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ASSESSMENT OF DEPRESSION AMONG PATIENTS OF DIABETES MELLITUS IN TERTIARY CARE HOSPITAL

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Abstract:
Objective: *We will assess depressive symptoms with diabetes on diabetes self-care treatment non adherence, functioning and health care.*
Study Design: *Cross sectional study*
Place and Duration of Study: *This study was conducted at the Department of Medicine, Sir Ganga Ram hospital Lahore from November, 2018 to October, 2019.*
Materials and Methods*: 120 patients both males and females were selected for this study. We administered a Questionnaire to 120 patients with type 1 and type 2 Diabetes, depressive symptoms, diabetes control, self-care. Assess the impact of depressive symptoms on adherence to diabetes self-care HbA1c levels functional impairment and health care.*
Results: *120 cases were selected, 79 were males 41 were females, 25 pts were of type 1, 95 were of type2. Depression was diagnosed using the structural clinical interview using Beck s Depression Inventory.*
Conclusion: *Findings demonstrate association of depression with diabetes clinical consideration, treatment non adherence, proper drug treatment of diabetes, depression, self-care and counseling mortality can be reduced with incidence of depression.*
Key Words: *Depression, Diabetes Mellitus, Complications, Glycemic control, Treatment, Quality of life.*

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INTRODUCTION:

Diabetes mellitus is chronic illness present in 2 to 5 percent population. Diabetes Mellitus is common problem, 180 million people affected with this disease worldwide.[1] This count can be doubled in 2030 [2]. There are two types of Diabetes Mellitus, type 1 and type 2. Insulin therapy for type 1, oral anti diabetic drugs for type 2 and for uncontrolled type 2 Diabetes Mellitus insulin therapy is recommended.

Depression is more in diabetic than in general population with poor quality of life,[3] patients with diabetes mellitus are 1.4 to 3 times to suffer from co morbid depression as compared to non-diabetic.[4] Uncontrolled diabetes Mellitus with Increase in blood glucose level incidence of complications are increased [5]. Depression in Diabetes Mellitus is due to non-adherence to treatment and self-care.[6]

Risk factors for Depression in Diabetes mellitus are younger age, female, unmarried or divorce and widow, lower socioeconomic level, poor glucose control low social support, ,low education level, complications of Diabetes mellitus, any medical co morbidity and past history of depression.[7] Risk of type 2 Diabetes Mellitus with Depressed Patients is reported to be as high as 1.6.[8]

Depressive symptoms are more in type 2 diabetic patients as compared to type 1 patients.[9] Depression is more noted in Diabetes Mellitus with complications as compared without complications in both type1 and type 2 Diabetes Mellitus.[10] With relationship between depression and diabetes depression may be risk factor for the onset of diabetes.[11] Increased risk of diabetes type 2 patients with depression is due to increased counterregulatory hormone release, disturbance in glucose transport function and raised immune inflammatory activation.[12] Insulin resistance and beta cell dysfunction result due to above physiological mechanism and development of type 2 diabetes mellitus. Poor glycemic control associated with depression in diabetes both type 1 and type 2 patients.[13]

High HbA1c level associate with depression in diabetes.[14] Depressive symptoms are associated with poor adherence to self-care particularly medications, diet and exercise.[15] In a review of treatment adherence among patients with depression in diabetes, it was observed relationship between depression and treatment nonadherence.[16] Comorbid depression among patients with diabetes associated with less physical activity, unhealthy diet, and lower adherence to oral drugs, hypoglycemic, antihypertensives, and ipid lowering [17] Unsatisfactory metabolic control associated with psychiatric comorbidity, depression in diabetes associated with inadequate metabolic control in those patients with poor glycemic control despite good medical treatment. Consequently, poor disease control morbidity and mortality is increased [18].

MATERIALS AND METHODS:

This cross-sectional study was carried out in the Department of Medicine Sir Ganga Ram hospital Lahore from November, 2018 to October, 2019, this study was conducted to observe depression in diabetes with other complications of diabetes in a population poor adherence to treatment and quality of life. Informed consent was taken from the patients. Questionnaire was given to all patients. Data collected according to Questionnaire. Depression was assessed using structural clinical interview using Beck s Depression Inventory on separate questionnaire.

Level of depression according BDI

Total score	Level of Depression
1-10	These ups and downs are considered normal
11-16	Mild mood disturbance
17-20	Border line clinical Depression
21-30	Moderate Depression
31-40	Severe Depression
Over 40	Extreme Depression

Inclusion criteria was as males and females age 12ys to 60ys and depressed patients with DM type 1 and 2. Exclusion Criteria was as age below 12 years and above 60 years, Severe Psychotic illness and Severe medical illness. In order to get correct information Questionnaire was translated into Urdu.

RESULTS:

120 cases were selected for this study 79 were males 41 were females 90 patients belonged to Rural areas 30 belonged to Arabian areas. 20 patients were having age between 12-24 years, 31 patients age was among 25-40 years and 69 patients were having the age 41-60 years. Educational status, marital status, occupation and Socioeconomic status of the patients is given below in the tabular form.

Table No 01: Gender distribution

Gender	Qty	%age
Male	79	65.83%
Female	41	34.17%
Total	120	100%

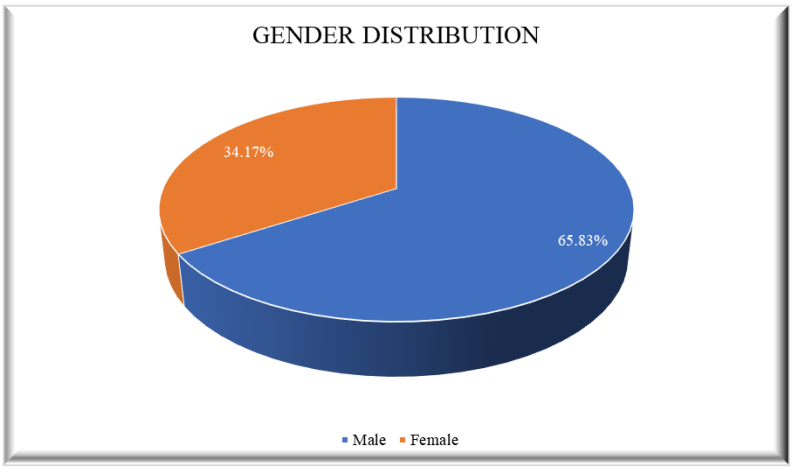
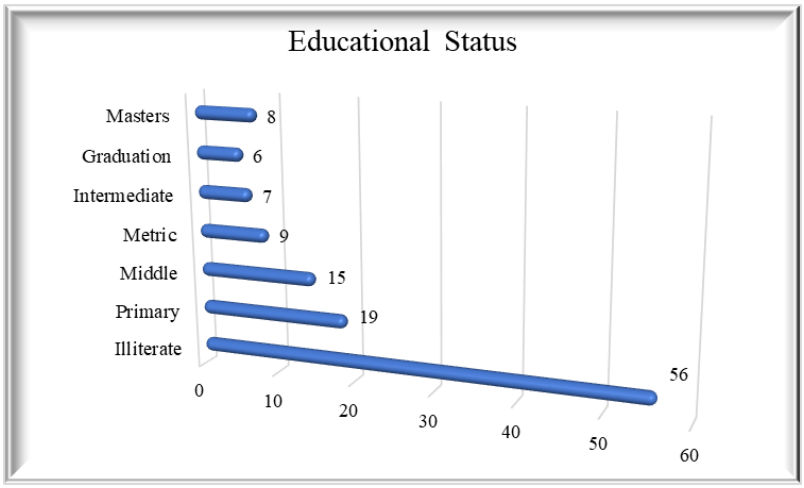
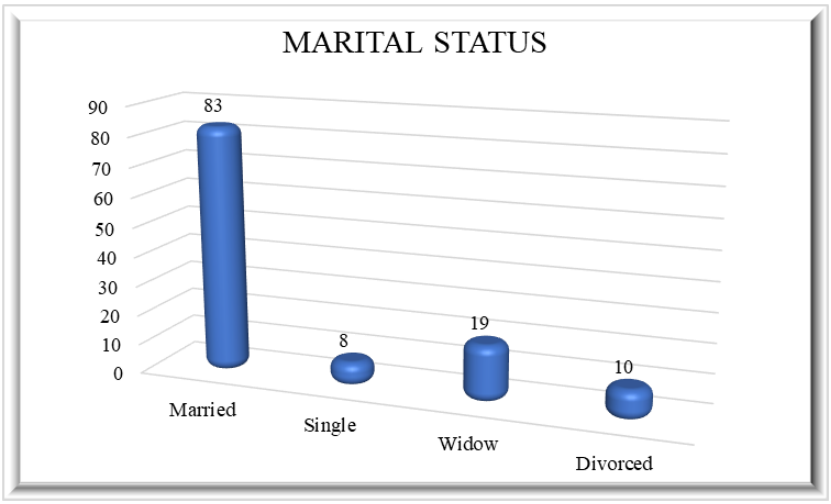


Table No 02: Different statuses of patients

Educational Status		
Illiterate		56
Primary		19
Middle		15
Metric		9
Intermediate		7
Graduation		6
Masters		8
Depression as per marital status		
Married		83
Single		8
Widow		19
Divorced		10
Depression as per occupation		
Farmer		64
House wife		26
Unemployed		10
Service		7
Business		5
Laborer		8
Depression Socioeconomic status		
Lower		80
Middle		39
Upper		01
Investigations	**RBS**	**Qty of patients**
	140-185	60
	185-300	40
	300-450	20
HbA1c Levels	**HbA1c**	
	6.5	58
	7.5	32
	8.5	30





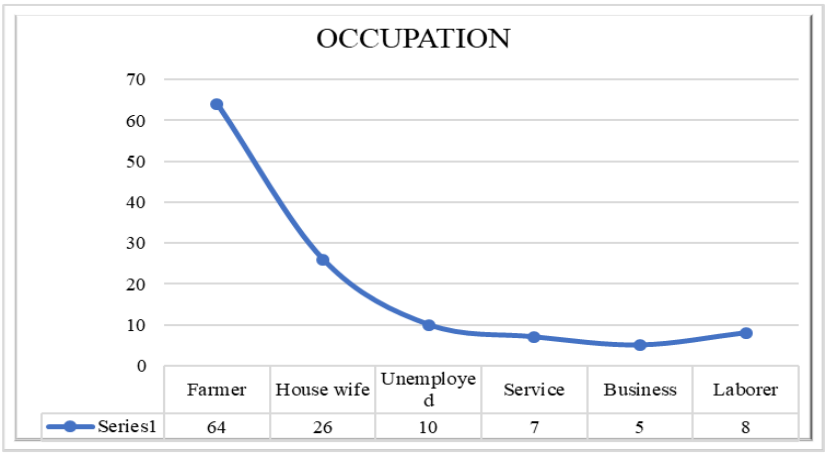


Table No 03: HbA1c Level Details

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	6.5	58	48.3	48.3	48.3
	7.5	32	26.7	26.7	75.0
	8.5	30	25.0	25.0	100.0
	Total	120	100.0	100.0	

Becks Depression Scale status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19.00	1	.8	.8	.8
	20.00	3	2.5	2.5	2.5
	21.00	1	.8	.8	.8
	23.00	1	.8	.8	.8
	24.00	2	1.7	1.7	1.7
	25.00	6	5.0	5.0	5.0
	26.00	4	3.3	3.3	3.3
	27.00	8	6.7	6.7	6.7
	28.00	29	24.2	24.2	24.2
	29.00	26	21.7	21.7	21.7
	30.00	36	30.0	30.0	30.0
	31.00	2	1.7	1.7	1.7
	32.00	1	.8	.8	.8
	Total	120	100.0	100.0	100.0

8.5 in 25 patients type 2 was present in 95 patients, diabetic ketoacidosis in 16 patients, diabetic foot in 70, diabetic retinopathy in 6, pulmonary TB 10, neuropathy 11 diabetic nephropathy 7. Statistical analysis was done on SPSS 20 version.

Table No 04: Descriptive Statistics

	N	Min.	Max.	Mean	SD
Age in Groups	120	15.00	60.00	42.9583	12.24703
Random Blood Sugar level	120	160.00	450.00	254.5833	86.09078
HbA1c Level	120	6.5	8.5	7.267	.8274
Becks Depression Scale status	120	19.00	32.00	28.1750	2.35026
Valid N (listwise)					

Table No 05: HbA1c Level

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	12.821	12	1.068	1.665	.085
Within Groups	68.646	107	.642		
Total	81.467	119			

Table No 06: Becks Depression Scale status by RBS

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	247.972	37	6.702	1.343	.136
Within Groups	409.353	82	4.992		
Total	657.325	119			

Table No 07: Becks Depression Scale status by HbA1c

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	10.495	2	5.247	.949	.390
Within Groups	646.830	117	5.528		
Total	657.325	119			

Table No 08: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	HbA1c Level & Becks Depression Scale status	120	-.035	.704
Pair 2	Random Blood Sugar level & Becks Depression Scale status	120	-.006	.949

DISCUSSION:

Depression is common problem in diabetes prevalent and negative impact in clinical outcomes, quality of life, associated with increased mortality in DM. [19] The factors could explain the occurrence of depression in diabetes. Dietary restrictions, financial problems, treatment demands and hospitalization contribute to depression. Severe Depressive symptoms associated with less adherence to dietary recommendations. Depression associated with high level of HbA1c level. Depression in Diabetes mellitus is higher in younger as compared with older age [20]. It has been found that patients with Depression in diabetes mellitus are knowledgeable about Diabetes and more likely depressed. 10 to 15 percent patients with diabetes have major Depression.[21] Depression associated with social with drawl disengagement from social activities, patients with increased level of depression report more.[22] Study has shown that in Diabetes Depression is associated with poor glucose control than HbA1c levels. Depression associated with poor physical health.[23] With poor glucose control there are changes in autonomic nervous system hypothalamic adrenal axis and neurotransmitter.[24] According to winokur et al Depression associated with insulin resistance compared with without depression [24]. Depression is directly related to Diabetic complications, retinopathy and macro vascular complications.[25] Depression diabetes and cardiovascular disease are closely related, depression in diabetes increases risk of cardiovascular disease [26,27]. Depression and diabetes associated with decrease in physical activity, smoking and diet.[28] Depression associated with activation of the hypothalamic pituitary adrenal axis and release of cytokines disturbance in sympathetic nervous system and increases the risk of mortality[29] It has been shown that antidepressants and cognitive behavioral therapy reduces HbA1c levels.[30] In this study screening for depression in Diabetes mellitus is compulsory. Screening, identification and treatment of depression improve symptoms and functional outcome in primary care patients.[31]

keton et al report in a study 43 out of 85 patients incomplete rate of correct recognition depression over a year of study.[31] American diabetic association recommends in DM with poor control should be screened for depression.[32] We found weaker relationship between depression diet, and medication adherence, management of depression in Diabetes mellitus seems to be cost-effective.[33] Missed appointments are associated with increased provider frustration and decreased empathy.[34] It has been found that there is no evidence to suggest that relationship between depression self-care varied as a function of type of diabetes and major depression it was found that severity of depression BMI total fat mass and HbA1C decreased during acute phase treatment and adherence to diet and exercise improved. [35]

Randomized controlled trials suggesting treatment of depression in diabetes has positive effects on diabetes self-care has been lacking trial of antidepressants cognitive behavioral therapy [36], there are data to suggest that Depression is associated with poor blood glucose control [36].

CONCLUSION:

Depression in diabetes is a chronic illness of unknown etiology several neuroendocrine and neurotransmitters abnormalities are same to diabetes and depression. Treatment of depression with antidepressant drugs improve mood and blood glucose level in diabetes mellitus. Glycemic control is improved by antidepressant drugs and anti-diabetic drugs quality of life is improved.

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