (n=48)	
Age groups (in years)			
30-50	24 (57.2)	37 (77.0)	0.02*
51-70	18 (42.8)	11 (23.0)	
Gender			
Male	17 (40.4)	30 (62.4)	0.02*
Female	25 (59.6)	18 (37.6)	
Marital status			
Married	33 (78.5)	43 (89.5)	0.15
Unmarried/ Divorced/ Separated	09 (21.5)	05 (10.5)	
Education			
Illiterate , Primary	12 (28.5)	09 (18.7)	0.51
Secondary	19 (45.2)	22 (45.8)	
PUC/ Diploma	11 (26.3)	17 (35.5)	
Socio-economic status			
Grade III	07 (16.6)	19 (39.5)	0.023*
Grade IV and V	35 (83.4)	29 (60.5)	

*p ≤ 0.05 is significant

Table 5: Association of Depression with Duration, Control, Complications / Co-morbidities treatment of Diabetes mellitus, BMI and stress due to life events.

Determinants	Depression		P value
	Yes(n=42)	No(n=48)	
Duration of DM			
<10 years	20 (47.6)	36 (74.9)	0.01*
≥10 years	22 (52.4)	12 (25.1)	
Control of DM:			
Good	12 (28.5)	15 (31.2)	0.52
Fair	16 (38.0)	24 (49.9)	
Bad	14 (33.5)	09 (18.9)	
Complications			
None	20 (47.6)	23 (48.0)	0.02*
One	22 (52.4)	25 (52.0)	
Treatment of DM			
Oral hypoglycemic drugs	9 (21.4)	22 (45.8)	0.05
Oral hypoglycemic + Insulin	22 (52.4)	14 (29.3)	
Only Insulin	11 (26.2)	12 (24.9)	
Body Mass Index			
<30.0 Kg/m²	24 (57.1)	24 (50.0)	0.11
≥30.0 Kg/m²	18 (42.8)	24 (50.0)	
Stress due to life events			
Yes	24 (57.1)	10 (20.8)	0.001*
No	18 (42.9)	38 (79.2)	

*p ≤ 0.05 is significant

In our study the most common comorbidity prevalent among participants was hypertension (46%). Our study result is higher than study conducted by Ifedayo odeniyi[20] (71.3%), Jessica M Robbins et al[21] (77%).

In our study many patients had multiple complications. In present study 27% had diabetic foot. Our study result is higher than study conducted by Amit Raval et al[10] (7%), Mohan V et al[22] (5.7%), Shailesh K Shahi et al[23] (14.3%). In our study 24% had neuropathy which is higher than study conducted by Dipika Bansal et al[24] (8.2%)and lower than study by Amit Raval et al[10] (65%).

In present study 24% had heart diseases (ischemic Heart Disease Coronary Artery Disease) and almost similar finding was observed by Mohan V et al (23.6%). Our study result is higher than study conducted by Amit Raval et al[10] (10%), Jessica M Robbins[21] (14.3%).

CONCLUSION

The prevalence of depression among the study subjects was found to be 47%.This is a higher proportion highlighting that almost half of diabetic patients suffer from depression. However, severe depression was found in only 26% of diabetic patients. Depression was found to be higher in female gender, higher age, and lower socioeconomic status. Presence of complications/comorbidities, longer duration of treatment and treatment with insulin was found to be significantly associated with depression. Although majority of diabetic patients were potential cases of depression, the great majority were under-recognized and undertreated.

RECOMMENDATIONS

Since there is high prevalence of depression among diabetic patients, and depression is treatable. It is essential that health care providers managing them must screen for depression and arrange for appropriate counseling. In case of severe depression on screening, a psychiatric consultation is recommended. As a result, the individual and the family will have a positive outlook and can have social and economic benefits. Hence, psychosocial assessment should be part of initial and ongoing evaluation of diabetic patients to improve their quality of life and decrease adverse outcomes.

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