

Psychiatric Morbidity and its Correlations in Diabetic Patients in a Tertiary Care Hospital

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ABSTRACT

Background: Diabetes is a chronic, disease with life altering consequences, which effects virtually every organ in the human system. Co-existence of psychological symptoms and DM becomes a grave challenge for the clinicians as both illnesses worsen the outcomes. Depression/ Anxiety is one of the raising causes of seeking health care. Presence of psychiatric symptoms seriously impairs the health-related quality of life among diabetic patients. Psychiatric symptoms can decrease adherence to self-care practices, contributing to higher HbA_{1c} levels. Individuals with diabetes are having 2 to 4 times greater risk of psychological distress when compared to individuals without diabetes. **Materials and Methods:** This prospective, observational study was conducted in the department of Psychiatry 150 patients were enrolled into the study who attended the outpatient department. **Discussion:** Among 150 subjects, majority of the study subjects 119 (79%) were found to be anxiety condition than depression at the time of assessment. The subjects with depression were found to be 28 (17%) The presence of depression among subjects who are taking Insulin, OHA, both were found to be 11.5%, 4.6% and 1% respectively. The distribution of anxiety in subjects who are taking Insulin, OHA, both were found to be 8%, 51.3% and 19.3% respectively. **Conclusion:** The study found a high proportion of anxiety among patients with T2DM. Therefore the care of individuals with DM should include the screening and possible treatment of anxiety in order to achieve and sustain treatment goals.

Keywords: Diabetes mellitus, Depression, Anxiety, Insulin, Oral hypoglycaemics, Psychiatric illness, Stress, HbA_{1c}, Fasting blood glucose level, Post prandial blood glucose level.

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INTRODUCTION

The aim of study is to assess the prevalence of psychiatric morbidity and its clinical correlates in patients with DM (Diabetes Mellitus). This study examines the prevalence of Psychiatric illness in DM, the association between blood sugar levels and psychiatric diseases, and also to assess the personality status of a patient.

Diabetes is a chronic disease with life altering consequences, which effects virtually every organ in human system.¹ According to the International Diabetes Federation “diabetes is one of the largest global health emergencies of the 21st century. India has the second largest number of diabetic populations in the world and it is estimated that there will be 69.9 million diabetic population in India by 2025.² The prevalence of diabetes worldwide was one

in 11 adults, Diabetes Mellitus (DM) has been estimated to vary from 8 to 15%.

Depression is one of raising cause of seeking health care. World Health Organization (WHO) has ranked depression as one of the leading cause of disability, which is characterized by Anhedonia, low mood, reduced energy, feeling of guilt and disrupted sleep or appetite.¹ Presence of depressive symptoms seriously impairs the health related quality of life among those with DM.⁵ Physiological burden of a patient may also trigger the anxiety and depression.³ Depression is associated with impaired glucose control, functional disability, end organ complications and mortality.⁷ Diabetic distress is a distinct condition were patients endeavour to manage their disease in their daily life.¹ It is associated with lower levels of treatment adherence.⁷ Emotional burden, physician related distress, regimen related distress and interpersonal distress are the different origins of diabetic distress.⁴ Depression and diabetic distress can decrease adherence to self-care practices, contributing to higher HbA_{1c} levels.⁴

Anxiety is the most prevalent mental health condition which is less visible than schizophrenia and depression and bipolar



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disorder, they can be just as disabling. Anxiety can be effectively treated with psycho-pharmacological and cognitive behaviour interventions.⁸ Anxiety disorders are manageable, treatment have been developed and algorithms have been recaptured.

Anxiety and depression were found to be 58% and 45% in outpatients with DM respectively.⁵ Many researchers have investigated the risk factors related to DM, which predisposes the people to develop psychological distress. Among all diabetic complications neuropathy, nephropathy are considered to be the most robust predictors of psychological symptoms.⁶ Psychological burden has an synergetic effect in patients with DM, increasing the risk for macro and micro vascular nature, increased hyperglycaemia are independently associated with increased morbidity and mortality.^{3,5} Research that has attempted to link the disease has shown that the presence of diabetes doubles the likelihood of co-morbid physiological effect.¹ The lying reason for these is mostly unknown but it has been hypothesized because of the physiological stress that accompanies the burden of managing the disease or because of the direct effect of diabetes on the brain.¹

Diabetic distress is associated with higher HBA1c and suboptimal self-care. Individuals with DM are more prone to get the risk of psychological distress than individuals without diabetes.⁴ Early identification of depressive symptoms can prevent further complications of diabetes and increase necessity for hospitalization, thereby it can reduce the burden on patient as well as healthcare professional.⁴

Co-existence of psychological symptoms and DM becomes a grave challenge for the clinicians as both illnesses worsen the outcomes. Combination of psychological distress, and DM reduces overall quality of life, impairs self-management of diabetes, increase the risk of diabetes complications and reduces over all life.

MATERIALS AND METHODS

A prospective observational study on psychiatric morbidity and its clinical corelates in diabetic patients in psychiatry department tertiary care hospital, SVIMS. This study was approved by IEC (IEC NO.1260). Patient records (150) were scrutinised to evaluate the psychiatric illness in diabetic patients. In psychiatry department, 150 diabetic patients were examined regarding psychiatric illness on the basis of both inclusion and exclusion criteria. A structured patient demographic form was used to collect the patient details like age, occupation, type of diabetes, past medical history (any psychiatric disorder), past medication history (using any psychiatric medications), treatment chart. This study focuses on current study is to assess comorbid psychiatric problems in diabetic patients who are first time presenting to the psychiatry outpatient department. This study is to assess the prevalence of psychiatric morbidity and its clinical corelates in diabetes mellitus patients by using Patient demographic proforma, MINI 6.0.2 version (Mini International neuropsychiatry

Interview), Big five inventory scale (BFI -10), Brief cope scale, APGAR (Adaptation Partnership Growth Affection Resolve) family function scale. A descriptive analysis of the data was done using Microsoft excel 2013 and results were expressed as numbers and percentage.

Study Criteria

Inclusion criteria

- Patients diagnosed with diabetes mellitus.
- Either gender.
- Who gave the informed consent.
- Naïve to Psychiatry medication.

Exclusion criteria

- Patients who were not willing to participate in the study were excluded.
- Substance use.
- Patients with other comorbid conditions were excluded.
- Patients with known history of psychiatric illness were excluded.
- Pregnant women and lactating women were excluded.

Study Procedure

Hospital based cross-sectional study was carried out in the Department of Psychiatry at SVIMS-SPMCW, Tirupati. This study was carried out over a period of 6 months prospectively. Before initiation of the study ethics committee approval was obtained. Patients was included in the study based on the inclusion and exclusion criteria. A structured patient demographic form was used to collect the patient details. DM patients, MINI 6 version (Mini-International neuropsychiatry Interview), BFI-10 scale, Brief cope scale, APGAR family function scale, were used to assess the prevalence of psychiatric illness in DM patients. Based on the score obtained from the above scale, Depression, Anxiety, Stress was assessed. Data was statistically analyzed and evaluated the significance of results.

Data Collection

A structured data collection form with patient demographic proforma was used to collect the patient details like age, sex, weight, family history, past medical history, social history and MINI 6 version (Mini International neuropsychiatry Interview) BFI-10 scale, Brief cope scale, APGAR family function scale, was used to assessed the prevalence of psychiatric morbidity and its clinical corelates in patients with DM. A descriptive analysis of the data was done using Microsoft Excel 2013 and results were expressed as numbers and percentage.

Table 1: Frequency of Age Distribution.

Sl. No	Age (years)	Frequency	Percentage
1	15 – 30	19	12.8%
2	30 – 40	30	20 %
3	40 - 50	50	33.3%
4	50 - 60	64	42.7%

Table 2: Frequency distribution of gender.

Sl. No	Gender	Frequency	Percentage
1	Female	62	41 %
2	Male	88	59%

Table 3: Education status of the subjects.

Sl. No	Education status	Frequency	Percentage
1	Uneducated	60	40.7%
2	SSC	36	24.7%
3	+12	18	12.7%
4	Degree	25	17.3%
5	Post Degree	11	7.8%

Table 4: Frequency of occupation in the subjects.

Sl. No	Occupation	Frequency	Percentage
1.	House wife	39	26.0%
2.	Teacher	13	8.7%
3.	Farmer	34	22.7%
4.	Student	02	1.3%
5.	Softwares	02	1.3%
6.	Employee	09	6.0%

RESULTS

A total of 150 patient case records were assessed and enrolled into our study from the department of psychiatry, endocrinology by considering the inclusion criteria to assess the psychiatric morbidity in diabetic patients.

Frequency of Age Distribution

A total of 150 subjects were enrolled in the study, among them 19 (12.8%) patients were under the age group of 20-30, 30 (20%) patients were under the age group of 30-40, 50 (33.3%) patients were under the age group of 40-50, 64 (42.7%) patients were under the age group of 50-60. Frequency of age distribution is shown in the Table 1.

Frequency Distribution of Gender

Among 150 subjects enrolled in the study, 60 (40%) patients were females and 90 (60%) patients were males. Frequency of Gender distribution is shown in the Table 2.

Education status of the study population

Among 150 subjects enrolled in the study 40.7% were uneducated, 24.7% were SSC completed subjects, 12.7% were intermediated passed, 17.3% and 7.8% were degree and post degree holders respectively. Education status of the study population is represented in Table 3.

Frequency of Occupation in Subjects

Among 150 subjectes enrolled in this study 26.0% were house wives, 8.7% were working as teachers, 22.7% subjects were farmers, 1.3% were enrolled as students, 1.3% were softwares, 6.0% were Employees, as shown in the Table 4.

Type of Diabetes in Study Population

A total 150 subjects were enrolled in this study among them 147 (98%) subjects were diagnosed with T₂DM and 3(2%) subjects were diagnosed with T₁DM, as shown in the Table 5.

Table 5: Frequency of type of diabetes.

Sl. No	Type of diabetes	Frequency	Percentage %
1	Type-1 Diabetes mellitus	3	2%
2	Type-2 Diabetes mellitus	147	98%

Table 6: FBS levels in subject population.

Sl. No.	FBS Range (mg/dL)	Frequency	Percentage (%)
1	50-86	2	1.33
2	86-122	21	14
3	122-159	39	26
4	159-195	41	27.3
5	195-231	26	17.3
6	231-268	4	2.66
7	268-304	3	2

Table 7: PPBS levels in sample population.

Sl. No.	PPBS Range (mg/dL)	Frequency	Percentage (%)
1	50-100	1	0.6
2	100-150	8	5.33
3	150-200	13	8.66
4	200-250	41	27.3
5	250-300	44	29.33
6	300-350	17	11.33
7	350-400	13	8.66
8	400-450	1	0.6
9	450-500	1	0.6
10	500-550	0	0
11	550-600	1	0.6

FBS Level in Subject Population

A total 150 subjects were in the study among that maximum $n=41$ (27.3%) subjects were in the range of 159-195 (mg/dL) and minimum $n=2$ subjects were in the range of 50-86 (mg/dL), as shown in the Table 6.

PPBS Levels in Sample Population

A total 150 subjects were in the study among them maximum $n = 41$ subjects were in the range of (250-300 mg/dL) and minimum $n = 0$ subjects were in the range of (500-550 mg/dL), is shown in Table 7.

Current medications using by the sample population

A total of 150 samples were enrolled for this study among them 16 members were on insulin treatment, 118 were on oral hypoglycemics and 16 members were on both Insulin+oral hypoglycemics, as shown in Table 8.

Oral Hypoglycemics Using by the Sample Population

A total of 150 subjects were enrolled for this study among them 63 (41.7%) members were on Biguanides treatment, 11 (7.5%) were on sulfonyl ureas drugs, 4 (3%) members on Alpha glucosidase, 1 (0.7 %) members were on Thiazolidinediones, as shown in Table 9.

Subjects with combination therapy were found that 58 (38.6%) were on Biguanides+sulfonyl ureas, 4 (2.5%) were on Biguanides+SGLT₂ inhibitors and 9 (5.8%) were on Biguanides + DPP-4 inhibitors, as shown in Table 10.

Type of insulin using by the subjects

A total of 150 subjects were enrolled in this study out of them 22 (14.6%) were on intermediate acting insulin, 7 (4.6%) samples were using shortacting insulin, 2 (1.33%) were on Rapid acting insulin, as shown in Table 11.

Table 8: Current medications using by the sample population.

Sl. No	Medications	Frequency	Percentage (%)
1.	Oral hypoglycemics	118	78.6
2.	Insulin	16	10.6
3.	Insulin+oral hypoglycemics	16	10.6

Table 9: Oral hypoglycemics using by the sample population.

Sl. No	Oral hypoglycemics	Frequency	Percentage (%)
1.	Biguanides	63	41.7
2.	Sulfonylureas	11	7.5
3.	Alpha glucosidase	4	3
4.	Thiazolidinediones	1	0.7

Table 10: Combination Therapy using by the subjects.

Sl. No	Combination therapy	Frequency	Percentage (%)
1	Biguanides+sulfonyl ureas	58	38.6
2	Biguanides+SGLT-2 inhibitors	4	2.5
3	Biguanides+DPP-4inhibitors	9	5.8

Table 11: Type of insulin using by the subjects.

Sl. No	Type of insulin	Frequency	Percentage (%)
1.	Intermediate acting	22	14.6
2.	Short acting	7	4.6
3.	Rapid acting	2	1.33

Table 12: Big five Extraversion score distribution.

Sl. No	Score	N	Percentage(%)
1.	2	2	1.3
2.	3	6	4
3.	4	16	10.6
4.	5	33	22
5.	6	44	29.3
6.	7	22	14.6
7.	8	18	12
8.	9	7	4.7
9.	10	2	1.3

Big-Five Personality Scale

Among 150 subjects in this study, IN BIG FIVE EXTROVERSION Maximum 44 subjects having score of 6, minimum 8 subjects having score of 2 which represents that those subjects are very social in personality and Reserved personality respectively, as shown in Table 12.

Among 150 subjects in this study, In BIG FIVE AGREEABLENESS, Maximum 42 subjects having score of 6, minimum 1 subjects having score of 2 which represents that those subjects are polite,friendly in nature and self suspected personality respectively, as shown in Table 13.

Among 150 subjects in this study, In BIG FIVE CONSCIENTIOUSNESS, 40 Maximum subjects having score of 5, 1 Minimum subjects having score of 2 which represents that those subjects are discipline, careful person in nature and mersy (anti-social) personality respectively, as shown in Table 14.

Among 150 subjects in this study, In BIG FIVE NEUROTICISM, 34 Maximum subjects having score of 6, 2 Minimum subjects having score of 10 which represents that those subjects are Anxiety, being emotional person in nature and calm, unemotional person respectively, as shown in Table 15.

Table 13: Big five Agreeableness score distribution.

Sl.No	Score	N	Percentage (%)
1	2	2	1.33
2	3	6	4
3	4	16	10.6
4	5	33	22
5	6	44	29.3
6	7	22	14.6
7	8	18	12
8	9	7	4.66
9	10	2	1.33

Table 14: Big five score conscientiousness distribution.

Sl. No	Score	N	Percentage (%)
1	2	1	0.6
2	3	9	6
3	4	25	16.6
4	5	40	26.6
5	6	31	20.6
6	7	19	12.6
7	8	13	8.6
8	9	5	3.33
9	10	7	4.66

Table 15: Big five Neuroticism score distribution.

Sl. No	Score	N	Percentage(%)
1	2	5	3.33
2	3	5	3.33
3	4	16	10.6
4	5	28	18.6
5	6	34	22.6
6	7	32	21.3
7	8	16	10.66
8	9	12	8
9	10	2	1.33

Among 150 subjects in this study, In BIG FIVE OPENESS, 31 Maximum subjects having score of 7, 3 Minimum subjects having score of 2 which represents that those subjects are Anxiety, being emotional person in nature and calm, unemotional person respectively, as shown in Table 16.

APGAR family functional scale

Among 150 subjects in this study, In BIG FIVE OPENESS, 54 Maximum subjects having score of 9-10, 2 Minimum subjects having score of 3-4 which represents that those subjects are Highly functional towards family and dysfunctional respectively, as shown in Table 17.

Depression

Among 150 subjects in this study, Through MINI SCALE assessment of DEPRESSION, 122 (83%) subjects were not having any Major depressive symptoms and 28 (17%) were having DEPRESSION SYMPTOMS, as shown in Table 18.

Anxiety

Among 150 subjects in this study, Through MINI-SCALE 6.0.2 assessment ANXIETY was found to be 79% (119) with Anxiety and 21% (31) without any Anxiety symptoms. In this study it was

Table 16: Big five openness score distribution.

Sl. No	Score	N	Percentage(%)
1	2	3	2
2	3	4	2.66
3	4	25	16.6
4	5	29	19.3
5	6	26	17.33
6	7	31	20.6
7	8	15	10
8	9	11	7.3
9	10	6	4

Table 17: APGAR Family functional scale score distribution.

Sl. No	Score	N	Percentage(%)
1	3 – 4	2	1.33
2	4 – 5	5	3.33
3	5 – 6	6	4
4	6 – 7	6	4
5	7 -8	17	11.3
6	8 - 9	33	22
7	9 – 10	54	36
8	10 - 11	27	18

Table 18: Frequency of Depression distribution

Sl. No	Variable	Frequency	Percentage(%)
1.	With Depression	28	17
2.	Without Depression	122	83

Table 19: Frequency of Anxiety distribution.

Sl. No	Variable	Frequency	Percentage(%)
1.	With Anxiety	119	79
2.	Without Anxiety	31	21

found to be Subjects who were diagnosed with DM majority are suffering with the ANXIETY SYMPTOMS, as shown in Table 19.

Brief Cope Scale

Problem Focused

Among 150 subjects in this study, In PROBLEM FOCUSED, 28,27, Maximum subjects having score of 18,19 respectively, 4 Minimum subjects having low score which represents that those subjects having high score indicates handling of stressful situations whereas low score subjects cant handle their own stressful conditions, as shown in Table 20.

Emotion Focused

Among 150 subjects in this study, EMOTION FOCUSED were found to be 53 Maximum subjects having score of 29-30, 6

Minimum subjects having low score which represents that those subjects having high score indicates coping strategies better aiming to regulate emotions associated with stressful situations, as shown in Table 21.

Avoidant Coping

Among 150 subjects in this study, In AVOIDANT COPING, 48 Maximum subjects having score of 18-20, 3 Minimum subjects having low score of 7-14 which represents that those subjects having high score represents physical or cognitive efforts to disengage from stressor, who are having low score indicates typically indicative of adaptive coping, as shown in Table 22.

Table 20: Brief cope-problem focused scale score distribution

Sl. No	Score	N	Percentage(%)
1	12	1	0.6
3	14	5	3.33
4	15	6	4
5	16	6	4
6	17	18	12
7	18	28	18.6
8	19	27	18
9	20	15	10
10	21	13	8.66
11	22	12	8
12	23-27	19	12.6

Table 21: Brief cope Emotional focused scale score distribution.

Sl. No	Score	N	Percentage(%)
1	15-18	1	0.66
2	18-22	5	3.33
3	22-25	32	21.3
4	25-29	36	24
5	29-32	53	35.3
6	32-36	11	7.33
7	36-39	6	4
8	39-42	6	4

Table 22: Brief cope Avoidant coping scale score distribution.

Sl. No	Score	N	Percentage(%)
1	7 – 9	1	0.6
2	9 – 11	1	0.6
3	11 – 14	1	0.6
4	14 – 16	19	12.6
5	16 – 18	35	23.3
6.	18 – 20	48	32
6	20- 22	38	25.3
7	22 – 24	7	4.66

Comprision of Anxiety in Diabetic Patients with Respect to Medications

Among 150 subjects in the study,comparison of Anxiety in Diabetic patiets with respect to medications are found to be those who are taking oral hypoglycemics, maximum subjects 77 ot of 119 are facing GENERALISED ANXIETY, subjects who are taking Insulin out of 15 members 12 members are suffering with ANXIETY, as shown in Table 23.

Comprision of depression in diabetic patients with respect to medications

Among 150 subjects in the study,comparison of Depression in Diabetic patiets with respect to medications are found to be those who are taking oral hypoglycemics, maximum subjects 19 out of 119 are facing DEPRESSION, subjects who are taking oral hypoglycemics out of 118 members 19 members are suffering with DEPRESSION, as shown in Table 24.

Table 23: Comparison of anxiety in diabetic patients with respect to medications.

Sl. No	Type of treatment	With anxiety	Without anxiety	Total
1	Insulin	12 (8%)	3 (2%)	15
2	Insulin+oral hypoglycemics	14 (9.3%)	2 (1.3%)	16
3	Oral hypoglycemics	77 (51.3%)	42 (2.8)	119

Table 24: Comparison of depression in diabetic patients with respect to medications.

Sl. No	Type of treatment	With depression	Without depression	Total
1	Insulin	7 (4.6%)	9 (6%)	16
2	Insulin+oral hypoglycemics	2 (1.33%)	14 (9.3%)	16
3	Oral hypoglycemics	19 (12.6%)	99 (66%)	118

Table 25: Brief cope scale, BFI, APGAR, DEPRESSION, ANXIETY SCALE analysis according to gender wise

Sl. No	Brief cope Scale	Gender	N	MEAN	Std. deviation	Std. error mean	p-value
1.	PROBLEM FOCUSED	FEMALE	62	19.0323	2.55412	0.324	0.3383 NS
		MALE	88	19.3068	2.71800	0.29	
2.	AVOIDANT COPING	FEMALE	62	18.16	2.606	0.331	0.4307 NS
		MALE	88	18.44	2.626	0.280	
3.	EMOTION FOCUSED	FEMALE	62	29.2419	4.15552	0.528	0.4237 NS
		MALE	88	28.2614	4.74522	0.506	
4.	BFI scale	FEMALE	62	31.1452	5.75411	0.73077	0.5001 NS
		MALE	88	29.1591	5.16372	0.55045	
5.	APGAR scale	FEMALE	62	8.1129	1.67043	0.21214	0.8513 NS
		MALE	88	8.2727	1.55162	0.16540	
6.	Depression	FEMALE	62	1.8226	0.38514	0.04891	0.6268 NS
		MALE	88	1.8068	0.39706	0.04233	
7.	Anxiety	FEMALE	62	1.2097	0.41040	0.05212	0.8797 NS
		MALE	88	1.2045	0.40568	0.04325	

Brief cope scale, BFI, APGAR, DEPRESSION, ANXIETY SCALE analysis according to gender wise

The results reveal that from the t test, regarding gender with problem focused, avoidant coping, emotion focused, APGAR scale, BFI, Depression, Anxiety, wise the *p* values were found to be 0.3383, 0.4307, 0.4237, 0.8513, 0.6268, 0.8797 respectively which is not significant at 0.05 level and concluded that there is no significance difference with respect to gender, as shown in Table 25.

Correlation of Brief Cope Scale, BFI, APGAR, Depression, Anxiety Scale Analysis According to Age, as shown in Table 26.

Correlation of Brief Cope Scale, BFI, APGAR, Depression, Anxiety Scale Analysis According to Medication, as shown in Table 27.

DISCUSSION

The current study aimed at assessment of psychiatric morbidity among those with diabetes in outpatient department in a tertiary care hospital (South India). Furthermore, we aimed at exploring the correlation among diabetes related parameters like glucose levels and psychiatric illness among the study subjects.

In this study, we found that approximately one third of patients with T2DM attending diabetes centres suffer from likely depression and anxiety and that a substantial proportion remain untreated. Patients with depression or anxiety were less likely to achieve the recommendations for smoking cessation, diet, physical activity, and blood glucose monitoring.

Majority of the study subjects 119 (79%) were found to be anxiety condition then depression at the time of assessment. The subjects with depression were found to be 17% (*n*=28). The distribution of depression in among subjects who are taking Insulin, OHA, both were found to be 11.5%, 4.6% and 1%. The distribution of anxiety

Table 26: ANOVA Analysis Brief Cope Scale, BFI, APGAR, Depression, Anxiety scale analysis according to age.

Sl. No	Scale	Degree of Freedom	Mean Square	F value	p value
1	Problem Focused	4	3.464	0.488	0.7446 NS
2	Emotion Focused	4	6.479	0.311	0.8703 NS
3	Avoidant Copying	4	1.491	0.214	0.93 NS
4	BFI	4	44.7971	1.509	0.202 NS
5	APGAR	4	0.451	0.173	0.955 NS
6	Depression	4	0.369	2.515	0.0441*
7	Anxiety	4	0.7141	0.442	0.778 NS

NOTE: NS-Not significant at 0.05 level, * - significant at 0.05 level.

Table 27: Anova analysis Brief Cope Scale, BFI, Apgar, Depression, Anxiety Scale Analysis According to Medication.

Sl. No	Scale	Degree of Freedom	Mean Square	F value	p value
1	Problem Focused	2	69.327	11.264	0.000**
2	Emotion Focused	2	39.729	1.563	0.2129 NS
3	Avoidant Copying	2	18.611	2.792	0.693 NS
4	BFI	2	121.11	4.198	0.016*
5	APGAR	2	2.431	0.951	0.3886 NS
6	Depression	2	0.948	6.672	0.0002**
7	Anxiety	2	0.136	0.820	0.4425 NS

NOTE: NS – Not significant at 0.05 level, * significant at 0.05 level, ** significant at 0.01.

in subjects who are taking Insulin, OHA, both were found to be 8%, 51.3% and 19.3% respectively. In our study we tried to find the various types of psychiatric comorbidities with diabetes using MINI.6.0.2. International Neuropsychiatric Scale.

Proportion of depression and its determinants among type 2 diabetes mellitus patient in various tertiary care hospital, concluded that patients with insulin are facing more depression, our study got more males than females, majority of the subjects facing anxiety (79%) than the depression (17%) and subject with insulin are more prone to get anxiety and depression than with oral hypoglycemics.²

Correlates of anxiety and depression among patients' diabetes mellitus which was concluded that prevalence of anxiety (74%) more than the depression (34%), in the same way sour studies have reported higher prevalence of anxiety than compared to depression in diabetes using MINI.6.0.2. international neuropsychiatric scale.⁵

Proportion of depression and its determinants among type 2 diabetes mellitus patient in various tertiary care hospital, concluded that patients with insulin are facing more depression, our study got more males than females, majority of the subjects facing anxiety (79%) than the depression (17%) and subject with insulin are more prone to get anxiety and depression than with oral hypoglycemics.²

T2DM negatively impacts health-related quality of life and satisfaction with life.

These adverse effects affect many aspects of a person's life, including the psychological effects of chronic illness, dietary restrictions, changes in social life, symptoms of inadequate metabolic regulation, chronic complications, and ultimately lifelong disability.

Influence.

Life satisfaction is a very important factor in the lives of people with type 2 diabetes. Satisfaction with life leads to better treatment outcomes and improved patient health. Health satisfaction is a key component of patient-centered care and is therefore a unique and important concept to consider when developing individualized strategies for treating type 2 diabetes. The concept of diabetes-related health satisfaction includes aspects that are specifically relevant to living with diabetes (blood sugar, blood pressure, weight, etc.). Health satisfaction is more specific than general health-related quality of life because it considers disease-related factors. Satisfaction with diabetes treatment differs, particularly in addressing non-treatment-related issues. Poor health satisfaction in people with type 2 diabetes can negatively affect self-care behaviors and treatment outcomes. It

has been shown to have a significant impact on patient satisfaction with life.

CONCLUSION

The current study aimed at assessment of psychiatric morbidity among those with diabetes in outpatient department in a tertiary care hospital (South India). Furthermore, we aimed at exploring the correlation among diabetes related parameters like glucose levels and psychiatric illness among the study subjects. This study has identified that a high proportion of Type 2 diabetes mellitus patients, (79%) suffer from anxiety. Therefore, the care of individuals with DM should include the screening and possible treatment of anxiety in order to achieve and sustain treatment goals. Identifying anxiety early will further improve the quality of life of diabetes patients. There is no difference with respective age and a gender wise. Patients with a greater number of stressful life events are prone to develop psychiatric comorbidities.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

DM: Diabetes Miletus; **MINI:** Mini International neuropsychiatry Interview; **OHA:** Oral Hypoglycemic Agents.

SUMMARY

Finally, based on this study we summarize that the presence of the disease condition and the type of the treatment which is given to the patient affect the phycological conditions of the patients.

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