RESEARCH ARTICLE ISSN: 2349-2678

Contents lists available at www.ijpba.in

International Journal of Pharmaceutical and Biological Science Archive

NLM (National Library of Medicine ID: 101732687)

Index Copernicus Value 2019: 71.05

Volume 7 Issue 1; January-February; 2019; Page No. 84-89

To Examine How Depression Affects Treatment Compliance in Patients with Type-II Diabetes Mellitus

Dr. Romil Warkari

Assistant Professor Dept. of Pstchiatry Icare Institute of M3dical Sciences and Research & Bidhan Chandra Roy Hospital Haldia

ABSTRACT

BACKGROUND: People who have diabetes may have a range of psychological disorders as a result of their condition. Diabetes distress (DD) is one such psychological condition. DD is a serious issue that is accompanied by emotional problems, stress, guilt, and treatment avoidance. Type II diabetes mellitus patients are more likely to experience it. Around 45% of people have DD worldwide, which is fairly significant because it can predict clinical outcomes in T2DM patients. Among diabetic patients, poor self-care, poor self-management, and lower treatment adherence are some of the unfavorable treatment outcomes connected to DD. Depression is a mental illness marked by a depressive mood, a lack of activity, and a negative sense of inadequacy. It typically develops as the severity of the distress increases because chronic anguish can sometimes develop from recurrent, poorly managed discomfort. Depression is therefore a noted common component and regularly co-occurs in diabetic individuals.

AIM: The aim of the present study is to Study the Impact of Depression on Treatment Compliance in Patients with Type II Diabetes Mellitus.

MATERIAL AND METHOD: The Department of Psychiatry undertook this cross-sectional observational study. The director of the department of diabetesology gave us permission. The study participants' privacy and confidentiality were protected. They gave us their written consent once we informed them. Consultative physicians initially identified T2DM in patients after analyzing them using diagnostic tests from reputable laboratories. The Morisky Medication Adherence Questionnaire and Hospital Anxiety and Depression Scales were used to measure medication adherence and anxiety and depression, respectively. The primary investigator also collected data using a proforma to gather baseline information on patients, a 24-hour diet survey, and exercise information. 80 was the estimated sample size. We determined the sample sizes for the two main goals and chose the larger one.

RESULTS: The sample size achieved was 80. Participants in the study had an interquartile range of 54 to 65 and a median age of Sixty. 80 people in all took part in the survey, of which 34% were men, 70% were married, 40% had education beyond high school, and 52% of men and 40% of women were employed. Among all (80), 52% had been under follow-up for Diabetes for more than eight years. All had been taking oral hypoglycemic agents and 4% were taking Inj. Insulin additionally for glycemic control; seventy-one percent had one or more physical comorbidities along with type II DM, among which 86.2% had hypertension.

CONCLUSION: Preventing, recognizing, and treating health issues is crucial for a healthy society. The World Health Organization cautions us, however, that there is "a significant gap between the burden caused by mental diseases and the resources available to prevent and cure them. According to estimates, four out of five individuals with major mental illnesses who reside in low- and middle-income nations do not have access to the mental health care they require. Depression in diabetic patients is still underdiagnosed, so it's crucial for the diabetic specialist to be aware of this rather typical co-morbidity.

**Corresponding author: Romil Warkari |*

KEYWORDS: Depression; Quality of life; Compliance; Diabetes, Type II DM, Anxiety.

Introduction:

The International Diabetes Federation claims that diabetes is one of the biggest worldwide health crises of the twenty-first century. One in 11 persons worldwide were predicted to have diabetes in 2015, while one in 15 were thought to have impaired glucose tolerance. These numbers are predicted to rise much more, particularly among urban populations, creating further medical and economic difficulties on top of the 12% of global health spending on diabetes at now.[1]

According to the findings, 15–30% of diabetes patients fulfill the criteria for depression, which is twice as common in people with DM type 2 patients as it is in the general population. Patients with DM experience relapse after their first bout of depression more frequently than normal patients.[2] Each of these conditions raises the risk of heart attacks in diabetes individuals, including depression, which is a risk factor for hypertension, hyperlipidemia, and heart disease. It is clear that depression is linked to poor glycemic control, despite the fact that the association is complex and can differ across people with type 1 and type 2 DM. Furthermore, compared to people without diabetes who experience depression, people with depression and diabetes had increased incidence of retinopathy and microangiopathy.[3] Patients with type 2 DM have a combination of decreased insulin production and increased insulin resistance pathophysiologically. Diabetes has psychosocial and emotional effects on a person's self-worth, ability to care for oneself, ability to function in daily life, and overall quality of life. According to multicenter research, diabetic patients have a depression prevalence that is at least double that of the general population.[4]

Diabetes is a mood illness that combines a number of symptoms that affect a person's functionality, according to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Emotions, thought, and behavior are all impacted by depression. The diagnostic criteria for a major depressive disorder, according to the DSM-5, include a core symptom, either a diminished/irritable mood or decreased interest/pleasure (anhedonia), or both, and at least four of the following symptoms: feelings of guilt or worthlessness, fatigue or loss of energy, concentration issues, suicidal thoughts or thoughts about death, weight gain or loss (5% change in weight), psychomotor retardation or activation (change in activation), and weight loss or gain.[5] A first episode, recurrent episode, chronic episode, mild, moderate, or severe depression with or without psychotic elements can all be classified as depression. Diabetes mellitus (DM) affected 422 million people worldwide in 2014. In 2015, anxiety and depression were present in 3.6% and 4.4% of people globally, respectively.[6] Prevalence of anxiety among type II DM reported from various countries ranged from 31.4% to 58.7%.[7,8] Prevalence of Depression among diabetics ranged from 10.9% to 69%.[9] In India, the prevalence of DM was 7.7% in 2016 among individuals aged 20 years or older,[10] Prevalence of anxiety and depression in the general population were 3.5% and 2.7% respectively in India during 2015-16.[11]

There is a lack of information about the burden of anxiety and/or depression among diabetes patients receiving care at hospitals, and psychiatric comorbidity is not taken into account in the program. Understanding the prevalence of sadness or anxiety among diabetics might shed light on this unresolved problem. If the relationship between poor treatment adherence and anxiety or depression is considerable, it may prompt health authorities to think about including screening for these conditions in program guidelines for diabetes patients.

Material and Methods

This cross-sectional observational study was conducted at the Department of Psychiatry**.** We obtained permission from the Head of the Diabetology Department. We took care of the confidentiality and privacy of the study participants. We also obtained informed written consent from them. Consultant medical doctors first diagnosed patients with T2DM after

evaluating them using medical evaluations from reliable laboratories.

In the hospital anxiety and depression scale, we defined anxiety as a score of more than seven in the anxiety domain and depression as a score of more than seven in the depression domain; treatment Non-adherence is defined as failing to comply to any of the following: diet, exercise, and medicine; Following a diet entails eating small, frequent meals, staying away from sweets, getting enough fiber, and keeping calories within the allotted range. Following a physical activity regimen entails walking for at least 30 minutes, five days a week, or an equivalent kind of exercise. The Morrisky medication adherence questionnaire defines medication adherence as receiving a score of six or higher. Additionally, participants' personal or other information will never be disclosed without their permission. The participant was urged to answer all questions honestly throughout data collection, and they were free to ask any questions if they had any trouble understanding the inquiry.

Inclusion Criteria

The requirement for inclusion in the study was that the participants have type 2 diabetes for at least three months, as newly diagnosed patients have no history of compliance behavior.

Exclusion criteria

serious cognitive impairment, such as the inability to read the questionnaires, and pregnancy. No one was excluded because of their age, gender, income, ethnicity, or use of medicine.

The Morisky Medication Adherence Questionnaire and Hospital Anxiety and Depression Scales were used to measure medication adherence and anxiety and depression, respectively. The primary investigator also collected data using a proforma to gather baseline information on patients, a 24-hour diet survey, and exercise information. 80 was the estimated sample size. We determined the sample sizes for the two main goals and chose the larger one.

Assessment and screening

Clinical psychologists conducted one-on-one, in-depth clinical interviews with patients. The main goals of the interview were to learn more about the patient's current complaints, the length of their sickness, the type of issues they were having, and the severity of their psychiatric symptoms. The DDS (for diabetes distress) and PHQ (for depressive symptoms severity) baseline assessments of symptoms severity were used to cross-check the results. Additionally, participants in this RCT had to be receiving therapy, have had T2DM for at least three months, and have had depressed symptoms for at least two weeks. Patients with major depressive disorder, persistent mood disorders, and health anxiety disorder were screened out using the Structured Clinical Interview for Diagnosis (SCID), and these patients were eliminated.

Statistical Analysis

The study analyzed data using Epi info software version 7.2.1.0. The study calculated proportions with CIs (descriptive statistics). The study was analyzed bivariate analysis to detect an association between treatment non-adherence and the presence of anxiety and depression. The study calculated the odds ratio with CI (inferential statistic).

Result:

The achieved sample size was 80. The median age of study participants was 60 and the interquartile range was 54 to 65. Among the total 80 study participants, 34% were males; seventy percent were currently married; forty percent had education other than high school; fifty-two percent of males and 40% of females were working.

Table 1: Physical comorbidity status of type II diabetics seeking care at tertiary care hospital.

Physical comorbidity	N	Total	%
Any other physicalcomorbidity	58	80	72.5
Hypertension alone	50	58	86.2
Ischemic heartdisease alone	2	58	3.4
Both hypertensionand ischemic heartdisease	4	58	6.8
Neither hypertension nor ischemic heartdisease	2	58	3.4

Among all (80), 52% had been under follow-up for Diabetes for more than eight years. All had been taking oral hypoglycemic agents and 4% were taking Inj. Insulin additionally for glycemic control; seventy-one percent had one or more physical comorbidities along with type II DM, among which 86.2% had hypertension.

Table 2: Psychiatric comorbidity of type II diabetics seeking care at tertiary care hospital.

Psychiatric comorbidity	N	%
Anxiety alone	5	6.2
Depression alone	9	11.3
Anxiety and depression	17	21.3
Anxiety or depression	33	41.3

Among all (80), 6.2 percent had anxiety alone; 11.3 percent had depression alone and 21.3% had both anxiety and depression. The occurrence of anxiety and/ or depression was found to be 41.3%.

Table 3: Treatment adherence of type II diabetics seeking care at tertiary care hospital.

Treatment adherencecharacteristics	N	%
Diet adherence	50	62.5
Physical activityadherence	43	53.8
Medication adherence	60	75
Treatment adherence	35	43.6

Among the total participants (80), 62.5% had adequate diet adherence; 53.8% had adequate adherence to physical activity. 75% had adequate medication adherence and 43.6% had adherence to all the above three treatment characteristics.

Discussion

Anxiety, depression, or both were mental comorbidities that were present in more than one-third of research participants. Almost half of the study participants were adequately adhering to the recommendations for food and exercise. Two thirds of them were taking their prescriptions as prescribed. When taken into account collectively, adherence to adequate therapy decreased to 40%. Poor treatment adherence may be a risk factor for having psychiatric comorbidity.

According to the meta-analysis of **Anderson et al.2001**[12], severe depression was noticed in 14,7% of diabetics and depressive symptoms in 26%, of the sample. Although there were more individuals with mild or moderate depression in our sample. Similarly, a different epidemiological study with 90686 individuals discovered that those with diabetes were more likely to experience depression, whether they had the disease or not.[13] **Zioga et al.2016**[14] found low living standards for diabetics in Greece, and the findings of this study are also consistent with many previous studies conducted on diabetic patients in other countries, which show that in general, this population group is likely to report lower levels of quality of life-related to physical and mental health, compared to the general population.[15]

However, the majority of participants indicated that their quality of life would be slightly to significantly better if they did not have diabetes. Participants asserted that their physical appearance, as well as the reactions of others, leisure activities, sex life, financial condition, personal relationship, friendship, and social life, would all be slightly improved if they did not have diabetes. Additionally, they mentioned that their lives would be slightly or significantly better if they did not have diabetes in terms of their jobs, motivation, physical health, dependency on others, freedom to consume alcohol, living arrangements, self-confidence, travels, family life, feelings about the future, and holidays. Finally, they asserted that having

diabetes 2 would make it much easier for them to enjoy their freedom to consume.

Petrak et al.2015[16] recommended treating depression as a priority, as the response to medication is usually seen within 2-4 weeks for antidepressants, while the improvement in the glycemic control and levels of HbA1C needs several months to settle. Moreover, **Petrak et al.2015**[16] suggested that patients having a better mood might follow their diabetic treatment better. They also proposed a model for treating depression and diabetes, stepped according to the degree of depression.

Favorable response bias may have occurred, which may have caused an underestimating of mental comorbidity and an overestimation of treatment adherence. We used the translated versions of the scales after adequate quality control in the form of back translation, internal consistency check, and expert opinion about the adequacy of scale translation in order to reduce the above. We avoided leading questions and maintained a nonjudgmental attitude while conducting the interview. Due to the small sample size, confounders and effect measure modifiers were not examined in the study. Since the temporal correlation could not be determined, a cause-and-effect relationship between mental comorbidity and treatment adherence could not be established. Even while there may be a bidirectional or even reverse relationship between the two, this could not stop us from insisting on screening for anxiety or depression in addition to other measures to increase the adherence of diabetic patients to treatment and their quality of life.

A potential risk factor for poor treatment adherence and a potential contributor to the development of diabetes complications is the presence of psychiatric illness. therapy adherence might be enhanced by routine anxiety and depression assessment and therapy. In doing so, it might improve type II DM patients' chances of survival and quality of life. The study suggested that the follow-up guidelines for DM include screening for depression and anxiety. The study advised screening and therapy for anxiety and depression in diabetic patients as well as pre-post evaluation of the frequency of problems and quality of life.

Conclusion:

Preventing, recognizing, and treating health issues is crucial for a healthy society. The World Health Organization cautions us, however, that there is "a significant gap between the burden caused by mental diseases and the resources available to prevent and cure them. According to estimates, four out of five individuals with major mental illnesses who reside in low- and middle-income nations do not have access to the mental health care they require. Depression in diabetic patients is still underdiagnosed, so it's crucial for the diabetic specialist to be aware of this rather typical co-morbidity. For diabetes patients, a multidisciplinary approach might help to improve disease outcomes, lower the amount of DALYs, and even lower mortality. In research evaluating the efficacy of both pharmaceutical and non-pharmacological treatment modalities for T2DM, it may be particularly crucial to identify and differentiate between diabetes-related discomfort, frailty, exhaustion, apathy, anhedonia, and clinical depression. T2DM and psychological problems should be managed in tandem with special consideration.

References:

1. International Diabetes Federation. IDF Diabetes, Brussels, Belgium: International Diabetes Federation, 2015;7.
2. Andreoulakis E, Hyphantis T, Kandylis D, Iacovides A. Depression in diabetes mellitus: A comprehensive review. Hippokratia. 2012;16:205-214.
3. Musselman DL, Betan E, Larsen H, Phillips LS. Relationship of depression to diabetes types 1 and 2: epidemiology, biology, and treatment. Biological Psychiatry. 2003 54: 317-329.
4. Holt RI, de Groot M, Golden SH. Diabetes and Depression. Current diabetes report. 2014;14:4.
5. American Psychiatric Association, Task F. Diagnostic and statistical manual of mental disorders DSM-5 2013;5.
6. WHO. Depression and Other Common Mental Disorders Global Health Estimates. WHO: Geneva, Switzerland. WHO Document Production Services; 2017:8-12.
7. Khuwaja AK, Lalani S, Dhanani R, Azam IS, Rafique G, White F, et al. Anxiety and

depression among outpatients with type 2 diabetes: A multi-center study of prevalence and associated factors. Diabetic Meta. Syndr. 2010;2:72.
8. Ganasegeran K, Renganathan P, Manaf RA, Al Dubai SA. Factors associated with anxiety and depression among type 2 diabetes outpatients in Malaysia: a descriptive cross-sectional single-center study. BMJ Open. 2014;4:47-94.
9. Teshome HM, Ayalew GD, Shiferaw FW, Leshargie CT, Boneya DJ. The Prevalence of Depression among Diabetic Patients in Ethiopia: A Systematic Review and Meta-Analysis. Depression Res Treatment. 2018;6135460:8.
10. India State-Level Disease Burden Initiative Diabetes Collaborators. The increasing burden of diabetes and variations among the states of India: The Global Burden of Disease Study 1990-2016. Lancet Glob Health. 2018;6:1352-62.
11. Gururaj G, Varghese M, Benegal V, Rao GN, Pathak K, Singh LK, et al. National Mental Health Survey of India, 2015-16: Prevalence, patterns and outcomes and NMHS collaborators group., NIMHANS, Bengaluru, India; 2016;129: 103-108.
12. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. The prevalence of comorbid depression in adults with diabetes: A meta-analysis. Diabetes Care. 2001;24:1069-1078.
13. Bădescu SV, Tătaru C, Kobylinska L, Georgescu EL, Zahiu DM, Zăgrean AM, et al. The association between Diabetes mellitus and Depression. J Med Life. 2016;9:120-125.
14. Zioga E, Kazakos K, Dimopoulos E, Koutras C, Marmara K, et al. Adherence and quality of life in patients with type II diabetes mellitus in northern Greece. Materia socio-medica. 2016; 28: 258.
15. Verma SK, Luo N, Subramaniam M, Sum CF, Stahl D, et al. Annals of the Academy of Medicine, Singapore. 2017; 39: 913-917.
16. Petrak F, Baumeister H, Skinner TC, Brown A, Holt RI. Depression and diabetes: treatment and health-care delivery. Lancet Diabetes Endocrinol. 2015;3:472-485.