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ORIGINAL RESEARCH

Assessment of diabetes-related distress among type II diabetic patients

[1]Dr. Bijan Kumar Panda, [2]Dr. Saubhagya Chhotaray, [3]Dr. Desabandhu Behera, [4]Dr Rabinarayan Rout

[1]Assistant Professor, Department of Community Medicine, Bhima Bhoi Medical College and Hospital, Balangir, Odisha, India
[2]Assistant Professor, Department of Emergency Medicine, Bhima Bhoi Medical College and Hospital, Balangir, Odisha, India
[3]Assistant Professor, Department of Medicine, Bhima Bhoi Medical College and Hospital, Balangir, Odisha, India
[4]Assistant Professor, Department of General Medicine, Kalinga Institute of Medical science & PBMH, Bhubaneswar, Odisha, India

Correspondence:
Dr Rabinarayan Rout
Assistant Professor, Department of General Medicine, Kalinga Institute of Medical science & PBMH, Bhubaneswar, Odisha, India
Email: dr.rabinarayanrout@gmail.com

Abstract

Background: Diabetes related distress (DRD) is the emotional response to living with diabetes, the burden of relentless daily self-management and its long-term complications. The present study was conducted to assess diabetes-related distress among type II diabetic patients.

Materials & Methods: 135 type II diabetes mellitus patients of both genders were provided with the questionnaire and the DDS17 items of diabetes distress scale. The scale components had 4 reliable subscales via item mean scores: emotional burden, physician-related distress, regimen-related distress, and interpersonal distress. The scores were classified regarding the severity as: <2.0 as little or no distress (not significant), 2.0 to 2.9 as moderate distress, and ≥3.0 as high distress.

Results: Out of 135 patients, males were 85 and females were 50. Age was 20years to 40 years in 17, 40 years to 60 years 96 and more than 60 years was 22.Education level found to be illiterate in 25, upto high school in 52 and upto graduation in 58. Marital status was unmarried in 10% and married in 90%.Only 19% participants were unemployed and 24% of participants income was less than Rs.10000/- Diabetes duration was <5 years in 55, 5-10 years in 61 and >10 years in 19. Sleep duration was <6 hours in 54, 6-8 hours in 60 and >8 hours in 21. Complications were retinopathy in 5, nephropathy in 25, neuropathy in 21 and cerebrovascular accident in 4 patients. P value < 0.05 was considered significant. The mean DDS17 scale components showed emotional distress score of 2.1, physician-related distress score of 1.8, regimen-related distress score of 1.9, interpersonal distress score of 2.1 and total distress score of 2.0.

Conclusion: Diabetes-related distress found to be moderate among type II diabetic patients. Hence, it is essential as clinicians to address diabetic distress in the patients for better glycemic outcome.

Key words: Diabetes Mellitus, Diabetes distress score, Glycemic control

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Introduction

Diabetes Mellitus (DM) is a complex, chronic illness requiring continuous medical care with multi factorial risk reduction strategies beyond glycemic control.[1] The prevalence is expected to further increase to 9.9% that reflects a population of 628.6 million people by the year 2045.

Diabetes-related distress (DRD) is the emotional response to living with diabetes, the burden of relentless daily self-management and its long-term complications. Diabetes-related distress is defined as "patient concerns about disease management, support, emotional burden, and access to care. It is associated with lower levels of self-care and general emotional wellbeing. If left untreated, mild diabetes distress may develop into severe diabetes distress and/or depression.[3] It can also lead to adverse medical and psychological outcomes, including reduced physical activity, less healthy eating, not taking medication as recommended, less frequent self-monitoring of blood glucose, elevated HbA1c, more frequent severe hypoglycemia and impaired quality of life. Diabetes distress can be measured across 4 domains which include physician-related distress, emotional burden, interpersonal distress, and regimen distress.[4]

Diabetes distress brings about unfavorable attitudes among patients toward tackling the disease such as poor compliance to medication, poor diet control, disinterest in exercises, irregular follow-up visits, and poor self-care.[5] There is a higher incidence of complications associated with diabetes patients having distress. Addressing the distress improves both self-care and glycemic control. New aids are now available for both patients and clinicians to help diagnose diabetes distress.[6] The present study was conducted to assess diabetes‑related distress among type II diabetic patients.

Materials & Methods

The present study was conducted in Bolangir, Odisha from August 2021 to July 2022. Comprised of 135 type II diabetes mellitus patients of both genders. Consent was taken from all the participants in the study. Patients who were more than 20 years old, and having more than 5 years of diabetes were included in the study. Patients with T1DM, and those who had gestational diabetes, sever ill patients and those with psychiatric illness were excluded from the study.

Data such as name, age, gender etc. was recorded. Parameters such as marital, literacy, employment, income, sleep time and physical activities etc. were recorded. Those were doing exercise and /or walking daily, considered as non sedentary. Diabetic status such as duration of diabetics and associated complications were recorded. All were provided with the questionnaire and the DDS17 items of diabetes distress scale. The diabetic distress scale consisting of 17 questions was used to measure distress among diabetes patients across four domains: Physician-related distress, emotional burden, interpersonal distress, and regimen distress. Each item of the DDS17 tool was scored on a likert scale from 1 (no distress) to 6 (serious distress) related to distress experienced over the last month. The scores were classified regarding the severity as: <2.0 as little or no distress (not significant), 2.0 to 2.9 as moderate distress, and ≥3.0 as high distress. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I Socio-demographic variables

Parameters	Variables	Number	%
Age	20-40 years old	17	13
	40-60 years old	96	71
	>60 years old	22	16

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Gender	Male	85	63
	Female	50	37
Education	Illiterate	25	19
	High school	52	39
	Graduation	58	42
Marital status	Unmarried	14	10
	Married	121	90
Employment	Unemployed	25	19
	Employed	99	73
	Business	11	8
Average monthly family income in Rupees	<10000	32	24
	10000-30000	67	50
	>30000	36	26
Sleep duration	<6 hours	54	40
	6-8 hours	60	44
	>8 hours	21	16
Physical activity	Sedentary	47	35
	Non-sedentary	88	65
Diabetes duration	<5 years	55	41
	5-10 years	61	45
	>10 years	19	14
Complications	Absent	81	60
	Present	54	40
	Retinopathy	5 (9%)	
	Nephropathy	25 (46%)	
	Neuropathy	21 (37%)	
	Cerebrovascular accident	4 (7%)	

Table I shows that among 135 respondents, 63% were male. Education level found to be illiterate in 19%, upto high school in 39% and upto graduation in 42%. Marital status was unmarried in 10% and married in 90%.Only 19% participants were unemployed and 24% of participants income was less than Rs.10000/-. Sleep duration was <6 hours in 40%, 6-8 hours in 44% and >8 hours in 16%. 65% of respondents were non sedentary. Diabetes duration was <5 years in 41%, 5-10 years in 45% and >10 years in 14%. Complications was present in 40% of cases out of which retinopathy in 9%, nephropathy in 46%, neuropathy in 37% and cerebrovascular accident in 7% of patients.

Table II DDS17 scale components

DDS17 scale components	Mean	SD
Emotional distress score	2.1	1.3
Physician-related distress score	1.8	1.1
Regimen-related distress score	1.9	0.8
Interpersonal distress score	2.1	1.2
Total distress score	2.0	0.7

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Graph I DDS17 scale components

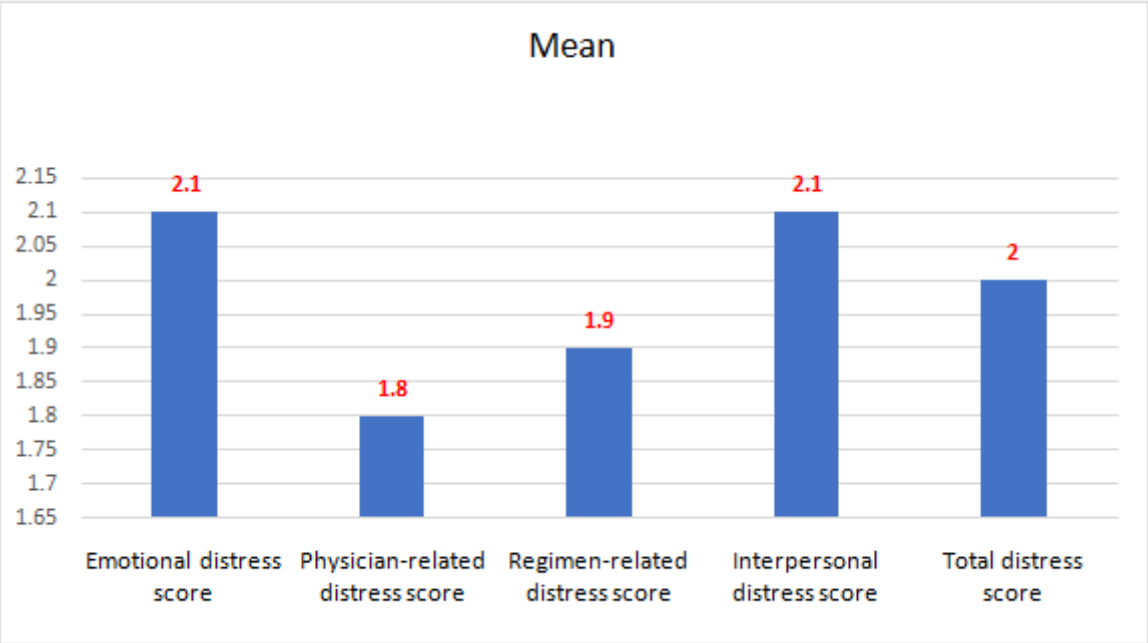

Table II, graph I shows that mean DDS17 scale components showed emotional distress score of 2.1, physician-related distress score of 1.8, regimen-related distress score of 1.9, interpersonal distress score of 2.1 and total distress score of 2.0

Table II levels of distress of diabetes

Parameters	Variables	Number	Little or no distress	Moderate distress	High distress	P value
Age	20-40 years old	17	10	4	3	0.04
	40-60 years old	96	62	27	7	
	>60 years old	22	10	5	7	
Gender	Male	85	57	20	8	0.12
	Female	50	25	16	9	
Education	Illiterate	25	15	6	4	0.85
	High school	52	33	12	7	
	Graduation	58	34	18	6	
Marital status	Unmarried	14	7	5	2	0.66
	Married	121	75	31	15	
Employment	Unemployed	25	13	8	4	0.78
	Employed	99	63	24	12	
	Business	11	6	4	1	
Average monthly family income in Rupees	<10000	32	17	11	4	0.27
	10000-30000	67	49	15	3	
	>30000	36	21	12	3	
Sleep duration	<6 hours	54	32	10	12	0.04
	6-8 hours	60	39	18	3	
	>8 hours	21	11	8	2	
Physical activity	Sedentary	47	26	14	7	0.63
	Non sedentary	88	56	22	10	
Diabetes duration	<5 years	55	40	14	1	0.02

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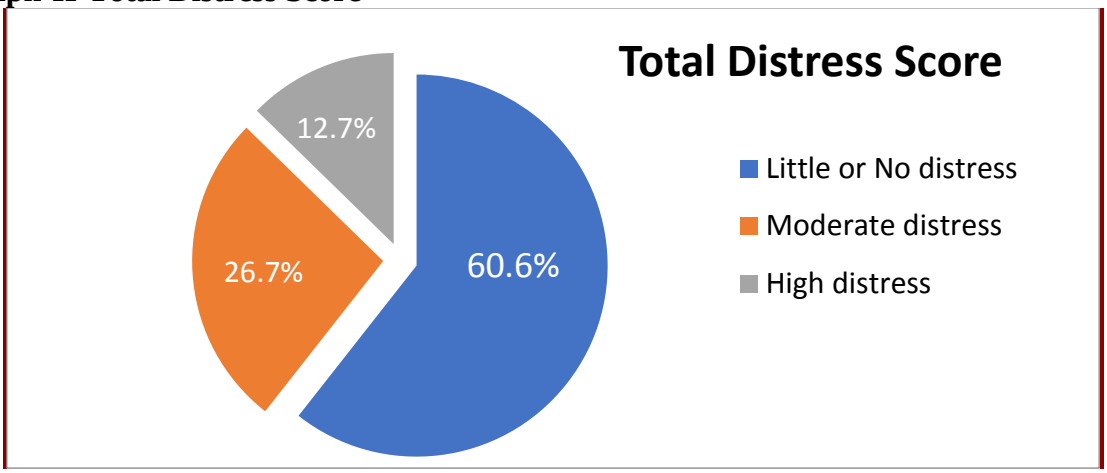
	5-10 years	61	34	15	12	
	>10 years	19	8	7	4	
Complications	Present	55	28	15	12	0.02
	Absent	80	54	21	5	

($P < 0.05$, Statistically significant)

Table III shows that there was no statistically significant difference in diabetes distress score for gender, educational status and marital status. No statistically significant difference of diabetes score was also found in employment and income. There was statistically significant difference at the $p<0.05$ level in diabetes distress score for age ($p<0.04$) and sleep duration ($p<0.04$)). With decreasing sleep duration the distress score was increasing. The distress score was high with increasing age and it was very high after 60 years of age. There was statistically significant difference in diabetes distress score for duration of DM ($p<0.02$ and diabetic complications ($p<0.02$).

Graph-II-Total Distress Score



The proportion of diabetes distress among the study population was 39.4% which include 12.7% high distress and 26.7% moderate distress. The remainder 60.6% had little or no distress.

Discussion

Diabetic distress is a significant health problem among patients with T2DM. Once diagnosed with diabetes, the patient has to bring about a drastic change in his/her lifestyle to achieve favorable metabolic control and to avoid complication.[7,8] This process is complex which involves a multitude of self-care activities ranging from strict adherence to medication, diet, physical activity, and frequent blood glucose monitoring.[9] On a longer run, the disease can create an emotional burden among patients which might affect the activities related to diabetes self-care.[10,11] The present study was conducted to assess diabetes‐related distress among type II diabetic patients.

We found that out of 135 patients, males were 85 and females were 50..Alotaibi et al[12] assessed the prevalence of diabetes-related distress (DRD) among Type 2 diabetics. A total of 399 T2DM patients were included in the study, 58.4% were males. High distress was seen in 40 patients. Multivariate analysis showed that longer duration of diabetes (>15 years), female gender, longer intervals in-between visits (>6 months), and experience of episodes of severe hypoglycemia as the most significant factors related to higher levels of distress. The patients who were diabetics longer than 15 years had an increased risk for high distress by 3.6 times, infrequent clinic visits (longer than 6 months) increased the risk for high distress by 5.3

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times×, and patients who experienced severe hypoglycemia had an increased risk for high distress by 5.8 times.

We observed that education level found to be illiterate in 25, upto high school in 52 and upto graduation in 58.Out of 135 participants 90% were married. Diabetes duration was <5 years in 55, 5-10 years in 61 and >10 years in 19. Sleep duration was <6 hours in 54, 6-8 hours in 60 and >8 hours in 21. Complications were retinopathy in 5, nephropathy in 25, neuropathy in 21 and cerebrovascular accident in 4 patients. Nagabhushana A et al[13] assessed diabetes distress and other factors, which affect glycemic control in patients with type 2 diabetes mellitus (T2DM) and to assess the relation between hemoglobin A1c (HbA1c) and diabetes distress, duration of illness, educational status and treatment modalities, and body mass index (BMI). Among 280 patients, 184 patients had diabetic distress and among them, 58.2% had severe distress, 7.5% had moderate distress, 34.3% had little/no distress, 83.1% had emotional burden, 59.2% had physician-related distress, 60.4 had regimen-related distress, and 83% had interpersonal distress. The diabetes distress was significantly associated with age and medication adherence with educational status. 51.4% had poor glycemic control with HbA1c of >7. The factors significantly associated with poor glycemic control included duration of diabetes with $P = 0.008$, diabetic distress with $P = 0.00$, and no significant association with educational status, age, BMI, and treatment modalities. Nithin Kumar et al assessed the diabetes related distress in their study and found high distress score was 12.9% ($n = 16$)which is par with uor study[10]

We observed that mean DDS17 scale components showed emotional distress score of 2.1, physician-related distress score of 1.8, regimen-related distress score of 1.9, interpersonal distress score of 2.1 and total distress score of 2.0. Ajmariya et al[14] assessed the prevalence of diabetes related distress (DRD) among Type 2 diabetics. A total of 100 subjects were screened (69 males and 31 females). Their demographic and clinical data are presented. The subjects were aged 35–85 years with a mean ± SD of 50.5 ±8.0 years. The mean age for subjects with T1DM was 51.25±9.36 years and for those with T2DM 50.41±0.642 years. Average scores for T1DM were DDS-2, 3.9 ± 1.3 and DDS-17, 3.0 ± 1.0 and for T2DM, DDS-2, 2.4 ± 1.1 and DDS-17, 1.8 ± 0.8. Scores for the different parameters of distress were graded in terms of severity. DD (score ≥2 or moderate to severe distress) was present in 70.0% for DDS-2, 49.0% for DDS-17, 56.0% for EB, 13.0% for PRD, 51.0% for RRD, and 41.0% for ID.

The limitation of the study

We did not have HbA1C levels of the study participants, which limit the understanding of diabetic distress on glycemic control

Conclusion

Authors found that diabetes-related distress found to be moderate among type II diabetic patients. Hence, it is essential as clinicians to address diabetic distress in the patients for better glycemic outcome.

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