



## Toll of depression among diabetics and their care takers: A descriptive study from Bangalore, India

Shalini P<sup>1</sup>, George C.E<sup>2</sup>, Norman G<sup>3</sup>, Mukherjee D<sup>4</sup>

Community Health Department, Bangalore Baptist Hospital, Bangalore, Karnataka 560024, India. 1- Junior Consultant, 2- Consultant, 3- Professor and Head, 4- Research Consultant

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### Corresponding Author:

Dr. George, C.E., M.D., Consultant, Community Health Department, Bangalore Baptist Hospital, Hebbal, Bellary Road, Bangalore, Karnataka, India. – 560024. Email: [carolinelizabethj@gmail.com](mailto:carolinelizabethj@gmail.com)

### Abstract:

**Objective:** To study the prevalence of depression among diabetics and their care givers. **Methods:** A cross sectional hospital based study was conducted by interviewing the selected diabetic patients and their care givers using internationally accepted Beck's Hopelessness Scale to determine the prevalence of depression. **Results:** The prevalence of depressive illness was high (52%) not only among diabetics but also among their care givers (44.5%). Diabetics with complications (neuropathy and retinopathy) and on insulin treatment were more likely to be depressed than those without complications and/or on treatment oral hypoglycaemic agents. **Conclusion:** The high prevalence in the care giver group warrants screening and concomitant therapy.

**Key words:** Caregivers; Depression; Diabetics; Prevalence

### Introduction

Diabetes mellitus is being increasingly recognized as a serious global health problem. [1] The International Diabetes Federation (IDF) estimates the total number of people in India with diabetes to be around 50.8 million in 2010, rising to 87.0 million by 2030. [2]

Diabetes is the most psychologically and behaviourally demanding of the chronic medical illnesses. Of all the chronic medical illness, it may be particularly affected by depression.

It is possible that family members who provide care to individuals with chronic conditions are themselves at risk. Care of a family member who is affected by a chronic disease demands a variety of emotional and physical adjustments from the part of the care giver. Though the care giver delivers the care out of love and obligation, the demands can lead to stress and depression. Emotional, mental, and physical health problems arise from complex care giving situations and the strains of caring for frail relatives.

Not much literature is available to assess the burden of depression among caregivers of diabetes patients. There are no Indian studies showing the burden of diabetic care givers' depression. This study is an attempt to identify the prevalence of depression among diabetes patients and their caregivers.

## Material and Methods

### Study design / Methodology:

A cross-sectional study was carried out among diabetic patients and their caregivers attending the out-patients department of a tertiary hospital in Bangalore.

The study population comprised of two groups – Patients with Non-Insulin Dependent Diabetes Mellitus (NIDDM) and their caregivers.

### Non-Insulin Dependent Diabetes Mellitus (NIDDM) group:

The known cases of non-insulin dependent diabetes on treatment were selected by purposive sampling and enrolled.

### Inclusion Criteria:

- Participants aged between 30-90 yrs who are known cases of non-insulin dependent diabetes
- Participants who are diabetic & are on anti-depressants for treatment of depression were also included.

### Exclusion Criteria:

- Have other active, major co-morbid mental health conditions (substance abuse, schizophrenia, bipolar disorder, post-traumatic stress syndrome etc.)
- Family history of mental health condition.
- Other co-morbid conditions like hypertension, cardiac conditions etc
- Gestational diabetes, impaired glucose tolerance, borderline diabetes
- Those who had psychiatric problems before diagnosis of diabetes, family history of depression.

Apparently healthy care givers accompanying diabetic patients were chosen by purposive sampling. They were matched for age and gender.

The purpose of the study was informed to the participants and informed consent was obtained. After informed consent, both groups were interviewed using a semi structured questionnaire. The questionnaire had two parts, the first part seeking information regarding the demography, socio economic condition, diabetic history and the factors associated with depression. The second part was the Beck's Hopelessness Scale for assessing and scoring depression.

The study was approved by the Institutional Ethics Committee.

### Sample size estimation:

Assuming the prevalence of 25% [3] and standard error of .09, the sample size was calculated as 90. Allowing for attrition, a sample size of 110 was arrived at. Thus a total of 220 subjects (110 in each group) were studied.

### Statistical analysis:

Data was analysed using SPSS version 16. The prevalence of depression in both groups was expressed in percentages. The associated factors were analysed by Chi-square and univariate analysis. A multi nominal regression was carried out using the significant variables in both the groups.

### Results:

Majority of the population studied were in the economically productive age group (40-60 yrs), residing in semi-urban and urban areas and belonging to upper middle socio economic class. A quarter of the population studied were illiterate. Both the groups were matched for age, gender and socio-economic class.

The study reveals a high prevalence of depression among diabetic patients (52.7%) and their caregivers (44.5%). It was interesting to note that the prevalence of depression among caregivers was almost similar to diabetic patients ( $p=0.2$ ). Demographic parameters like age, gender, socioeconomic status and education did not show any significant association with depression in both the groups. (Table 1).

**Table 1: Factors associated with depression among diabetics and caregivers**

Parameter	Total Diabetics n=110 (%)	Depression (%)	$\chi^2$ p-value	Total number n = 110 (%)	Depression (%)	$\chi^2$ p-value
<b>Age</b>						
< 50	45(40.9)	20 (44.4)	2.09	55(50)	21(38.2)	1.8
> 50	65(59)	38 (58.4)	0.108	55(50)	28 (50.9)	0.25
<b>Sex</b>						
Male	54(49.09)	24(44.4)	2.9	49(44.5)	19 (38.7)	2.9
Female	56(50.9)	34 (60.7)	0.08	61(55.4)	30 (49.2)	0.08
<b>Education</b>						
Professional	11(10)	6(54.5)		13(11.8)	9 (69.2)	
College	30(27.7)	16 (53.3)	5.9	21(19.09)	8 (38.09)	4.25
School	42(38.2)	17 (40.4)	0.116	44(40)	17 (38.6)	0.23
None	27(24.5)	19 (70.3)		32(29.09)	15 (46.87)	
<b>Social Class</b>						
Lower	48(43.6)	27 (56.2)	0.69	47(42.7)	20 (42.5)	0.49
Middle	26 (23.6)	12 (46.15)	0.70	33(30)	14 (42.4)	0.78
Upper	36 (32.7)	19 (52.7)		30(27.7)	15 (50)	
<b>Type of treatment</b>						
Insulin	28(25.4)	9 (32.1)				
OHA	60(54.5)	39(65)	8.85			
Both	22(20%)	10 (45.5)	<b>0.012*</b>	-	-	-
<b>Complications</b>						
No	60(54.5)	24 (40)				
Retinopathy	24(21.8)	18 (75)	11.95	-	-	-
Neuropathy	13(11.8)	10 (77)	<b>0.008*</b>			
Nephropathy	13(11.8)	6 (46.15)				

\*significant

Univariate as well as multivariate results indicated that the type of treatment (Insulin) and presence of complications (neuropathy and retinopathy) were significant predictors for depression among diabetics. (Table 2)

**Table 2: Strength of association between risk factors and depression among diabetic patients**

Parameter		Wald statistics	Adjusted OR	95% confidence interval	P Value	
Type of treatment	OHA <sup>R</sup>					
	Insulin	7.466	4.228	1.503	11.890	<b>.006</b>
	Both	1.004	1.881	.547	6.470	.316
Complications	Absent <sup>R</sup>					
	Retinopathy	6.825	4.334	1.442	13.022	<b>.009</b>
	Neuropathy	5.793	6.067	1.398	26.337	<b>.016</b>
	Nephropathy	.607	1.668	.460	6.040	.436

**Discussion:**

This study found that the prevalence of depression in diabetics (52.7%) as well as their caregivers (44.5%) were higher than that of the general population (15.1%). Similar studies conducted on diabetes patients also show a high prevalence of depression (41% in study conducted in Chandigarh) [3]. There are no Indian studies conducted among caregivers of diabetes patients. The findings were in accordance with a study done by Anaforoğlu et al who reported that family caregivers of diabetic patients appeared to be more prone to depression and tended to have a poorer quality of life [4].

Also the results showed that other parameters like age, gender, education and social status had little role to play in care giver depression. Irrespective of these variables a huge proportion of the care givers were found to be depressed.

It is evident from the results that the prevalence of depression is high not only among the diabetics but also among their care givers and demands further research. The care-givers are usually left neglected and they tend to take their own health conditions for granted while looking after a chronically ailing patient which is quite a risky behaviour. The alarmingly high prevalence of diabetes in India also raises concern over the increase in the number of caregivers and the associated stress in both the groups.

**Conclusion:**

Studies have shown that caregivers of patients suffering from any chronic debilitating

disease have higher rates of anxiety, stress and poorer quality of life as compared to non-care givers or general population [5].

The study reveals a high prevalence of caregiver depression and thus promoting awareness regarding their health status must be included in this routine care. Caregiver depression is a complex clinical and social problem influenced by the physical, social, financial and mental condition of the patient as well as the care giver. Perhaps family physicians can play a vital role in assessing the stress in both the groups as well as helping them to cope up with the same. In spite of being conducted on a small sample size, this study depicted a high toll of depression among the care givers which indicates the need for further large scale studies in this area. .

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