

## Frequency of Depression in Diabetes - A Cross Sectional Study

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### ABSTRACT

**Aim:** To find frequency of depression in diabetes

**Study Design:** Cross sectional

**Place & duration of study:** AIMTH Sialkot Pakistan in May 2019.

**Methods:** Adult diabetic patients giving written informed consent were administered Beck depressive inventory-II (BDI-II). Patients with other co-morbidities were excluded. 217 patients were included. Data of each patient was collected on a sheet and analyzed by SPSS v 23.

**Results:** Of the total 217 patients included in the study 126 (58.06 %) had no depression. 43 (19.81%) were suffering from mild depression. 30 (13.82%) patients had moderate depression. Only 18 (8.29%) were suffering from severe depression. overall from the patients included in our study 91 (41.94%) were suffering from depression.

**Conclusion:** Of the 217 patients included in our study 91 (41.94%) were suffering from depression. 43 (19.81%) had mild depression while 30 (13.82%) had moderate depression and 18 (8.29%) had severe depression

**Keywords:** Diabetes mellitus, depression, Pakistan, hospital patients,

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### INTRODUCTION

Diabetes mellitus occurs due to problems to insulin in the body. 108 million people suffered from diabetes in 1980, the number increased to 422 million in 2014 and its global prevalence in this year was 8.5%. 12% of the global health expenditure is currently spent on diabetes and number is expected to increase further<sup>1</sup>.

Depression is very serious and common disease and the lifetime prevalence of depression in females ranges from 20% to 25% and in males from 7% to 12%<sup>2</sup>. Depression is the mental illness with second highest morbidity worldwide. Long ago, Willis found that people who go through long duration of sorrow or stress are more likely to suffer from diabetes<sup>3</sup>.

There were observed many correlations among diabetes and depression. Patho-physiology of both of them was found to be interrelated. They exist as co-morbid conditions and treating one affects the prognosis of other in a positive way. The link between diabetes and depression can be explained by simple stress disease model, for instance, if stressful experiences in the childhood pave the way for depression in the coming years of life, simultaneously, the release of cytokines increases the likelihood of insulin resistance in the body, giving rise to type 2 diabetes mellitus<sup>4</sup>. It seems to be a bidirectional association. Studies carried out on genes show that there is no genetic association between depression, diabetes type 1 and type 2<sup>5</sup>. Patients suffering from diabetes may ruminate<sup>6</sup>. They may have OCS<sup>7</sup>. They may undergo surgery and suffer from depression<sup>8</sup>.

Different studies have been carried out around the globe to find the correlation among the two, but according to my knowledge, no study has been carried out in our institution. The objective of the current study was done to find out frequency of depression in patients suffering from diabetes.

### MATERIAL AND METHODS

This particular study was conducted on type 1 (insulin dependent diabetic) patients presenting to inpatient and outpatient department of medicine. OPD is run 6 days in a

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week and there are 60 beds in the inpatient unit. This study was conducted in May 2019. Ethics review committee approved the study. Guidelines given in declaration of Helsinki were followed strictly. Cross sectional study was done. We used non probability convenience sampling technique. By using open pie calculator, sample size was calculated to be 217. After explaining nature and title of this study, and assuring the patients that their confidentiality would not be breached and giving them the right that they can take the consent back, whenever they want, written informed consent was taken.

Only those patients were included who had good glycaemic control according to their recent lab reports and were above the age of 18 years. Patients with co-morbidities like hypertension, asthma, other chronic illnesses, patients in delirium and patients with other psychiatric illnesses were excluded. Patients with past or family history of mood disorder were also excluded. After applying these criteria 226 patients were approached. 9 patients refused the consent so we excluded them. 217 pts were included in the final analysis.

A sheet was prepared to collect the demographic and other details of the patients. Then Urdu version of Beck depressive Inventory-II (BDI-II)<sup>9</sup> was administered to assess depression in these diabetic patients. BDI-II is a 21 item questionnaire. Each item is rated on a likert scale of 0-3 and contains 4 options to each question. Minimum score is 0 and maximum score is 63. The cut off value for depression is 14. Patients scoring below 14 are not depressed. Mild depression is from 14-19. For moderate depression score is 20-28. The cronbach's alpha for this study was .84. For patients who were unable to read and write, data collectors read out all the questions and the options one by one to each patient and marked the responses according to their will after verifying the answer. All the data was rechecked, verified and coded for each patient before entry into the computer. The data analysis was done by SPSS 23 and results reported.

### RESULTS

There were 101(46.54 %) male and 116 female patients. Mean age of the male patients was 41.67±11.76 years while mean age female patients was 37.38±9.23 years. 31 patients (14.38%) were single and 159(73.27%) were married. There were 27(12.44%) divorced/widowed patients. Out of the total

217 patients 37(17.05%) were illiterate. Those who got education up to 10 years were 121(55.76%) and those who got more than 10 years were 59(27.18%). 91(41.94%) of them belonged to lower economic class. 77(35.48%) belonged to middle class. 49(22.58%) belonged to higher class. 67(30.87%) lived in urban areas. 79(36.41%) in rural areas. 71(32.72%) and in semi urban areas (Table 1).

Of the total 217 patients included in the study 126 (58.06 %) had no depression. 43(19.81%) were suffering from mild depression. 30(13.82%) patients had moderate depression. Only 18 (8.29%) were suffering from severe depression. overall from the patients included in our study 91(41.94%) were suffering from depression (Table 2).

Table 1: Demographics of the patients (n=217)

Variable	Frequency	%age
<b>Gender</b>		
Male	101	46.54
Female	116	53.46
<b>Marital status</b>		
Single	31	14.38
Married	159	73.27
Divorced/widowed	27	12.44
<b>Education in years</b>		
Illiterate	37	17.05
Up to 10	121	55.76
More than 10	59	27.18
<b>Economic class</b>		
Low	91	41.94
Middle	77	35.48
High	49	22.58
<b>Place of living</b>		
Urban	67	30.87
Rural	79	36.41
Semi-urban	71	32.72

Table 2: Depression in diabetes (n=217)

Depression	Frequency	%age
None	126	58.06
Mild	43	19.81
Moderate	30	13.82
Severe	18	8.29
Total depressed	91	41.94

## DISCUSSION

The objective of this study was to see the frequency of depression in diabetes in our hospital. This study found that frequency of depression in diabetic patients reporting to AIMTH was 41.94% ranging from mild to severe depression. Various studies have been carried out previously on this topic. Sotiropoulos et al., found depression in 33.4% of a cohort of Greek adults with Type 2 diabetes<sup>10</sup>. The results this Greek study show rates which are lower than the rates found in our study. This may be because of the nature of study design. The Greek study was cohort in nature and our study was cross sectional. Moreover our study was only patients coming to hospital. Das et al. found that rate depression in Type 2 diabetes mellitus was 46.15%<sup>11</sup>. Our results are comparable to this Indian study. The similarity of culture, living and life style and similar race might be the reason for similar results in the two studies.

In another study, Khamseh et al. found major depression in 71.8% of a sample of 206 Iranian patients with Type 1 and Type 2 diabetes<sup>12</sup>. Although the geography and culture is not very different between the two study sites but rates are very different. The difference might be because of the selection of

patients and difference in methods of the studies. Results of our study are comparable with Mishra et al which says that prevalence of depression in diabetic patients is 43.33%<sup>13</sup>. Again the rates reported in this Indian study are very similar to our study conducted in Pakistan. The similarity of race, life style and eating habits along with very similar foods and similar socio-economic status may be the reason for similar rates.

The strength of our study is easy methodology. The limitations are smaller sample size and more over it is a hospital based study so generalization of results is limited.

## CONCLUSION

Of the total 217 patients included in the study 43(19.81%) were suffering from mild depression. 30(13.82%) patients had moderate depression. Only 18(8.29%) were suffering from severe depression. overall from the patients included in our study 91(41.94%) were suffering from depression.

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**Conflict of Interest & source of funding:** None.

## REFERENCES

- International Diabetes Federation. IDF Diabetes, 7 ed., 2015, Brussels, Belgium: International Diabetes Federation, <http://www.diabetesatlas.org>
- World Health Organization. The World Health Report 2002: Reducing Risks, Promoting Healthy Life. 2002.
- Lloyd CE, Tapash R, Nouwen A, Chauhan AM. Epidemiology of depression in diabetes: How to cite this article: Mishra AK, Kumar S, Ahmad A, Kumar G, Singh KK, Saha KK, Kumar A, Kumar R. Prevalence of Depression in Diabetes Mellitus and Its Determinants. *Int J Sci Stud* 2017;5(4):151-154.
- Ismael K. Unraveling the pathogenesis of the depression diabetes link. In: Katon W, Maj M, Sartorius N, eds. *Depression and Diabetes*. Hoboken, NJ: Wiley Blackwell; 2010:29-6
- Scherrer JF, Xian H, Lustman PJ, Franz CE, McCaffery J, Lyons MJ, Jacobson KC, Kremen WS. A test for common genetic and environmental vulnerability to depression and diabetes. *Twin Res Hum Genet*. 2011; 14:169-172
- Khan RMS, Gani N, Khan MY, Latif A, Mozammil F, Nawaz K et.al. Frequency of rumination in patients admitted with depression in tertiary care hospital. *Rawal Med J* 2017;42(1):28-33
- Khan RMS, Muneer A, Nawaz K, Shehzadi I, Zahid M, Aaruj Iqbal A et al. Frequency of obsessive compulsive symptoms in depression: A hospital-based cross-sectional study. *J Pak Med Assoc*. 2018 Feb;68(2):231
- Latif A, Shamsher Khan RM, Nawaz K. Depression and anxiety in patients undergoing elective and emergency surgery: Cross sectional study from Allama Iqbal Memorial Hospital Sialkot. *J Pak Med Assoc*. 2017 Jun;67(6):884-888.
- Beck Depression Inventory. [Online] 1996 Available from: URL: <http://www.cps.nova.edu/~cpphelp/BDI2.html>.
- Sotiropoulos A, Papazafropoulou A, Apostolou O A., Prevalence of depressive symptoms among non insulin treated Greek Type 2 diabetic subjects. *BMC Res Notes* 2008;1:101
- Das R, Singh O, Thakurta RG et al. Prevalence of depression in patients with Type II diabetes mellitus and its impact on quality of life. *Indian J Psychol Med* 2013; 35:284-9.
- Khamseh ME, Baradaran HR, Rajabali H. Depression and diabetes in Iranian patients: A comparative study. *Int J Psychiatry Med* 2007;37:81-6.
- Mishra AK, Kumar S, Ahmad A, Kumar G, Singh KK, Saha KK, Kumar A, Kumar R. Prevalence of Depression in Diabetes Mellitus and Its Determinants. *Int J Sci Stud* 2017;5(4):151-154

