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Original Research Article

A study on the prevalence of depression in a Chennai based diabetic population

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ABSTRACT

Background: The presence of depression could have a negative impact on treatment compliance and diabetes was found to double the likelihood of having depression. This study was done to estimate the prevalence of depression among the adult diabetic population and also to identify certain risk factors that may be associated with them.
Methods: The study was done on 300 diabetics who were chosen through stratified random sampling from urban and rural areas. Information was collected through a questionnaire that had questions on background information of the subject PHQ – 9 questionnaires was used to estimate the prevalence of depression. The data entry and analysis were done using statistical package for social sciences (SPSS) version 22. The final data was summarized into percentages and 95% C.I was calculated for the prevalence rates. Cross tabulations were done for various variables. Chi-square values were calculated wherever appropriate and p values were based on the 2 –tailed values. Associations were assessed, and 95% confidence interval of odds ratios were found using Epi Info version 7.1.2.
Results: The overall prevalence of depression among diabetics was found to be 43% with a 95% CI of 37.4% to 48.6%.
Conclusions: This study shows the high prevalence rates of depression among the diabetic population and emphasizes on the need for effective mental health promotion measures to combat with the same.

Keywords: Depression, Diabetes, Urban, Rural, Obesity

INTRODUCTION

In addition to being risk factors for cognitive decline, studies show that diabetes and depression are independent risk factors for each other. Evidence shows comorbid depression in diabetes is associated with lower adherence to self-care behaviours such as diet, physical activity, use of medication, and glucose monitoring, as well as poor glycaemic control, and microvascular and macrovascular complications.[1] Depression and diabetes frequently co-occur; the presence of depression increases the risk of future diabetes and diabetes increases the risk of subsequent depression. Moreover, the comorbidity of depression and diabetes has been found to be particularly harmful in terms of cardiovascular events, cardiac mortality and mortality in general.[2] Depression is potentially modifiable, and its treatment might translate into a decreased risk of diabetes onset. This is theoretically plausible as the typical age of onset of depression is considerably lower than the typical age of diabetes onset.[2] The likelihood of depression in type 2 diabetes mellitus (T2DM) is approximately double that found in the general population.[3] It has been proposed that depressive symptoms act as mediators of subsequent

metabolic disruptions due to their effects on activity levels and other health behaviors.[3] Recent studies suggest that duration of diabetes may be an important factor in the temporal trend of depressive symptoms at the population level, likely due to the development and severity of diabetes-related distress and frailty.[3] Depression heightens the psychological impact of diagnosis of diabetes, resulting in increased diabetes-related stress[3]. Relationship between DM and depression has been investigated by many researchers. Prevalence of depression among individuals with DM appears to vary by type of DM, race/ethnicity, and among developed and developing nations.[4] Therefore, screening for depression among diabetic patients is important in different races and ethnicities.[4] Hence a study was taken up with the objectives of estimating the prevalence of depression among the adult diabetic population and also to identify certain risk factors that may be associated with them**.**

METHODS

Study design

The study was done as a Community based Cross-sectional study, with both descriptive and analytical components. The descriptive component was used to estimate the prevalence of depression in a diabetic population and the analytical component was used to find the factors associated with them.

Study period

August 1st to September 30th 2015

Study setting and subjects

The study was done on adult (>18 years) diabetics residing in the rural and urban field practice areas of A.C.S. Medical College. The rural area comprised of Parivakkam, Pidarithangal and Kolapancherry villages and urban area comprised of Adayalempet, Chinna – nolombur and Erikkarai areas.

Selection and distribution of participants

Three hundred (300) Adults with a known history of diabetes and who were willing to participate in the study were selected by stratified random sampling from the study areas. Only one diabetic was selected from each family and equal number of samples were studied from the rural and urban areas (150 each)

Sample size and sampling unit

Based on literature review the prevalence of depression was found to be 40.2% in a Palestinian population.[4] With an allowable error of 14% of the prevalence which was 5.63. The minimum sample size to be studied was calculated to be 291 finally it was decided to study a sample of 300.

Ethical considerations

Ethical clearance was obtained from the institutional ethics committee of A.C.S. Medical College and informed consent was also taken from all the study subjects before the start of the study.

Definition and classification of main study variable

Depression: A widely used 9 item patient health questionnaire was used to estimate the prevalence of depression.[5] Subjects having scores of 5 and above were suffering from depression.[6]

Obesity: subjects having a BMI >25 were considered as obese and those having a B.M.I of ≤25 was considered as non – obese.[7]

Socio–economic status: Subjects were classified into five classes based on modified B.G. Prasad Classification 2014.[8]

Data analysis

The data entry and analysis were done using statistical package for social sciences (SPSS) version 22. The final data was summarized into percentages and 95% CI was calculated for the prevalence rates. Cross tabulations for various variables. Chi-square values were calculated wherever appropriate and p values were based on the 2 – tailed values. Associations were assessed, and 95% confidence interval of odds ratios were found using Epi Info version 7.1.2.

RESULTS

Socio-demographic profile

Of the participants, 50% were from rural and 50% from urban communities. Among the participants, 30.7% were males and 69.3% were females. Majority of them were on a mixed diet i.e. 93.3%. Of the study subjects 23.7% were employed and 76.3% were unemployed. Details can be seen in Table 1. Among the participants highest number of subjects (28.7%) were from class II of B.G.Prasad classification. Details can be seen in Figure 1.

Prevalence of depression in a diabetic population

Of the 300 diabetics, 129 had a PHQ -9 score of >4. The overall prevalence of depression among diabetics was found to be 43% with a 95% CI of 37.4 to 48.6. Details can be seen in Table 2.

Association between treatment depression in diabetes and certain suspected risk factors

Depression in diabetics was more seen with unemployment, BMI ≤25, lower socio-economic status (class 3, 4, 5 of B.G Prasad classification), joint families,

subjects who had quoted that diabetes had an impact on their work life and personal life. All the above-mentioned associations were also found to be statistically significant, however the other associations were not statistically significant. Details can be seen in Table 3.

Table 1: Socio–demographic profile of the study subjects.

Variables	Number (out of 300)	Percentage (%)
Age (years)		
≤55	143	47.7
>55	157	52.3
Gender		
Male	92	30.7
Female	208	69.3
Employment status		
Employed	71	23.7
Unemployed	229	76.3
Type of diet		
Vegetarian	20	6.7
Mixed	280	93.3
Type of family		
Nuclear	140	46.7
Joint	160	53.3
Type of house		
Pucca	213	71
Semi–pucca	69	23
Khutcha	18	6

Table 2: Prevalence of depression in a diabetic population.

Variable	Number of diabetics with the attribute (out of 300)	Percentage (%)	95% C. I
Depression (>4 in PHQ -9 questionnaire)	129	43	37.4 to 48.6

Table 3: Association between depression in DM and certain suspected risk factors.

Variable	Classification of variable (number of people in the group out of 300)	Number of diabetics with depression (out of 129)	Odds ratio (95% C.I of odds ratio)	Chi-square value	P-value
Employment	Unemployed (229)	106	1.8 (1.03-3.15)	4.25	0.038 *
	Employed (71)	23	1.00		
Obesity	BMI ≤25 (125)	64	1.78 (1.11-2.83)	5.86	0.015 *
	BMI >25 (175)	65	1.00		
Socio-economic status	Low (class 3,4&5) (169)	82	1.68 (1.06-2.69)	4.80	0.029*
	High (class 1&2) (131)	47	1.00		
Family	Joint (160)	79	1.76 (1.10-2.79)	5.67	0.017*
	Nuclear (140)	50	1.00		
Diabetes impacts work life	Affected (67)	38	2.04 (1.8-3.55)	6.6	0.01*
	Not affected (233)	91	1.00		
Diabetes impacts personal life	Affected (80)	53	3.72 (2.17-6.38)	23.98	0.0000097
	Not affected (220)	76	1.00		
Awareness of diabetes as lifelong disease	Not Aware (46)	24	1.55 (0.82-2.91)	1.86	0.17
	Aware (254)	105	1.00		
Gender	Female (208)	96	1.53 (0.92-2.54)	2.74	0.098
	Male (92)	33	1.00		
Type of health care facility for management of DM	Government (119)	57	1.39 (0.87-2.22)	1.93	0.17
	Private (181)	72	1.00		

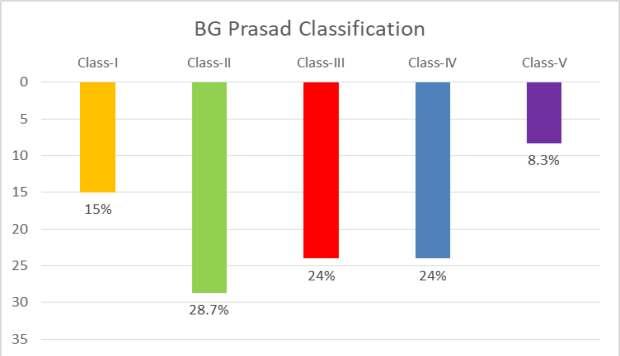

Figure 1: Socio-economic status as per B.G. Prasad classification.

DISCUSSION

This community based cross-sectional study on a diabetic population has not just been a tool to find the problem statement of depression but it has also given valuable insights into the various modifiable risk factors that might be playing a role in causing the same.

Overall prevalence of depression in diabetics is 43% with a 95% CI of 37.4-48.6% whereas a study done on diabetics in Washington University, USA shows the range of the prevalence of current depression obtained from structured diagnostic interviews in diabetic samples was 8.5-27.3% in controlled studies and 11.0-19.9% in uncontrolled studies this difference could be because of the significant differences in the population types that were studied.[9] A study done in Palestine revealed that the prevalence of depression among the diabetic population was 40.2%, this was comparable to the findings of the current study.[4] The current study revealed a statistically significant association between depression in diabetics and unemployment which was similar to the results of studies done on the general population. A study done in the US revealed that unemployment doubled the risk of having depression.[10]

The limitations of the study are that a higher allowable error (14% of prevalence) than what is ideal was used to estimate the sample size as the study was done by interns during their posting in the department of Community Medicine and they had time constraints. Analytical cross-sectional studies are weak studies for determining causal associations. Further research is needed to corroborate the associations found in this study.

The prevalence of depression was also found to be quite high in the study population (43%). This calls for the betterment of mental health services including screening for depression which could be made mandatory at the primary health care level. These steps are to help prevent the complications of diabetes mellitus which are debilitating.

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Ethical approval: The study was approved by the Institutional Ethics Committee of A.C.S. Medical College

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