

## Original Research Article

# Prevalence of depression among diabetic patients -a prospective study

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### Abstract:

**Introduction:** Depression is both a cause and consequence of Diabetes mellitus. Diabetes mellitus and Depression are chronic debilitating conditions that are associated with high rates of complications and death. Depression is contributing factor to mortality, morbidity and increase health care costs. Many times physicians are unable to identify depression in patients with DM. This study was conducted to determine the prevalence depression among diabetes mellitus patients.

**Materials and methods:** Patients with type 2 diabetes mellitus for more than 5-year duration with no prior history of psychiatric illnesses or intake of anti-depressants attending medical outpatient department/ Diabetic op in various tertiary care medical college hospitals in Tamil Nadu and Kerala , are assessed through a questionnaire ,FBS,PPBS,HbA1c was obtained to assess glycemic control. Depression was assessed with the Major Depression Inventory and scores obtained were classified as consistent with mild, moderate and severe depression.

**Results:** Total number of 1009 patients selected 242 (24%) had depressive symptoms. Among them 155 (64 %) had mild depression, 82 (34%) had moderate depression, and 5 (2%) had severe depression.

**Conclusions:** In persons with diabetes there is an increased risk of developing depression. And if depressed, they may have a greater chance of developing type 2 diabetes.. And effectively managing one can have a positive effect on the other. Over ONE FOURTH of patients with type 2 diabetes mellitus of over 5-year duration had depressive symptoms. The presence of depressive symptoms was associated with a significant worsening of glycemic control.

**Keywords:** Depression; Type 2 diabetes mellitus; Prevalence.

### Introduction

One of the greatest challenges of medicine is treating co morbidity, where two or more disease occurs together in the same individual. Diabetes mellitus is a chronic disease which affects virtually every organ in the human system. The World Health Organization projected that 300 million people will suffer from diabetes by 2025

People with diabetes who have depression often find it more difficult to follow diabetes treatment, diet, exercise and have poor metabolic control. They have also higher complication rates, increased health cost, and increased disability, lost productivity, lower quality of life and increased risk of death Biologists and epidemiologists identify depression as both a cause and consequence of diabetes. While medical social scientists have elucidated some of the complex socioeconomic and psycho physiological pathways linking the two chronic conditions , Diabetes mellitus is associated with doubled risk for co morbid depression compared to healthy

controls, hampering the patient's quality of life . Most of the time, depression is not considered an important factor, often ignored and left untreated depression is contributing factor to mortality, morbidity and increase health care costs and many times physicians are unable to identify depression in patients with Diabetes Mellitus. So for the integrated management of co morbidity of depression with Type 2 Diabetes mellitus, it is necessary to carry out this study.

### Study design

Patient with Type 2 Diabetes Mellitus, more than 5 years visiting the Outpatient Department in various medical colleges in Tamil Nadu and Kerala were enrolled in this study after taking consent.

Those participants who were already diagnosed psychiatric problems were excluded from the study. The primary objective of the study was to find the prevalence of depression among patients with diabetes mellitus and to find the association between depression and socio-demographic variables.

### Data collection procedure

Patients were given pro forma to fill the data regarding socio-demographic profile and status of diabetes mellitus. Major depression inventory tool was used to assess depression.

### Result

Total of 1009 patients diagnosed with 5 years of Type 2 DM were selected and given Questionnaire on socio-demographic profile and Modified Major Depression Inventory was administered to the subjects under study. Baseline characteristics of study participants .

Characteristics	Category	Frequency
Age (years)	30-39	99
	40-49	381
	50-59	288
	≥ 60	241
Gender	Male	680
	Female	329
Body Mass Index (kg/m <sup>2</sup> )	19-25	314
	>25	695
Duration of diabetes in months	0-90	653
	91-180	177
	181-270	111
	271-360	68
Daily Exercise	Yes	510
	No	499
Family Type	Nuclear	699
	Joint	310
Family Income in rupees	≤ 1,00,000	859

Characteristics	Category	Frequency
	>1,00,000	150
Other Health Problems	Yes	230
	No	779
Depression among study population	242	

The majority of the study population represents the age group of 40-49 years. Similarly, 68% of the study population belongs to the male and 26-30 category of body mass index each. Likewise, majority i.e., 65% falls under 0-90 category of the duration of diabetes and 51% carry out daily exercise. Moreover, most of the study participants take oral medications and living in a nuclear family. Most of the participants i.e., 85% had family income  $\leq$  1,00,000 and 77% had no other health problems.

Demonstrate that there was a significant association between depression and associated health problem . Similarly, the association between exercise and depression was significant

Characteristics	Category	Level of depression		P value
		Below median	Above median	
Duration of diabetes	$\leq$ 72 months	30%	23%	0.169
	>72 months	20%	27%	
Body Mass Index	$\leq$ 26 mg/kg <sup>2</sup>	28%	23%	0.317
	>26 mg/kg <sup>2</sup>	22%	27%	
Family Type	Nuclear	39%	30%	0.052
	Joint	11%	20%	
Family Income	$\leq$ Rs. 60,000	33%	24%	0.069
	>Rs. 60,000	17%	26%	
Health Problem	Absence	45%	32%	0.002
	Presence	5%	18%	
Exercise	Yes	33%	18%	0.003
	No	17%	32%	

Of 1009 diabetes mellitus, the prevalence of depression in the present study was 24%. In a study conducted by Thomas J et al. the prevalence of depression was reported up to 36% among type 2 Diabetes Mellitus.

#### How they're related

Though the relationship between diabetes and depression isn't fully understood, The moment, the diagnosis of diabetes is made, there starts shock and the doctor's advice to take life - long drugs and life style modification advise, non healing ulcers, frequent infections, micro and macro vascular complications, retinopathy, nephropathy, coronary artery heart disease, erectile dysfunction and poly pharmacy, cost of the drug ,side effect

of the drugs, all causes depression. Diabetes can cause complications and health problems that may worsen symptoms of depression.

Depression can lead to poor lifestyle decisions, such as unhealthy eating, less exercise, smoking and weight gain all of which are risk factors for diabetes.

Depression affects your ability to perform tasks, communicate and think clearly. This can interfere with ability to successfully manage diabetes.

#### **Managing the two conditions together**

Diabetes programs that focus on behaviour have been successful in helping people improve their metabolic control, increase fitness levels, and manage weight loss and other cardiovascular disease risk factors. They can also help improve your sense of well-being and quality of life.

**Psychotherapy:** Similarly, participants in psychotherapy, particularly cognitive behavioural therapy, have reported improvements in depression, which has resulted in better diabetes management.

#### **Medications and lifestyle changes:**

Medications — for both diabetes and depression — and lifestyle changes, including different types of therapy coupled with regular exercise can improve both conditions.

#### **Collaborative care:**

New research shows that treatment supervised by a nurse case manager that steps up therapy when needed helps improve both depression and diabetes. This type of care may not be available in most health care systems.

Patients with diabetes should watch for signs and symptoms of depression, such as loss of interest in normal activities, feelings of sadness or hopelessness, and unexplained physical problems such as back pain or headaches.

#### **Discussion :**

Depression is a matter of great concern in patients with DM. It is not only highly prevalent, but also highly persistent and recurrent leading to a significant negative impact on both clinical outcomes and QoL. Besides, impaired QoL further deteriorates clinical outcomes and has been prospectively associated with increased mortality in DM

Nevertheless, depression stills remain rather under diagnosed and undertreated. Katon et al, in a retrospective population-based study among 4385 patients with DM, identified an inadequate rate of correct depression recognition (51%) over a 12-month period prior to the study. Furthermore, only 31% of the patients correctly diagnosed with depression received adequate dosage of antidepressants, while only 6.7% of them received an adequate amount (defined as  $\geq 4$ ) of psychotherapy sessions over the 12-month period. Frequency of primary care visits ( $\geq 7$ ), alongside with female gender, poor self-rated physical health, panic attacks and dysthymia were factors independently associated with increased likelihood for correct depression recognition. A further sensitization of health care professionals, especially in primary care, is imperative, in order to enhance timely detection and treatment of depression in DM. American Diabetes Association recommends that patients with DM, particularly those with poor disease control, should be screened for psychosocial and psychological disturbances or disorders, such as depression. Concerning the management of depression in DM, psychotherapy combined with psycho educational interventions or collaborative care (psychotherapy or pharmacological treatment combined with psycho education and psychosocial interventions) seem to be cost-effective and yield

beneficial results, both on mental health outcomes as well as diabetes management and glycaemic control. Pharmacotherapy alone is a significant therapeutic option, particularly in contexts where more integrated strategies are not easily applicable, though its effectiveness in treating depression alongside with improving glycaemic control seems not to be equivalent. Furthermore, given the disparities among different antidepressants concerning both their effect on glycaemic control and their potential side-effects, further research with longer and larger clinical trials and with larger variance of glycaemic control among the samples is needed, in order to provide sufficient data on the optimal antidepressant treatment in patients with DM. Still, even in contexts where a highly organized collaborative care can not be applied, the enhancement of patient-doctor relationship providing the patient with the opportunity to verbalize concerns and emotions related to living with diabetes, could be therapeutic.

#### **Conclusions:**

In persons with diabetes there is an increased risk of developing depression. And if depressed, they may have a greater chance of developing type 2 diabetes. And effectively managing one can have a positive effect on the other. Over ONE FOURTH of patients with type 2 diabetes mellitus of over 5-year duration had depressive symptoms. The presence of depressive symptoms was associated with a significant worsening of glycaemic control.

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