



A Study of Psychiatric Co-Morbidities and Quality of Life in Type 2 Diabetes Mellitus

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ABSTRACT

TITLE OF THE STUDY

A STUDY OF PSYCHIATRIC CO-MORBIDITIES AND QUALITY OF LIFE IN TYPE 2 DIABETES MELLITUS.

BACKGROUND: There is a paucity of systematic data on psychiatric co-morbidities and quality of life in type 2 diabetes mellitus.

AIM: To assess psychiatric co-morbidities and quality of life in type 2 diabetes mellitus undergoing treatment in a tertiary health care Centre.

MATERIAL AND METHODS This is a hospital based observational study where 150 consecutive patients visiting the Department of Medicine OPD or admitted in ward for the treatment of Diabetes, at Mahatma Gandhi Hospital, Jaipur during the period of March 2021 - September 2022 and fulfilling the inclusion and exclusion criteria were recruited. All the subject under study were interviewed and a detailed history and clinical examination was done by using a semi Structured performa, General Health Questionnaire 12 (GHQ12), Hospital Anxiety and Depression Scale (HADS), Brief Psychiatric rating scale (BPRS), WHO Quality Of Life BREF (Brief Hindi Version) and KUPPUSAMY SOCIO ECONOMIC STATUS SCALE. The results were tabulated and analyzed using the Chi (χ^2) square test. The correlation coefficient was measured between scores of all scales using Pearson's formula.

RESULTS: 51(51.5%) patients with psychiatric co-morbidity and 43(84.3%) patients without psychiatric co-morbidity were males. While 48(48.5%) patients with psychiatric co-morbidity and 8(15.7%) patients without psychiatric co-morbidity were females. **The P value was found to be significant (0.00).** 48(32.0%) patients had generalized anxiety disorder, 30 (20%) had depression, 13(8.6%) had mixed anxiety and depressive disorder, 6(4%) had specific phobia (needle phobia) and 2(1.2%) had adjustment disorder. In patients without Psychiatric Co-morbidity, the mean Overall quality of life (mean \pm s.d.) of patients was 3.00 \pm 1.732. In patients with Psychiatric Co-morbidity, the mean Overall quality

of life (mean \pm s.d.) of patients was 2.46 \pm 1.593. Distribution of mean Overall quality of life with Psychiatric Co-morbidity was statistically significant (**p=0.032**).

CONCLUSION: This study concludes that in patients with Type 2 Diabetes disorder socio-demographic variables like marital status, family type, education, socioeconomic status occupation have a significant impact on patient of Type 2 Diabetes disorder with psychiatric comorbidity. Quality of life is poor in patients with Type 2 Diabetes disorder with comorbid psychiatric illness.

I. INTRODUCTION:

Diabetes mellitus (DM) is a chronic metabolic disorder in which there is persistent hyperglycemia. This all may be due to either impaired insulin secretion or resistance to the peripheral actions of the insulin, or it might be due to both of them. According to the International Diabetes Federation (IDF), In 2015 around 415 million adults were found to have diabetes mellitus and most of them were aged between 20 to 79 years of age.¹

Comorbidity of diabetes and psychiatric disorders can present indifferent models. First, the two can present as separate conditions accompanying no obvious unambiguous association. In specific a scheme the two are consequence of autonomous and aligned pathogenic pathways. Second, the progress of diabetes maybe complex by rise of psychiatric disorders. In specific situations diabetes assists to the pathogenesis of psychiatric disorders. Different organic and emotional components intercede the rise of psychiatric disorders in specific framework. Third, certain psychiatric disorders like depression as well as schizophrenia serve as serious autonomous risk determinants for growth of diabetes. Fourth, there maybe some overlay between the clinical appearance of hypoglycemic and ketoacidosis incidents and settings in the way that may appear as panic attacks. Fifth, flawed level of glucose in blood resilience in addition diabetes could develop into a aftereffect of the medicines used for psychiatric disorders. Diabetes and



psychiatric disorders collaborate in different forms also. Certain elements of abuse such as cigarette smoking and liquor consumption can modify the pharmacokinetics of the oral hypoglycemic agents. Additionally, the existence of a comorbid insane disorder like depression can likely obstruct the management of diabetes by altering therapy constancy. Likewise certain disorders like fear of needles and injections can present troubles with investigations as well as therapy courses to a degree level of glucose in blood measurement plus insulin dose. Also subjects with psychiatric disorders are little inclined to try treatment.²The predominance of depression amid issues accompanying diabetes mellitus extents from 12% to 28% in differing studies.³The World Health Organization report suggests that there will be more than 300 million people with diabetes by 2025 and most of these will be in the developing world.⁴

Complications bring about heightened numbers of medical appointments and hospitalizations, that influence patient quality of life (QoL) and escalation of the hardship of hospital care costs. Macrovascular complications involve systemic hypertension, acute myocardial infarction (AMI), congestive heart failure, cerebrovascular accident (CVA), and peripheral artery disease (PAD).⁵These complexities bear an emotional and physical influence overwhelmed persons with DM2, creating alterations in individual and family welfare. By way of the chronic kind of the ailment and the trouble in controlling it, DM can influence attitude and self-respect, generating disappointment and manifestations connected to depression; in addition, restraints on food and comorbidities in sexual life can bring about discords and commit negatively to the QoL of the sufferer.^{6,7}

AIM:

To assess psychiatric co-morbidities and quality of life in type 2 diabetes mellitus undergoing treatment in a tertiary health care Centre.

OBJECTIVES:

1. To evaluate the type and frequency of psychiatric disorders as co-morbidities in DM Type 2 patients.
2. To correlate the psychiatric morbidity with socio-demographic factors in DM type 2 patients.
3. To assess Quality Of Life in Type 2 DM patients.

II. MATERIAL AND METHODS:

This is a hospital based observational study where 150 consecutive patients visiting the Department of Medicine OPD or admitted in ward for the treatment of Diabetes, at Mahatma Gandhi

Hospital, Jaipur during the period of March 2021 - September 2022 and fulfilling the inclusion criteria 1) Type 2 DM patients with in the age group of 18 to 65 years, 2) Clinically diagnosed cases of Type 2 DM, 3) Patients who have history of detailed evaluation at least once in the General Medicine/endocrinology OPD and 4) Patients who are willing to give a written consent for the study. Exclusion criteria 1) Patients with history of epilepsy, mental retardation and neuro cognitive disorder, 2) Patients with prior history of psychiatric illness or history of treatment for psychiatric illness and 3) Patients who are not willing for the study were recruited. All the subject under study were interviewed and a detailed history and clinical examination was done by using a semi Structured performa, General Health Questionnaire 12 (GHQ12), Hospital Anxiety and Depression Scale (HADS), Brief Psychiatric rating scale (BPRS), WHO Quality Of Life BREF (Brief Hindi Version) and KUPPUSAMY SOCIO ECONOMIC STATUS SCALE. The results were tabulated and analyzed using the Chi (χ^2) square test. The correlation coefficient was measured between scores of all scales using Pearson's formula.

III. RESULTS:

In our study majority of patients with psychiatric co-morbidity i.e. 44(44.5%) were in the age group of 50 years and above. While majority of patients without psychiatric co-morbidity i.e. 21(41.2%) were in age group of 26-50 years of age.

Table 1 shows 51(51.5%) patients with psychiatric co-morbidity and 43(84.3%) patients without psychiatric co-morbidity were males. While 48(48.5%) patients with psychiatric co-morbidity and 8(15.7%) patients without psychiatric co-morbidity were females

Table 1 shows 9(9.1%) patients with psychiatric co-morbidity and 0(0.0%) patients without psychiatric co-morbidity were uneducated. While 18(18.2%) patients with psychiatric co-morbidity, 16(31.4%) patients without psychiatric co-morbidity were graduates and 3(3%) patients with psychiatric co-morbidity and 4(7.8%) patients without psychiatric co-morbidity were postgraduates, 17(17.2%) patients with psychiatric co-morbidity and 13(25.5%) patients without psychiatric co-morbidity were educated till primary, 23(23.2%) patients with psychiatric co-morbidity and 9(17.6%) patients without psychiatric co-morbidity were educated till middle school and 29(29.3%) patients with psychiatric co-morbidity and 9(17.6%)

Table 1 shows 55(55.6%) patients with psychiatric co-morbidity and 27(52.9%) patients



without psychiatric co-morbidity were living in a joint family. While 40(40.4%) patients with psychiatric co-morbidity and 22(43.1%) patients without psychiatric co-morbidity were living in a nuclear family 4(4%) patients with psychiatric co-morbidity and 2(4%) patients without psychiatric co-morbidity were living in extended nuclear.

Table 1 shows 58(58.6%) patients with psychiatric co-morbidity and 25(49%) patients without

psychiatric co-morbidity belonged to middle class . While 19(19.2%) patients with psychiatric co-morbidity and 7(13.7%) patients without psychiatric co-morbidity belonged to upper middle class and 1(1%) patients with psychiatric co-morbidity and 5(9.8%) patients without psychiatric co-morbidity belonged to upper class.

Table 1 Between Sociodemographic factors and Psychiatric Co-morbidity

VARIABLES	Patients with Psychiatric Co-morbidity (n=99)	Patients without Psychiatric Co-morbidity (n=51)	P- Value
Age			
18-35	23(23.2%)	16(31.4%)	0.128
36-50	32(32.3%)	21(41.2%)	
50 above	44(44.5%)	14(27.5%)	
Sex			
Male	51(51.5%)	43(84.3%)	0.00*
females	48(48.5%)	8(15.7%)	
Education			
Uneducated	9(9.1%)	0(0%)	0.030*
Primary	17(17.2%)	13(25.5%)	
Middle	23(23.2%)	9(17.6%)	
Senior Secondary	29(29.3%)	9(17.6%)	
Graduation	18(18.2%)	16(31.4%)	
Post graduation	3(3%)	4(7.8%)	
Occupation			
Unemployed	0(0%)	0(0%)	0.092
Labourer	9(9.1%)	7(13.7%)	
Self employed	8(8.1%)	6(11.8%)	
Professional	15(15.2%)	12(23.5%)	
Agriculture	20(20.2%)	10(19.6%)	
Business	3(3%)	4(7.8%)	
Student	7(7.0%)	5(9.8%)	
housewife	37(37.4%)	7(13.7%)	
Marital status			
Single	11(11.1%)	6(11.8%)	0.827
Married	75(75.8%)	41(80.4%)	
Separated	1(1%)	0(0%)	
Divorced	1(1%)	0(0%)	
Widower	11(11.1%)	4(7.8%)	
Type of family			
Nuclear	40(40.4%)	22(43.1%)	0.949
Joint	55(55.6%)	27(52.9%)	



Extended nuclear	4(4%)	2(4%)	
Socio economic status			0.020*
Upper class	1(1%)	5(9.8%)	
Upper middle class	19(19.2%)	7(13.7%)	
Middle class	58(58.6%)	25(49%)	
Lower middle class	14(14.1%)	13(25.5%)	
Lower class	7(7.1%)	1(2%)	

*p<0.05; Significant

Table 2 shows that 51(34.2%) had no psychiatric comorbidity as per ICD-10 diagnostic criteria. While 48(32.0%) had generalized anxiety disorder, 30 (20%) had depression, 13(8.6%) had

mixed anxiety and depressive disorder, 6(4%) had specific phobia(needle phobia) and 2(1.2%) had adjustment disorder as per ICD-10 diagnostic criteria.

Table 2 Shows the type of psychiatric comorbidity among diabetic patients.

Type of Psychiatric Comorbidity	No. (n=150)	Percentage (%)
No Comorbidity	51	34.2%
Depression	30	20%
Generalised anxiety disorder	48	32.0%
Mixed anxiety and depressive disorder	13	8.6%
Specific Phobia (needle phobia)	6	4.0%
Adjustment disorder	2	1.2%
Grand Total	150	

TYPE OF PSYCHIATRIC COMORBIDITY AMONG DIABETIC PATIENTS

- No Comorbidity
- Depression
- Generalised anxiety disorder
- Mixed anxiety and depressive disorder
- Specific Phobia (needle phobia)
- Adjustment disorder

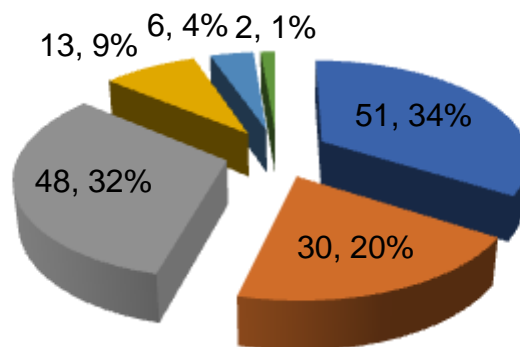




Table 3 shows that in patients without Psychiatric Co-morbidity, the mean psychological domain (mean± s.d.) of patients was 29.76± 11.532. In patients with Psychiatric Co-morbidity, the mean

psychological domain (mean± s.d.) of patients was 34.49± 14.928. Distribution of mean psychological domain with Psychiatric Co-morbidity was statistically significant (**p=0.034**).

Table 3 Compares the psychiatric comorbidity and quality of life

Variables	Psychiatric Comorbidity	Mean	SD	P-value
Physical Domain	No Comorbidity	26.84	14.598	0.051
	Comorbidity	32.10	17.021	
Psychological Domain	No Comorbidity	29.76	11.532	0.034
	Comorbidity	34.49	14.928	
Social Domain	No Comorbidity	30.25	13.734	0.718
	Comorbidity	29.33	15.294	
Environmental Domain	No Comorbidity	28.90	14.192	0.954
	Comorbidity	28.76	14.467	

P < 0.05 is significant

Table 4 shows Distribution of mean Overall quality of life with Psychiatric Co-morbidity was statistically significant (**p=0.032**).

TABLE 4 Distribution of mean Overall quality of life: Psychiatric Co-morbidity

Overall quality of life	No	Number	Mean	SD	p-value
	No	51	3.00	1.732	0.032
	Yes	99	2.46	1.593	

P < 0.05 significant

IV. DISCUSSION:

The results from study show (Table 1) that 51(51.5%) patients with psychiatric co-morbidity and 43(84.3%) patients without psychiatric co-morbidity were males. While 48(48.5%) patients with psychiatric co-morbidity and 8(15.7%) patients without psychiatric co-morbidity were females. **The P value was found to be significant(0.00)** showing that there is a significant difference between Educational Status and Psychiatric comorbidity. In a study conducted by **Perrin NE et al** they found that psychiatric co-morbidity was significantly higher in the female population.⁸

In (Table 2) 48(32.0%) had generalized anxiety disorder, 30 (20%) had depression, 13(8.6%) had mixed anxiety and depressive disorder, 6(4%) had specific phobia(needle phobia)

and 2(1.2%) had adjustment disorder as per ICD-10 diagnostic criteria. Study conducted by In another study conducted by **N Kanwar et al** found the prevalence of depression to be around 41.9%.⁹ **Fisher et al** reported presence of depressive disorder to be around 30% and That of Generalized anxiety disorder to be 50%.¹⁰

In our study we found that Quality of life was decreased in patients of Diabetes mellitus especially those suffering from a comorbid Psychiatric disorder. **E Gómez-Pimienta et al** identified that 31.8% (n = 134) of patients presented with high diabetes-related emotional distress which further impacted their life leading to decrease Quality of Life.¹¹



V. CONCLUSION:

- This study concludes that in patients with Type 2 Diabetes disorder socio-demographic variables like marital status, family type, education, socioeconomic status occupation have a significant impact on patient of Type 2 Diabetes disorder with psychiatric comorbidity.
- Quality of life is poor in patients with Type 2 Diabetes disorder with comorbid psychiatric illness.

REFERENCES:

- [1]. Zheng Y, Ley SH, Hu FB. Global aetiology and epidemiology of type 2 diabetes mellitus and its complications. *Nat Rev Endocrinol*. 2018 Feb;14(2):88-98.
- [2]. Balhara YP. Diabetes and psychiatric disorders. *Indian journal of endocrinology and metabolism*. 2011 Oct;15(4):274.
- [3]. Cynthia Susan Mathew; Mini Dominic; Rajesh Isaac; & Jubbin J Jacob.
- [4]. Prevalence of depression in consecutive patients with type 2 diabetes mellitus of 5 – year duration and its impact on glycemic control. *Indian Journal of Endocrinology and Metabolism*. Sep – Oct 2012. Vol 16. Issue 5. Nusrat Hussain. Psychological correlation between Diabetes Mellitus and depression: A primary care study from a low income country. *Clujul Medical* 2012. Vol. 85 –nr. 1
- [5]. Rodríguez-Gutiérrez RMV. Glycemic control for patients with type 2 diabetes mellitus: our evolving faith in the face of evidence. *Circ Cardiovasc Qual Outcomes*. 2016;9(5):504–12.
- [6]. Ambriz Murillo Y, Menor Almagro R, Campos-Gonzalez ID, Cardiel MH. Health related quality of life in rheumatoid arthritis, osteoarthritis, diabetes mellitus, end stage renal disease and geriatric subjects. Experience from a general Hospital in Mexico. *Reumatol Clin*. 2015;11(2):68–72.
- [7]. Gonzalez JS, Peyrot M, McCarl LA, Collins EM, Serpa L, Mimiaga MJ, et al. Depression and diabetes treatment nonadherence: a meta-analysis. *Diabetes Care*. 2008;31:2398–403.
- [8]. Perrin NE, Davies MJ, Robertson N, Snoek FJ, Khunti K. The prevalence of diabetes-specific emotional distress in people with Type 2 diabetes: a systematic review and meta-analysis. *Diabetic Medicine*. 2017 Nov;34(11):1508-20.
- [9]. Kanwar N, Sharma RC, Sharma DD, Mokta K, Mokta JK. Prevalence of psychiatric comorbidity among patients of type 2 diabetes mellitus in a hilly state of North India. *Indian Journal of Endocrinology and Metabolism*. 2019 Nov;23(6):602.
- [10]. Fisher L, Mullan JT, Skaff MM, Glasgow RE, Arean P, Hessler D. Predicting diabetes distress in patients with type 2 diabetes: a longitudinal study. *Diabetic Medicine*. 2009 Jun;26(6):622-7.
- [11]. Gómez-Pimienta E, González-Castro TB, Fresan A, Juárez-Rojop IE, Martínez-López MC, Barjau-Madrigal HA, Ramírez-González IR, Martínez-Villaseñor E, Rodríguez-Sánchez E, Villar-Soto M, López-Narváez ML. Decreased quality of life in individuals with type 2 diabetes mellitus is associated with emotional distress. *International Journal of Environmental Research and Public Health*. 2019 Aug;16(15):2652.