

A STUDY OF EFFECT OF DEPRESSION ON QUALITY OF LIFE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Abstract

Background: Diabetes is one of the most important chronic diseases which may have a negative effect on the quality of life of diabetic patients. It is a chronic disease that causes short- and long-term complications. It is a major health problem in the world. It is well documented that the prevalence of depression among patient with diabetes is higher than among the general population. Type 2 DM and major depressive disorder are both chronic diseases that may progress for years before diagnosis. Considering these factors, we conducted a cross sectional study over six months to assess the quality of life in depressed patients with type 2 diabetes mellitus attending tertiary care centre in India. We also assessed for the factors associated with it. A Total of 50 patients with type 2 diabetes, fulfilling inclusion criteria are included in this study. Diagnosis of diabetes was done by physician. Socio-demographic and the clinical data are collected using specially designed proforma. Severity of depression is assessed using Montgomery and Asberg Depression Rating Scale (MADRS). The Marathi version of the WHOQOL-BREF questionnaire was used to measure quality of life. Results- the prevalence of depression in diabetic patients in this study was 17%. There was strong correlation between MADRS score (severity of depression) and QOL in all the domains. It was observed that diabetic patients with complications had a lower score in physical domain of QOL. **Conclusion:** This study revealed that the QOL in depressed diabetic patients is lower and also shows that there is a significant association between depression and various diabetes complications.

INTRODUCTION

Diabetes is a chronic, non-communicable, lifestyle related disease that has been reported to be the seventh leading cause of death according to the WHO by 2030.^[1] The prevalence of diabetes ranges from 8 to 18% in urban India.^[2] Literature suggest that the prevalence of depression in patients with diabetes is higher than the general population.^[3] It is well documented that the prevalence of depression among patient with diabetes is higher than among the general population.³ A recent meta-analysis of 42 studies concluded that the presence of diabetes

doubled the odds of co-morbid depressive disorder.^[3] Depression may have special clinical relevance in diabetes since the two illnesses may affect each other. The major hypotheses that currently exist explains the linking pathway between diabetes and depression. The first hypothesis asserts that depression precedes type II diabetes. Chronic stress associated with depression leads to hypercortisolemia and it may cause centripetal obesity and metabolic syndrome. Depression is associated with increased levels of glucocorticoids, catecholamines, and growth hormone; changes in glucose transport function; and secretion of

inflammatory cytokines, which could lead to insulin resistance and, ultimately, be causal factors in the development of diabetes as well as complications of diabetes. The second hypothesis is that depression in patients with both type 1 and type II diabetes results from chronic psychosocial stressors of having a chronic medical condition^[4] as well as psychosocial demands imposed by diabetes. Quality of life (QOL) refers to the ways in which health, illness, and medical treatment influence an individual's perception of functioning and well-being (Coons and Kaplan, 1992; Guyatt *et al.*, 1993). Several studies have shown that QOL in diabetes is decreased as compared to individuals without diabetes.^[5,6,7] Furthermore, the presence of diabetic complications has an additional negative impact on QOL.^[5,6,7,8] Depressive symptoms are known to have a considerable impact on QOL as well.^[2] The co-occurrence of depressive symptoms and diabetes may further decrease QOL.

MATERIALS AND METHODS

This is a cross-sectional descriptive study. This study was conducted at a tertiary care hospital. Patients with clinical diagnosis of Type 2 diabetes mellitus as per the current WHO guidelines attending the outpatient department as well as the patients admitted to inpatient department run by the department of medicine at a tertiary care hospital fulfilling the criteria were included in the study. Patients aged 18-60 years and with adequate cognitive functions to perform the interview were included in the study. Eligible patients were included in the study only after written and informed consent. Those patients who did not give consent to participate in the study were excluded from the study. Patients with Co morbidity with any

Psychiatric disorder other than depression and any chronic medical condition other than Diabetes Mellitus and Hypertension e.g. epilepsy, cerebral palsy, tuberculosis, HIV infection, etc. were excluded from the study. Patient with chronic organ failure e.g. end stage renal disease, decompensated liver cirrhosis, congestive cardiac failure were also excluded from the study.

After diagnosis of type 2 diabetes mellitus made by physician patients who met the study criteria were recruited and informed consent was taken. Data was collected by using a predesigned, pretested, and structured proforma. The first part of the proforma had information on the sociodemographic data along with medical history, data regarding blood pressure, anthropometric measurements, and laboratory reports. The final part consisted of WHOQOL-BREF and Montgomery-Asberg Depression Rating Scale (MADRS). The QOL was assessed with WHOQOL-BREF and it was also used to assess the physical, psychological, social, and environmental domains. The scores of each domain indicated the perception of an individual regarding their quality of life. A higher QOL is denoted by higher scores. The mean item score within an individual domain was needed to calculate the domain score. Individuals were classified as having good QOL when the mean total score is 50% and above and as having poor QOL when the mean total score is less than 50%.^[9,10]

The data were coded and analysed with the help of SPSS 22.0. The mean value was calculated for quantitative variables. The mean score of WHOQOL and MADRS was also calculated. Proportion was done for qualitative attributes. The association between the clinical MADRS and QOL scores was calculated by Pearson correlation.

RESULTS

A total of 51 type 2 diabetes patients were studied. Depression was observed in 17% of the diabetic patients. Quality of life was significantly lower in depressed diabetic patients than non depressed diabetic patients in all the sub domains. There was strong inverse correlation between MADRS score (severity of depression) and QOL in all the domains (QOL-physical -0.580, QOL-psychological -0.617, QOL-social -0.674, QOL-environmental -0.668). It was observed that diabetic patients with complications had a lower score in physical domain of QOL (p value- 0.013).

Table 1: QOL in Depressed V/S Nondepressed Patients

	MADRS	N	Mean	Std. Deviation	P value
QOL Physical	Non depressed	42	70.62	10.441	0.001
	Depressed	9	52.22	6.180	
QOL Psychological	Non depressed	42	73.84	12.777	0.001
	Depressed	9	50.00	8.732	
QOL Social	Non depressed	42	71.74	12.582	0.001
	Depressed	9	44.33	14.950	
QOL Environmental	Non depressed	42	76.57	12.254	0.001
	Depressed	9	49.61	15.960	

Table 2: Diabetes Complications and QOL

	Complication	N	Mean	Std. Deviation	P value
QOL Physical	Present	14	60.64	8.482	0.013*
	Absent	37	69.92	12.332	

QOL Psychological	Present	14	64.36	14.934	0.128
	Absent	37	71.63	14.981	
QOL Social	Present	14	63.21	15.572	0.335
	Absent	37	68.30	17.021	
QOL Environmental	Present	14	65.07	15.183	0.072
	Absent	37	74.36	16.421	

DISCUSSION

Diabetes mellitus is a chronic debilitating condition. Previous studies have found a higher prevalence of depression in patients with diabetes mellitus. The prevalence of depression was 17% in this study. An increasing rate in the prevalence of depression has been reported by different studies conducted in India and in different parts of the world. The prevalence of depression was reported to be 23% in a population based study conducted in Chennai.^[12] A study conducted by Yatan pal singhbalhara *et al.* at a tertiary care center reported a prevalence of 16.9% in patients of type 2 diabetes.^[13] In a study conducted in Northern India by Raval *et al.* showed a very high prevalence (41%) of depression in type 2 diabetes patients attending a tertiary care hospital.^[14]

In the present study, the mean overall quality of life score in depressed was 49.04 which was significantly lower than non-depressed patients (73.19) close to the results found by Nedjat *et al.*^[11] The presence of diabetic complications had a negative impact on QOL which was similar to a study conducted by Subramani Poongothai *et al.* This study revealed that the QOL in depressed diabetic patients was lower and also shows that there is a significant association between depression and various diabetes complications. It was observed that diabetic patients with complications had a lower score in physical domain of QOL (p value- 0.013) as compared to other subdomains. However, the quality of life in other domains (i.e. psychological, social and environmental) was similar between patients with diabetic complications and patients without diabetic complications. Also, increase in severity of depression was associated with lower quality of life. This suggests that presence of depression rather than diabetic complications is the major determinant for quality of life in diabetic patients. Therefore, screening for depression among diabetic patients needs to be done at each clinical contact. This study emphasizes the importance of early detection and treatment of depression in patients with diabetes as treatment of one condition can benefit the other.

Small sample size is one of the limitations for this study. This study did not include patients from community as this was hospital-based study. We cannot generalize these findings due to above mentioned limitations. However, the present study gives a good idea about depression in moderate and severe diabetic patients.

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