



Contents lists available at ScienceDirect

Diabetes & Metabolic Syndrome: Clinical Research & Reviews

journal homepage: www.elsevier.com/locate/dsx



Original Article

Prevalence and determinants of diabetes distress in patients of diabetes mellitus in a tertiary care centre

Deepak Gahlan^a, Rajesh Rajput^a, Pratibha Gehlawat^{b,*}, Rajiv Gupta^b

^a Department of Endocrinology & Medicine V, Pt. B.D.S. PGIMS, Rohtak, Haryana, India

^b Department of Psychiatry, Pt. B.D.S. PGIMS, Rohtak, Haryana, India

ARTICLE INFO

Article history:
Available online xxx

Keywords:
Diabetes mellitus
Diabetes distress
Prevalence
Predictors

ABSTRACT

Background: Patients of diabetes mellitus experience psychological difficulties associated with their disease which remains unrecognized involving several states related to coping with diabetes. Diabetes distress is a distinct condition which is often mistaken for depression and is related to adverse disease outcomes.

Aims and objective: To study the prevalence and predictors of diabetes distress in patients of Type 2 Diabetes mellitus (T2DM) in a tertiary care centre.

Materials and methods: This cross-sectional study was conducted over a period of one year at Endocrine OPD of Pt. B.D. Sharma PGIMS, Rohtak, a tertiary care centre in northern India. 410 consecutive patients having T2DM attending the endocrine OPD were screened for psychiatric disorders and 189 diabetic patients with no underlying psychiatric disorders were included in the study. Their socio-demographic and relevant clinical variables were recorded. Diabetes Distress Scale (DDS) was used to measure distress due to the disease in these patients.

Results: It was found that the prevalence of diabetes distress was 18.0%; among them 16.1% had emotion related distress, 5.6% regimen related distress, 1.5% interpersonal related distress and 1.2% physician related diabetes distress. The major predictors for high diabetes distress scores among diabetic cases were low education level, retinopathy, neuropathy and hypertension.

Conclusion: The present study suggests that emotion related diabetes distress was more prevalent among diabetic patients. Lower education level and the presence of diabetic complications contribute as risk factors for high diabetes distress.

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1. Introduction

Diabetes is one of the most common metabolic disorders in the world. India has the largest number of diabetic population in the world and there will be more than 123 million diabetic population in India by 2040 [1]. Diabetic patient experience many psychiatric co-morbidity that are significantly associated with impaired health-related quality of life, more days off work, non-adherence, and difficulties with diabetes self-care [2]. It has been well understood that there is strong association between diabetes and depression

Recently, it has been documented that diabetes-specific distress is not uncommon in patients of diabetes due to chronic course of the illness. Diabetes distress is a disease-specific problem encountered among diabetic patients and related to diabetes

outcomes [3]. Diabetes distress refers to the unique, often hidden emotional burdens and worries that are part of the spectrum of the patient experience, when managing a severe, demanding chronic disease, like diabetes [4]. Diabetes distress remains persistent over time and is found to be distinct from clinical depression in linkage with disease management [5–8]. Previous reports have suggested that most patients with high depressive affect are not necessarily clinically depressed, but rather they are suffering from high levels of diabetes-related distress [5,6]. The prevalence of diabetes distress has been reported ranging from 18 to 35% [3,5–8]. It was found that 17.2% diabetic patients without diabetes distress at initial assessment, reported high diabetes distress during the following 18 months [3]. It is not only burdensome itself but also it can impede the self caring behavior of patients, thereby compromising glycemic control as compared to non-depressed and non-distressed [6,9]. It has also been suggested that diabetes distress, not clinical depression or depressive symptoms is significantly and positively associated with glycaemic control [7]. Hoorn study showed that worsening glucose metabolism is

* Corresponding author.

E-mail address: pratibhagehlawat2017@gmail.com (P. Gehlawat).

associated with increasing diabetes related distress [10]. It was also found to be linked with a more negative appraisal of insulin therapy and patients treated with insulin reported significantly higher diabetes distress compared with oral- or diet-treated patients [11,12]. Thus, previous literature strongly suggests that high levels of diabetes distress have been significantly associated with poor glycemic control, poor self care, low diabetes self efficacy, and poor quality of life, even after controlling for clinical depression [3,7,13–15].

A limited literature is available regarding the prevalence and determinants of diabetes distress among diabetic patients, especially in Indian sub-continent. Therefore, the present study is an attempt to study the prevalence and determinants of diabetes distress in patients of type 2 diabetes mellitus in a tertiary care centre of northern India.

2. Material and methods

This cross-sectional study was conducted over a period of one year at Endocrine OPD of Pt. B.D. Sharma PGIMS, Rohtak, Haryana, India. The study protocol was approved by the Ethics Committee of the institute. 410 consecutive patients having type2 diabetes mellitus were screened for any comorbid psychiatric disorders. 221 patients having comorbid psychiatric disorders were excluded.

2.1. Inclusion criteria

- 1 Patients above 18 years of age,
- 2 Patients of either sex,
- 3 Patients having type 2 diabetes mellitus irrespective of their duration of illness or diabetic treatment.

2.2. Exclusion criteria

- 1 Patients with chronic medical or surgical illness other than diabetes mellitus,
- 2 Patients on long term treatment for other medical illness,
- 3 Patients who were terminally ill,
- 4 Patients having renal, neurological or cardiovascular dysfunction who require immediate hospitalization for serious illness and,
- 5 Patients who were on corticosteroids or any psychotropic drug.
- 6 Patients having any comorbid psychiatric illness.

A total of 189 type 2 diabetic patients constituted the study sample according to inclusion and exclusion criteria. An informed, written consent was taken from all the participants.

2.3. Measures

- 1 A semi-structured proforma was used to obtain socio-demographic variables of patients and relevant past medical and psychiatric history and duration of illness, treatment taken for diabetes. Anthropometric measurements including weight, waist circumference, BMI, were recorded. Fasting and post-prandial plasma glucose level, glycosylated hemoglobin levels were done. Also, lipid profile, serum creatinine, spot urine for microalbuminuria, fundoscopy was done to assess for any diabetes related complications.
- 2 Diabetes Distress Scale (DDS): It is rating scale used to measure potential problem areas that people with diabetes may experience. It has 17 items which include emotional burden, physician related distress, regimen-related distress and interpersonal distress. Each item is rated considering the degree to which each of the 17 items may have distressed or bothered the diabetic patients during the past month. Mean item score of ≥ 3 taken as a level of distress worthy of clinical attention [16].

2.4. Statistical analysis

The data collected was entered in the Microsoft excel format and was analyzed using SPSS 17. A descriptive statistical analysis was done for continuous and categorical variables. Differences in characteristics between participants were tested with unpaired *t* test for normally distributed variables and with the chi-square test for categorical variables. Binary logistic regression model was used to examine association between predictor variables and risk of diabetes distress. Results were expressed as odds ratio (OR) and 95 per cent confidence intervals (CI). The *p* values were two tailed and probability level of significant difference was set at $<.05$.

3. Results

A total of 410 diabetic patients were screened in the study. Out of which 108 (26.3%) and 113 (27.6%) diabetic patients who found to suffer from depression and anxiety respectively were excluded, the remaining 189 diabetic patients were subjected to Diabetes Distress Scale (DDS). The baseline characteristics of participants

Table 1
Sociodemographic Characteristics of Participants.

	DISTRESS PRESENT (n = 34)	DISTRESS ABSENT (n = 155)	p Value
Sex	M/F = 0.21	M/F = 0.32	.391
Age (in years)	54.26 ± 11.38	54.94 ± 9.69	.118
Income (Rs./month)	14514.70 ± 8257.67	15624.56 ± 9168.82	.771
Height (cm.)	157.79 ± 7.04	161.54 ± 9.49	.015
Weight (kg.)	63.85 ± 6.58	68.69 ± 10.23	.023
BMI (kg./m ²)	25.69 ± 2.62	26.41 ± 3.99	.017
Waist (cm.)	96.23 ± 9.60	96.64 ± 11.45	.377
Fasting plasma sugar (mg/dl)	170.79 ± 44.59	153.00 ± 51.44	.237
Postprandial plasma sugar (mg/dl)	244.82 ± 55.48	232.27 ± 63.86	.135
Triglycerides (mg/dl)	208.64 ± 63.88	201.68 ± 55.86	.405
Cholesterol (mg/dl)	223.29 ± 52.22	211.92 ± 55.03	.981
HDL (mg/dl)	43.02 ± 8.42	43.37 ± 8.88	.916
LDL (mg/dl)	117.41 ± 28.09	110.76 ± 20.94	.034
VLDL(mg/dl)	37.73 ± 14.62	40.77 ± 14.45	.484
Duration of diabetes (in years)	6.64 ± 4.77	3.53 ± 1.4	.772
HbA1c (%)	10.14 ± 1.86	9.69 ± 2.08	.187
Spot Urine for Microalbuminuria (mg/l)	63.68 ± 88.77	43.48 ± 76.10	.001

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