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Original Research Article

Study of depression among patients with type 2 diabetes mellitus at a tertiary care hospital

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ABSTRACT

Background: Diabetes and depression are two major issues related to community health. Diabetes patients frequently co-occur with depression. Diabetes patients frequently co-occur with depression, which calls for serious attention because delayed diagnosis and treatment can worsen the patients' complications. Assessing the prevalence of depression in diabetic patients and identifying the various factors associated with it were the objectives of this research study.
Methods: In this study 70 adult patients suffering from type 2 DM participated in this 6-month prospective study. Sociodemographic data and clinical features of the participants were collected. The presence and severity of depressive symptoms in patients have been assessed by a PHQ9 questionnaire. Ethical approval was taken before the commencement of the study. SPSS (Version 20) was used for data analysis.
Results: The majority of the patients were from 41-50 years of age group (32.9%) with a female predominance (58.6%), with no symptoms of depression before type 2 DM (92.9%). Most of them had primary education (32.9%) and majority were homemakers (44.3%) residing in urban are (65.7%) living joint family setup (68.6%). Most of them had 11 to 20 years of type 2 DM duration (745.8%) with a high family history of type 2 DM (75.7%). Majority of them were on Oral therapy (47.1%) with ophthalmic complications (32.9%). The majority of them had mild depression (5-9) i.e. 67.1%.
Conclusions: Due to patient-specific diabetes management and inappropriate diabetes treatment, the majority of cases were found to have depressive disorders. This article focused on a few common factors and their relationships that lead to depression in people with diabetes.

Keywords: Depression, Management of T2DM, Type 2 diabetes mellitus

INTRODUCTION

In today's culture, depression and diabetes are both common ailments. Approximately 8-10% of adults worldwide have type 2 diabetes (T2DM), according to the studies that are currently available. This percentage is rising steadily over time.[1,2] Diabetes reportedly affects 200 million people globally. If measures are not taken to halt the illness, the number is projected to reach 333 million by 2025.[3] Furthermore, it's estimated that 121

million people worldwide suffer from depression as of right now. 10% of women and 6% of men will experience a depressive episode in any given year.[4]

Diabetes and depression are associated with a higher risk of morbidity and death. When these two conditions coexist, there's also a higher likelihood of developing comorbidities, poor blood glucose control, complications, complaints, and higher medical expenses.[5]

The prevalence of depression is higher in the diabetes population than in the healthy population, as is widely known, but less is known about whether depression raises the risk of complications from diabetes. In our nation, diabetes and depression are both very common, and research on their relationship has primarily focused on Western populations. We are unable to generalize Western data to Indian populations because of their distinct dietary and lifestyle practices. The literature on depression and diabetes in inpatient settings, where patients are expected to have more complications, is lacking, and the majority of earlier studies were conducted in outpatient settings. To more accurately determine the relationship between depression and T2DM complications, our research concentrated on the population with the disease.

METHODS

It is a prospective, observational study conducted for 12 weeks (Nov-2023 to Jan-2024) at the Department of General Medicine in Deccan college of Medical Sciences, in Hyderabad. The study comprised 70 T2DM patients having depression assessment of either gender, aged between 20 to 60 years. The institution's ethical committee gave its clearance before the study was carried out. Before the research study, all patients were asked for written informed permission and given a thorough explanation of the advantages and dangers in their native tongue.

Inclusion criteria

Patient with type 2 diabetic mellitus, and patients or legally authorized relatives giving written informed consent were included.

Exclusion criteria

The study excluded patients with a history of type 1 DM, and metabolic disorders, gastrointestinal, cardiovascular, renal, and liver disorders, etc. And, patients with a history of mental illness, not given consent for the study, who previously received psychiatric medications were excluded.

Study procedure

The selection of the patients was based on convenience sampling. Participants were assessed for depression and quality of life if they expressed interest in participating in the study. Patients who were capable of responding to the questionnaire and willing to participate in the study were enrolled. Patients having a documented psychiatric history, who did not provide consent for the study, and who had previously been prescribed psychiatric drugs were excluded from the study. The specialized psychiatrist evaluated all the patients who were sent to the outpatient department (OPD). The severity of depression symptoms was assessed using the Patient Health Questionnaire (PHQ-9). The scores and cases of PHQ-9 were classified as follows: 1. No depression - (0-4), 2. Mild depression - (5-9), 3. Moderate depression - (10-14), 4. Moderately severe depression - (15-19) and 5. Severe depression - (20-27).

Statistical analysis

Data was analyzed using SPSS software. Data were expressed as Mean ± SD and p value <0.05* was considered statistically significant.

RESULTS

In the present study, most of the patients were from the age group of 41 to 50 years (32.9%) with female patients in the majority (58.6%) (Figure 1 and 2).

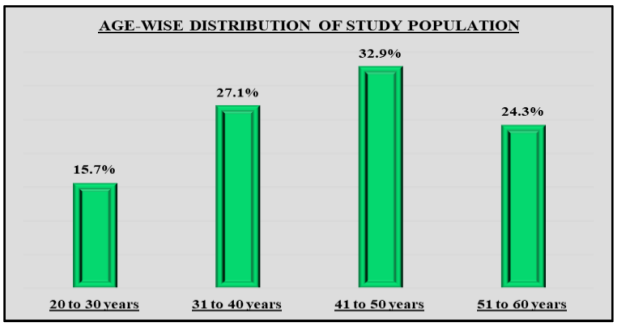

Figure 1: Age-wise distribution of the study population.

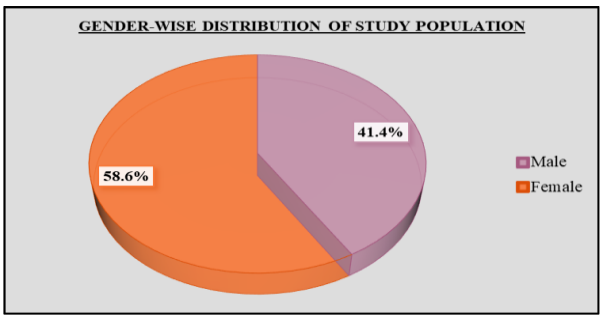

Figure 2: Gender-wise distribution of the study population.

Almost more than half (92.9%) of the subjects did not have symptoms of depression before type 2 diabetes mellitus (Figure 3).

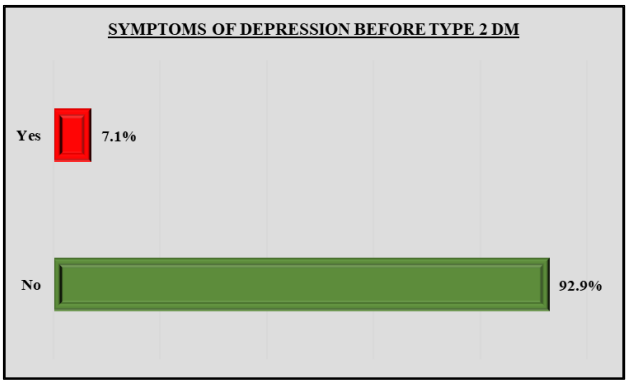

Figure 3: Symptoms of depression before type 2 diabetes mellitus.

The majority of the participants were educated till primary (32.9%) and were residing in an urban locality (65.7%) with a middle-class socioeconomic status (57.1%). Most of them were married (72.9%) and were living in a joint family setup (68.6%), respectively (Table 1).

Table 1: Sociodemographic parameters.

Variables	Frequency (n=70)	Percentage (%)
Educational status		
Illiterate	11	15.7
Primary	23	32.9
Secondary	14	20
Undergraduate	12	17.1
Postgraduate	10	14.3
Occupation		
Homemaker	31	44.3
Private/Govt employee	09	12.9
Self-employed	11	15.7
Other	19	27.1
Living area		
Urban	46	65.7
Rural	24	34.3
Socioeconomic status		
Low class	18	25.7
Middle class	40	57.1
High class	12	17.1
Marital status		
Married	51	72.9
Unmarried	19	27.1
Family setup		
Joint family	48	68.6
Nuclear family	22	31.4

Table 2 indicates the clinical features of the participants, in which the majority of them had 11 to 20 years of duration of type 2 diabetes mellitus (45.7%), with more than half (75.7%) family history of T2DM. The results showed that a high number of participants were on oral antidiabetic treatment (47.1%) with uncontrolled T2DM (57.1%) with ophthalmic complications (32.9%), respectively.

Table 2: Clinical features.

Clinical Features	Frequency (N)	Percentage (%)
Duration of type 2 diabetes mellitus		
> 1 year	10	14.3
5 to 10 years	16	22.9
11 to 20 years	32	45.7
> 20 years	12	17.1
Family history of type 2 diabetes mellitus		
Yes	53	75.7
No	17	24.3
Type of antidiabetic treatment		
Oral	33	47.1
Injecting	18	25.7
Both	19	27.1
Blood sugar levels		
Uncontrolled type 2 diabetes mellitus	40	57.1
Controlled type 2 diabetes mellitus	30	42.9
Complications of type 2 diabetes mellitus		
Cardiovascular	17	24.3
Renal	16	22.9
Ophthalmic	23	32.9
Others	14	20

Table 3 illustrates the depression among type 2 diabetic patients based on PHQ-9 questionnaire scoring where the majority of the participants seem to suffer from mild depression (5-9) (67.1%).

Table 3: Depression among type 2 diabetic patients based on PHQ-9 questionnaire scoring.

Type of depression	Frequency (N)	Percentage (%)
No depression (0-4)	0	0
Mild depression (5-9)	47	67.1
Moderate depression (10-14)	10	14.3
Moderately severe depression (15-19)	07	10
Severe depression (20-27)	06	8.6

DISCUSSION

The demographic variables show that most of the patients were from the age group of 41 to 50 years (32.9%), in a previous study done in the year, Kumar et al stated that the prevalence rate of depression was higher in ages between 41 and 60 years.[6]

Our findings were in agreement with the previous studies done by Khaledi et al, and Arvind et al, where it was noted that the female patients were in the majority in such studies conducted earlier.[7,8]

Almost more than half (92.9%) of the subjects did not have symptoms of depression before type 2 diabetes mellitus. A study done by Sekhri et al in the year 2023 has shown the similar outcomes where most of the subjects in their study had no symptoms of depression before they suffered from T2DM, respectively.[9]

In the present study, it was noticed that T2DM patients suffering from depression were educated till primary (32.9%) and were residing in an urban locality (65.7%) with a middle-class socioeconomic status (57.1%). Most of them were married (72.9%) and were living in a joint family setup (68.6%), respectively. It is in accordance with the previous studies done by Thour et al, in the year 2015, and with Akpalu et al, in the year 2018 on T2DM related to depression.[10,11]

The clinical features of T2DM with depression depict that the majority of them had 11 to 20 years of duration of type 2 diabetes mellitus (45.7%), with more than half (75.7%) family history of T2DM. The results showed that a high number of participants were on oral antidiabetic treatment (47.1%) with uncontrolled T2DM (57.1%) with ophthalmic complications (32.9%), respectively.[12,13]

The finding of the current study suggests that depression among type 2 diabetic patients based on PHQ-9 questionnaire scoring, the majority of the participants seem to suffer from mild depression (5-9).[14-16]

The primary constraints of the present research study were the limited sample size and the relatively short duration of the study period. Additional research with a substantial sample size are necessary to validate these findings.

CONCLUSION

Depression is very common in people with type 2 diabetes and is linked to many significant outcomes associated with the disease. More than 25% of diabetic patients had depression. Depression was more common in women with diabetes, especially those on insulin, those with long-term diabetes, and those with inadequate diabetes control. Comparable studies in the general population can be conducted to determine the precise prevalence of depression. Healthcare providers, as well as patients and their families, need to be aware of the risk factors for depression in individuals with diabetes. Regular screening for depression is necessary for all subjects diagnosed with diabetes in order to minimise multiple complications down the road.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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