

## **PREVALENCE OF DEPRESSION AMONG DIABETIC PATIENTS ATTENDING DIABETIC CLINIC AT THIKA LEVEL 5 HOSPITAL**

**Catherine Nzisa Kaleli.**

MSc. Clinical Psychology Student, Department of Psychiatry, University of Nairobi, Kenya

**Dr. Pius Kigamwa.**

MChB (Nrb), M. Med (Psych.) Nairobi, Senior Lecturer, Department of Psychiatry, University of Nairobi, Kenya

**Dr. Fred Owiti.**

MChB (Nrb), MRC Psych, London, Lecturer, Department of Psychiatry, University of Nairobi, Kenya

©2021

**International Academic Journal of Health, Medicine and Nursing (IAJHMN) | ISSN 2523-5508**

**Received:** 28<sup>th</sup> July 2021

**Published:** 2<sup>nd</sup> August 2021

Full Length Research

**Available Online at:** <https://iajournals.org/articles/iajhm.v2.i1.210.219.pdf>

**Citation:** Kaleli, C. N., Kigamwa, P., Owiti, F. (2021). Prevalence of depression among diabetic patients attending diabetic clinic at Thika Level 5 Hospital. *International Academic Journal of Health, Medicine and Nursing*, 2(1), 210-219.

## **ABSTRACT**

The purpose of the study was to determine the prevalence of depression among adult diabetic patients visiting Thika Level 5 Hospital. Therefore, the objectives of the study were to determine the prevalence of depression among newly diagnosed adult diabetic patients. And to determine the socio-demographic correlates of depression among diabetic patients. A cross-sectional descriptive study was adopted in the study. The study targeted a population of 320 adult attendees of the diabetic clinic visiting Thika Level 5 hospital but 160 of them met the inclusion criteria. Systematic random sampling was used and Yamane's formula was used to come up with a sample size of 62 participants. Becks Depression Inventory (BDI) checklist and the Socio-demographic questionnaire were used to

collect data. The statistical package for social sciences (SPSS) version 13 was used to analyze the data. The findings revealed that the prevalence of depression in patients presenting with diabetes at the Thika Level 5 Hospital was 32.3%. It was also found that being a female would more likely make one suffer from depression (53.8%) than of the opposite gender male (16.7%). The study concluded that depression is significantly associated with newly diagnosed Type 2 diabetes. Therefore, patients, clinicians, and psychiatrists should be informed and educated about the associated burden of depression with newly diagnosed type 2 diabetes

**Key words: Depression, Diabetic patients, Socio-demographic, Type 2 diabetes**

## **INTRODUCTION**

Depression is a mood disorder characterized by five or more of the following symptoms: Depressed mood most of the day, diminished pleasure in all or most activities, weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, feeling of worthlessness, diminished ability to think or concentrate, bowel disturbance, and recurrent suicidal ideation (Garard, 1993). Depression can affect anyone at any time though certain factors seem to increase the risk. These factors include having biological relatives with depression, being a woman, having traumatic experiences as a child, experiencing stressful life events such as the death of a loved one, recently having given birth (postpartum depression), having been depressed previously, having a serious illness such as cancer, diabetes, heart disease, Alzheimer's or HIV/AIDS, having certain personality traits such as having low self-esteem and being overly dependent, self-critical or pessimistic, and abusing alcohol, nicotine or illicit drugs (Haggerty, 2006).

Depression is a chronic medical condition such as diabetes and it is the most common psychiatric disorder worldwide (Garard, 1993). Like diabetes, depression is a major health problem seen in primary care facilities which is a more disabling disease compared to many other chronic medical illnesses (Barnard et al., 2006). Mcquaid (1999) predicted that depression will be the 2nd leading cause of disability for all age groups by the year 2020.

Diabetes mellitus is a group of metabolic diseases in which a person has high blood sugars either because the body does not produce enough insulin, or because the cells do not respond to the insulin that is produced. Lack of insulin affects the metabolism of carbohydrates,

proteins, and fats. This results in a condition in which glucose, which is normally stored in the liver as glycogen accumulating in the blood and eventually appearing in the urine. High levels of blood sugar may affect the brain in many ways, ranging from confusion to emotional outbursts or other abnormalities (Nicki, 2010). There are several types of diabetes; namely, Type 1 diabetes; Type 2 diabetes; Gestational diabetes; and Steroid diabetes (induced by high doses of glucocorticoids). Both types 1 and 2 are more common worldwide and usually, they cannot be cured but managed.

The prevalence rates of diabetes vary from one region to another and the number of the affected people is expected to be around 366 million globally by the year 2030 (Josh et al, 2008). The variations around the world are related to differences in genetic and environmental factors. However, the global pandemic is associated with greater longevity, obesity, unsatisfactory diet, sedentary lifestyle, and increasing urbanization (Nicki, 2010). The symptoms of diabetes include polyuria, thirst, loss of weight, and sugar and acetone in the urine. The treatment of diabetes includes diet, drugs (injectable and /or orals), and health education on the condition. Complications include arteriosclerosis, infections such as tuberculosis and cystitis, diabetic nephritis, cataract, and nephritis (Winfred Hector, 1982).

## **STATEMENT OF THE PROBLEM**

Health workers attending newly diagnosed diabetic patients put more emphasis on convention management and little or no emphasis on the psychological impact that the condition can have on the individual. According to Anderson et al (2001), mental health problems are commonplace in people with diabetes. Depression in particular has a significant impact on morbidity and quality of life in the population. A study conducted by Cohen (2006), showed that people with long-term conditions are at risk of depression and co-morbid depression can cause functional disability, decreased adherence to diet, exercise, and medication regimens. This is likely to worsen blood glucose levels and diabetes complications such as coronary heart disease. Depression significantly increases the overall burden of illness in patients with chronic medical conditions. Every year, 7 million people develop diabetes and 3.8 million deaths are attributable to diabetes yet there are very few studies on the relationship between diabetes and depression (Joshi, et al, 2008); hence, the need to conduct this study.

## **RESEARCH OBJECTIVES**

### **General objective**

The purpose of the study was to determine the prevalence of depression among adult diabetic patients visiting Thika Level 5 Hospital.

## **Specific objectives**

The study was guided by the following objectives;

- a) To determine the prevalence of depression among newly diagnosed adult diabetic patients.
- b) To determine the socio-demographic correlates of depression among diabetic patients.

## **JUSTIFICATION OF THE STUDY**

The development of mental disorders among diabetic patients is a serious handicap with a profound negative impact on overall care and management (Edwards, 2008). Despite the enormous advances in brain research, depression often goes undiagnosed and untreated. People with diabetes, their families and friends, and even their physicians may not distinguish the symptoms of depression from merely the low moods in patients suffering from diabetes. However, skilled health professionals should recognize these symptoms and inquire about their duration and severity, diagnose the disorder, and suggest appropriate treatment. There is a lot of research on diabetic and psychiatric connectivity but no studies of the prevalence of depression among diabetic patients and specifically, of newly diagnosed diabetic patients without prior history of depression. Furthermore, this study has not been done in Thika level 5 where most diabetic patients are seen initially by a specialist endocrinologist after having been referred from sub-district hospitals, health centers, and dispensaries.

This study, thus, opened doors for further research among diabetic patients on psychiatric disorders and it will provide data that can be used by health professionals to diagnose the disorder, and suggest appropriate treatment. The outcomes of this study will highlight the importance of assessing and treating co-morbid mental health concerns as part of a comprehensive management plan for diabetes. The study findings are thus, very useful since there is limited literature on the association between depression and diabetes from South-Asian countries (Sridhar et al., 2002).

## **RESEARCH METHODOLOGY**

### **Research Design**

The research adopted a cross-sectional descriptive study. The targeted population of the study was 320 adult attendees of the diabetic clinic visiting Thika Level 5 hospital but 160 of them met the inclusion criteria, which were, adult attendees of the diabetic clinic who assented to the study; adult attendees above 18 years; adult attendees who had been diagnosed with diabetes in the last year.; and adult attendees who had not been diagnosed with depression before they developed diabetes. Systematic random sampling method was used to come up with a sample for the study, where Every third patient who met the inclusion criteria for the study was chosen. From a population of 160, Yamane formulae was used to come up with a sample size of 62 participants.

## **Data Collection**

Data collection was done using the Becks Depression Inventory (BDI) checklist and the Sociodemographic questionnaire was used to correct data. The structure of the questionnaire was based on the specific objectives of the study and the questions were closed-ended. The respondents were explained what was required of them. Those who consented were allowed to complete the questionnaire that was provided in the waiting room. Their queries and any help in the filling of the questionnaire were responded to appropriately.

## **Data Analysis**

The statistical package for social sciences (SPSS) version 13 was used to analyze the data. Both descriptive and inferential statistics were used in data analysis. The results of descriptive statistics were presented in narratives, tables, bar charts, and pie charts. Inferential statistics, correlation, and regression analysis were used to determine the correlation between socio-demographic variables and depression among diabetic patients.

## **FINDINGS AND DISCUSSION**

### **Prevalence of Depression**

**Table 1: Prevalence of Depression in the Patients Population**

	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Unlikely (0 – 9)	6	9.7
Possible minor depression (10 – 18)	31	50.0
Verge of depression (19 – 21)	5	8.1
Minor to moderate depression (22 – 35)	14	22.6
Moderate to severe depression(36-53)	6	9.7

*Source (Survey data, 2013)*

From the results, it was found out that 32.3% of the diabetic patients have depression, as they scored 22 or more on the BDI score. Of these, 14 (70%) had minor to moderate levels of depression as they scored 22 – 35 on the BDI while 6 (30%) had moderate to severe depression as they scored 36 – 53 on the BDI. None of the study participants had severe depression-that is a score of 54 and above on the BDI whereas 6 (9.7%) of the study participants were unlikely to have depression-that is a score of 9 and below on the BDI as illustrated in Table 1 above.

## The Association between Duration of Diabetes and Depression

**Table 2: Correlation and Significance between Duration of Diabetes and Depression**

	Depression		(N)	X <sup>2</sup>	r	P-value
	Yes	No				
Duration since diagnosis						
4 and less months	0		8	7.995 (2)	<b>0.307</b>	<b>0.018</b>
5 – 8 months	6 (24.0%)	8 (100%)	25			
9 – 12 months	14 (48.3%)	19 (76.0%)	29			
		15 (51.7%)				

*Source (Survey data, 2013)*

In this study, the prevalence of depression varied with the duration one had been diagnosed with diabetes. From 0-4 months from the time the diagnosis was done, none of the patients had depression but as time progressed, depression set in. 24% of the participants developed depression within 5 – 8 months and 48.3% were depressed by the 9th – 12th month. These results show a statistical significance ( $p= 0.018$ ) and that there is a correlation between depression and the duration from the time of diagnosis with diabetes was made ( $r = 0.307$ ).

### The Association between Diabetes and Social Demographics

**Age:** Depression was shown to be present in all the age groups of the study participants. Among the 18 to 25 years, 6 (54.5%) of them had depression; of those aged between 26 to 35 years, 2 (20.2%) of them had depression whereas those aged between 36 to 45 years 8 (50%) of them had depression. The analysis revealed that there was no correlation or statistical significance between depression and the age of the patients with diabetes ( $p = 0.067$ ,  $r = 0.228$ ).

**Gender:** The prevalence of depression varied with the difference in gender of the patients. Of the 36 male patients, 6 (16.7%) of them had depression while of the 26 female patients, 14 (53.8%) of them had depression. These results are statistically significant ( $p= 0.002$ ) and there is a correlation between depression and gender ( $r = 0.392$ ).

**Marital status:** While there was no significance and correlation between marital status of the patients and depression ( $p = 0.414$ ,  $r = 0.138$ ); there was a statistical significance of religion and depression as illustrated in Table 5 above where the p-value was 0.004 but a weaker correlation where  $r = 0.218$ .

**Education level:** Although the prevalence of depression varied with the education levels of the patients, neither was this significant nor was there a correlation between these two variables ( $p= 0.828$ ,  $r = 0.105$ ).

**Occupation:** The results also showed that there was no significance or correlation between the occupation of the patient and depression ( $p= 0.237$ ,  $r = 0.261$ ) and whether the patient was on treatment and depression ( $p= 0.362$ ,  $r = 0.226$ ).

**Religion:** The Catholics and Protestants were less likely to suffer from depression (30.8%) as compared to Muslims (100%). These results showed a significance ( $p=0.004$ ) and a weak correlation of 0.218 as shown in Table 3 below.

**Table 3: Correlation and Significance between Depression and Social Demographics**

Demographic	Depression		(N)	X <sup>2</sup>	R	P-value
	Yes	No				
<b>Age</b>						
18 to 25	6 (54.5%)	5 (45.5%)	11	8.766 (4)	0.228	0.067
26 to 35	2 (20.2%)	8 (80.0%)	10			
36 to 45	8 (50%)	8 (80.0%)	16			
46 to 55	2 (12.5%)	14 (87.5%)	16			
56 and above	2 (22.2%)	7 (77.8%)	9			
<b>Gender</b>						
Male	6 (16.7%)	30 (83.3%)	36	9.550 (2)	<b>0.392</b>	<b>0.002</b>
Female	14 (53.8%)	12 (46.2%)	26			
<b>Marital status</b>						
Single	8 (38.1%)	13 (61.9%)	21	1.764 (2)	0.138	0.414
Married	12 (31.6%)	26 (68.4%)	38			
Widowed	0	3 (100%)	3			
<b>Religion</b>						
Protestant	16 (30.8%)	36 (69.2%)	52	11.310 (2)	0.218	<b>0.004</b>
Catholic	0	6 (100%)	6			
Muslim	4 (100%)	0	4			
<b>Education level</b>						
None	4 (40%)	6 (60%)	10	0.888 (3)	0.105	0.828
Primary	8 (36.4%)	14 (63.6%)	14			
Secondary	6 (26.1%)	17 (73.9%)	23			
College	2 (28.6%)	6 (71.4%)	7			
<b>Occupation</b>						
Business	4 (28.6%)	10 (71.4%)	14	6.789 (5)	0.261	0.237
Casual	2 (33.3%)	4 (66.7%)	6			
Farmer	6 (35.3%)	11 (64.7%)	17			
Housewife	2 (22.2%)	7 (77.8%)	9			
Skilled	2 (18.2%)	9 (81.8%)	11			
Student	4 (80%)	1 (20%)	5			
<b>On treatment</b>						
Yes	20 (37.7%)	36 (64.3%)	56	0.739 (2)	0.226	0.362
No	1 (16.7%)	5 (83.3%)	6			

Source (Survey data, 2013)

## **CONCLUSIONS**

The purpose of this study was to determine the prevalence of depression among newly diagnosed adult diabetic patients attending diabetic clinics at Thika level 5 Hospital. The study concludes that depression is significantly associated with newly diagnosed Type 2 diabetes. Therefore, patients, clinicians, and psychiatrists should be informed and educated about the associated burden of depression with newly diagnosed Type 2 diabetes. All diabetic patients over 18 years should be simultaneously screened for depression. The study further confirms the impression that depression is highly co-morbid with the disease. The negative effect of depression on achieving good glycaemic control means that physicians need to screen for and manage this disorder to improve not only the quality of life of diabetes patients but also reduce overall treatment costs, which are generally unaffordable by most individuals with the disease.

The research findings strongly support the association of nuclear family with newly diagnosed type 2 diabetes; hence it reaffirms the positive association of family history of diabetes with depression. Screening for depression among diabetic patients is important for proper management. A big number of diabetic patients develop depression due to lifestyle alteration which causes negative emotions in them. When a patient has diabetes, fear of complications, feeling of helplessness, and non-compliance to treatment may cause depression in the diabetic patients.

## **RECOMMENDATIONS**

The study recommended the following;

- 1) The public should be educated on how to prevent Type 2 diabetes from ever occurring through the type of diet they take and also the kind of lifestyle they lead.
- 2) It is important to create public awareness on how to identify psychological problems by people suffering from chronic illnesses like diabetes and seek help before they get worse.
- 3) Continued education for health professionals on symptoms and prevention of depression.
- 4) Patients, clinicians, and psychiatrists should be informed and educated about the associated burden of depression with newly diagnosed type 2 diabetes
- 5) Every health facility that runs a diabetic clinic should organize a support group for the diabetic patients attended in that facility. Sharing about their common challenges can reduce the chances of developing depression.

## **REFERENCES**

- Agbir, T.M et al. (2010). Depression among medical outpatients with diabetes: a cross-sectional study at Jos University Teaching Hospital, Jos Nigeria. *Ann. Afr. Med.*, 9(1): 5-10.



- Anderson, R.J et al. (2000). Prevalence of depression in adults with diabetes: a systematic review. *Diabetes.*, 49 (Suppl.1): A64.
- Barnard, K.D., Skinner, T.C., Pelever, R. (2006). The prevalence of co-morbid depression in adults with Type 1 diabetes: a systematic literature review. *Diabetic Medicine.* 23:445-450.
- Blehar, M., Oren, D.A. (1997). Gender differences in depression. *Medscape Women's Health* 1997;2:3. Revised from: Women's increased vulnerability to mood disorders: Integrating psychobiology and epidemiology. *Depression*;3:3-12.
- Ciechanowski, P.S., Katon, W.J., Russo, J.E. (2000) Depression and diabetes: Impact of depressive symptoms on adherence, function, and costs. *Arch. of Internal Medicine*; 160(21):3278-85.
- Faire, J.D., Heady, S., Thomas, L., Schechtman, K., Fisher, E.B.(1994). Depressive symptomatology and smoking among persons with diabetes. *Res-Nurs Health*; 17:273-82.
- Garard, J.A., Lustman, P.J., Clouse, R.E. (1993). Prevalence of depression in adults with diabetes: an epidemiological evolution. *Diabetes Care*; 16(8): 1167-1178.
- Gelder, M., Gath, D., Mayou, R., Cowen, P. (1996). *Mood disorders. Oxford textbook of psychiatry* 3rd ed. New York: Oxford University Press; p. 197-244.
- Gonzalez J. S. et al. (2008). Depression and diabetes treatment nonadherence: a meta-analysis. *Diabetes Care* 2008; 31:2398-2403.
- Haggerty, J. (2006). *Risk Factors for Depression*. Psych Central. Retrieved on August 16, 2013, from <http://psychcentral.com/lib/risk-factors-for-depression/00058>
- Helz, J.W., Tempefon, B. (1990). Evidence of the role of psychosocial factors in diabetes mellitus: A review. *Am J Psychiatry*.147:1275-8.
- Johnson, T.O. (1970). *Diabetes mellitus in Lagos*. Nigeria: (MD thesis) the University of London.
- Katon, W.et al. (2005). The Association of comorbidity depression with mortality in patients with Type 2 diabetes. *Diabetes Care*; 28(11): 2668-2672.
- Lloyd, C.E., Dyert, P.H., Barnett, A.H. (2001). Prevalence of symptoms of depression and anxiety in a diabetes clinic population. *Diabetic Medicine*; 17(3): 198-202.
- Mary, D. G. et al. (2001). Association of depression and diabetes complications: A Meta-analysis. *Psychosomatic Medicine*; 63(4): 619-630.
- Mary, D. G. et al. (2010). Depression among adults with diabetes: prevalence, impact, and treatment options. *Diabetes Spectr*: 23(1): 15-18.

- McQuaid, J.R. *et al.* (1999). Depression in primary care clinic: the prevalence and impact of unrecognized disorder. *Jnl of Affective Disorders*; 55(1): 1-10.
- Mezuk, B.*et al.* (2008). Depression and Type 2 diabetes over the lifespan: a meta-analysis. *Diabetes Care*; 31(12): 2383-90.
- Nicki, R.C., Brian, R.W., Stuart, H. R. (2010). *Davidson's principles and practice of Medicine* (21th ed). London, Churchill Livingstone Elsevier Limited.
- Nouwen, A. *et al.* (2010). Type 2 diabetes mellitus as a risk factor for the onset of depression: a systematic review and meta-analysis. *Diabetologia* ; 53(12): 2480-6.
- Peyrot, M., Rubin, R.R. (1997). Levels and risks of depression and anxiety among diabetic adults. *Diabetes Care*; 20(4): 585-590.
- Popkin, M.K. *et al.* (1993). Psychiatric diagnosis and the surgical outcome of pancreas transplantation in patients with Type 1 Diabetes Mellitus. *Psychosomatics* ; 34: 251-258.
- Prisciandaro, J.J. *et al.*(2011) . Impact of Psychiatric comorbidity and mortality on veterans with Type 2 diabetes. *Diabetes Technol. Ther.* 2011; 13: 73-78.
- Rush, W.A., Whitebird, R.R., Rush, M.R., Solberg, L.I., O'Connor, P.J. (2008). Depression in patients with diabetes: Does it impact clinical goals. *J Am Board Fam Med*; 21:392–7.
- Shashank, R., Joshi *et al.* (2008). Challenges in Diabetes Care in India: Sheer Numbers, Lack of Awareness and Inadequate control. *Jnl of Assoc. of Physicians of India (JAPI)*; 56(6): 443-450.
- Sridhar, G.R., Madhu, K. (2002). Psychosocial and cultural issues in Diabetes Mellitus. *Current Science*; 83: 1556-64.
- Sridhar, G.R. *et al.* (2007). Living with Diabetes: Indian experience. *Diab Met Syndr Clin Res Rev*; 1: 181-7.
- Tinling (1973). *Practical nursing and anatomy for pupil nurses* 3rd edition. Prescott, Lancs-Great Britain.
- Thomas, J. *et al.* (2008). A descriptive and comparative study of the prevalence of depressive and anxiety disorders in low-income adults with Type 2 diabetes and other chronic illness. *Diabetes Care* 2008; 26:2311-2317.
- Winfred, H (1982). *Modern nursing theory and practice* 7th ed. William Heinemann medical books ltd. London.