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Prevalence of Depression Among Patients with Diabetes Mellitus Presenting in Diabetic Clinic Jinnah Hospital Lahore

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ABSTRACT

Background: This study "Prevalence of Depression in Diabetics attending Diabetic Clinic, Jinnah Hospital." was conducted to find out frequency of Depression in Diabetics attending Diabetic Clinic, Jinnah Hospital. **Objectives:** To assess prevalence of depression in diabetics attending Diabetic Clinic, Jinnah Hospital. **Study design:** Cross-sectional study. **Setting:** Diabetic Clinic, Jinnah Hospital, Lahore Pakistan. **Duration:** 5 Months from 16-04-2016 to 20-09-2016. **Results:** The research showed that there was a prevalence of a state of mild depression among diabetics. There was no significant association of depression with gender and age of patients. **Conclusion:** From this study we concluded that there is a prevalence of depression among diabetics. Though the depression was of varying degree, on average there is a mild state of depression among diabetics. That being said, diabetics should be regularly screened for depression and do timely intervention, if needed.

Keywords: Depression, Diabetes type 1, Diabetes type 2, Diabetes Clinic

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INTRODUCTION

According to an estimation by WHO the number of people affected by Diabetes by the year 2030 would be 350 million, with an average increase of 100% from year 2000.[1] With the rise in Diabetes worldwide, the incidence among youngsters is skyrocketing, and so is its chronicity and complications.[2,3] Disability and higher mortality is just one side of the picture. The much darker side of Diabetes entails increased health care cost and decreased social productivity of the patient.[4]

Diabetes is associated with depression and this depression is not only common among patients of diabetes but also in common population. However, the chances of having depression in diabetics are almost twice than that of in non-diabetics.[5] According to a research done in Karachi, Pakistan the incidence of depression among diabetics was significantly higher than general population.[6]

Different studies show that there is strong link between preexisting depression and risk of developing diabetes.[7–9] Diabetes-depression package has a tremendous negative impact which entails physical and functional disability, financial burden both on individual and state and ultimately increased mortality.[10–15]

Latest studies show that diabetic adults suffering from anxiety disorders are associated with less preferred glycemic studies.[16,17] In the clinical studies carried out, a methodical review established that increased anxiety symptoms were present in 40% of diabetic patients.[18] Among all the diabetics, about 14% showed generalized anxiety disorder which is one of the most common anxiety disorders.[18]

In the population-based studies that took place, the relation between diabetes and depression was reported to range from slight differences to twice the increase in risk.[19,20] The methods applied to these studies showed differences due to sample size, methods to identify depression and diabetes, sample characteristics and either a prospective or cross-sectional design was used. Another factor affecting the differences in studies can be chance variations in approximations of the strength of association.

In the last five years a significant chunk of research related to diabetes-depression duo was done in west. Even though this condition is on the rise in Pakistan there is no significant and comprehensive research done in Pakistan, partly because our society neglects the psychological aspects of life and partly due to less health education.

METHODOLOGY

Study design: Cross-sectional study.
Setting: Diabetic Clinic, Jinnah Hospital, Lahore Pakistan.
Duration: 5 Months from 16-04-2016 to 20-09-2016
Sampling Technique: Non-probability Convenient Sampling Technique
Sample Size: 100 Diabetics
Operational Definition:
Depression:
A medical condition in which a person feels very sad, hopeless, and unimportant and often is unable to live in a normal way
Inclusion Criteria:

1. All diabetics within the age group of 20-80 and of either gender were included.

Exclusion criteria

1. Diabetics from other medical facilities were excluded.
2. Patients with other predisposing factors for depression eg cancer were also excluded.

Data Collection Technique: After clarifying the study objectives to patients, informed consent was obtained. A Performa questionnaire (the standard questionnaire by Beck) was completed for each patient with help from 1 investigator. The Beck Depression Inventory, a 21-item screening questionnaire comprising 13 cognitive and 8 somatic questions was used to screen for depression. After that, participants were classified into 4 groups of depression, namely; Minimal (0-13), Mild (14-19), Moderate (20-28) and Severe (29-63), depending on the total score.

Independent and dependent variables were Diabetes Mellitus and Depression respectively. With depression as qualitative variable and no quantitative variable was there.

Data Analysis: We analyzed the data by using SPSS.21.0 For qualitative variables we calculated frequency and percentage.

RESULTS

This study is about depression among diabetics. The demographics are presented in Table 1, which shows that 34% of people were in age group20-40, 48% in 41-60 and 18% in 61-80. Graph 1 show that the ration of male to female in sample was 3:1.

As shown by table 2, the mean BDI score was 17.15 with a standard deviation of 3.48. This showed that there is presence of Mild Depression among the diabetes patients. Table 3 shows that the mean BDI score for those in age group 20-40 was 16.7 with a SD of 3.23, those in 41-60 was 17.0 with a SD of 3.4 and those in 61-80 was 18.33 with a SD of 4.04.

Table 4 shows the mean score of BDI in males to be 17.1 with a SD of 3.36 while in females it was 17.24 with a SD of 3.88. The same results are presented in the form of graph in graph 2. Graph 3 shows the mean and SD in a graphical form, where mean BDI score is 17.15 with SD of 3.48

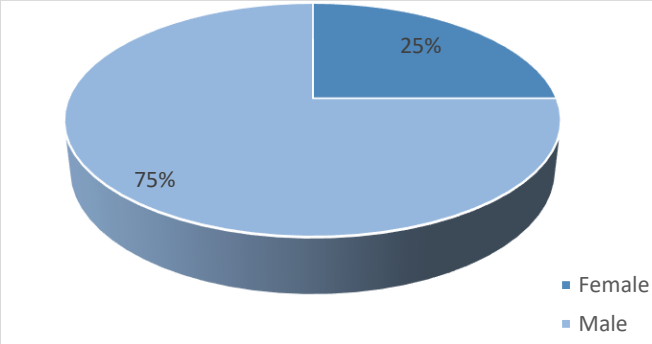
Table 5 shows that 12% of people have minimal depression, 68% have mild depression and 20% have moderate depression. Graph 4 represents the same results in graphical form. Table 6 shows that 10.7% of males and 16.0% of females had moderate depression, 69.3% of males and 64.0% of females had mild depression, and 20.0% of males and 20.0% of females had moderate depression. As the chi-square value shown in Table 7 is less than table value there is no significant association of depression and gender.

Table 8 shows that minimal depression was seen in 11.8% of 20-40 years old, 14.6% of 41-60 years old and 5.6% of 61-80 years old. Mild depression was seen in 76.5%, 66.7%, and 55.6% of 20-40, 41-60, 61-80-year-old respectively. Moderate depression was present in 11.8%, 18.8%, 38, and 9% of 21-40, 41-60, 61-80-year-old respectively. Table 9 shows that chi-square value is less than table value which means there is no significant association between age of diabetic and depression.

The difference between our study and previous studies was due to small sample size and lack of cooperation of patients from whom data was collected. Another limitation was that the patients had difficulty in expressing and realizing their emotions and feelings.

Table 1: Age of respondent:

Age	Frequency	Percent
20-40	34	34.0
41-60	48	48.0
61-80	18	18.0
Total	100	100.0



Graph 1: Demographic: Distribution of gender among the diabetics attending JADE

Table 2: Beck Depression Inventory Total Score:

N	Mean	Std. Deviation	Minimum	Maximum
100	17.1500	3.48264	4.00	27.00

Table 3: Beck Depression Inventory Total Score:

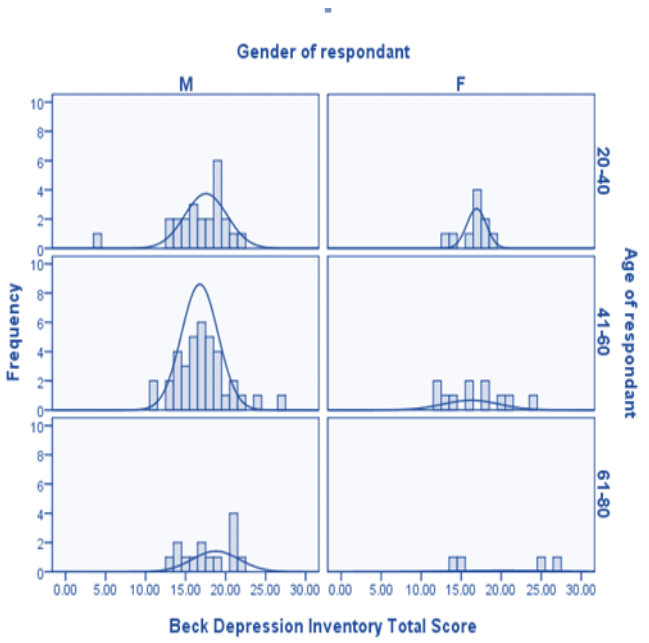
Age of respondent	N	Mean	Std. Deviation	Minimum	Maximum
20-40	34	16.7353	3.23156	4.00	22.00
41-60	48	17.0000	3.40838	11.00	27.00
61-80	18	18.3333	4.04388	13.00	27.00
Total	100	17.1500	3.48264	4.00	27.00

Table 4: Beck Depression Inventory Total Score:

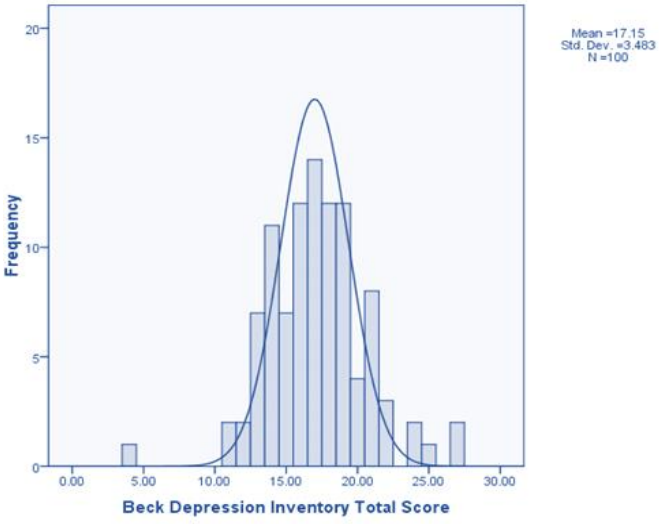
Gender of respondent	N	Mean	Std. Deviation	Minimum	Maximum
M	75	17.1200	3.36902	4.00	27.00
F	25	17.2400	3.87599	12.00	27.00
Total	100	17.1500	3.48264	4.00	27.00

Table 5: Beck Depression Inventory Total Score:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Minimal Depression (Score 0 - 13)	12	12.0	12.0	12.0
	Mild Depression (Score 14 - 19)	68	68.0	68.0	80.0
	Moderate Depression (Score 20 - 28)	20	20.0	20.0	100.0
	Total	100	100.0	100.0	



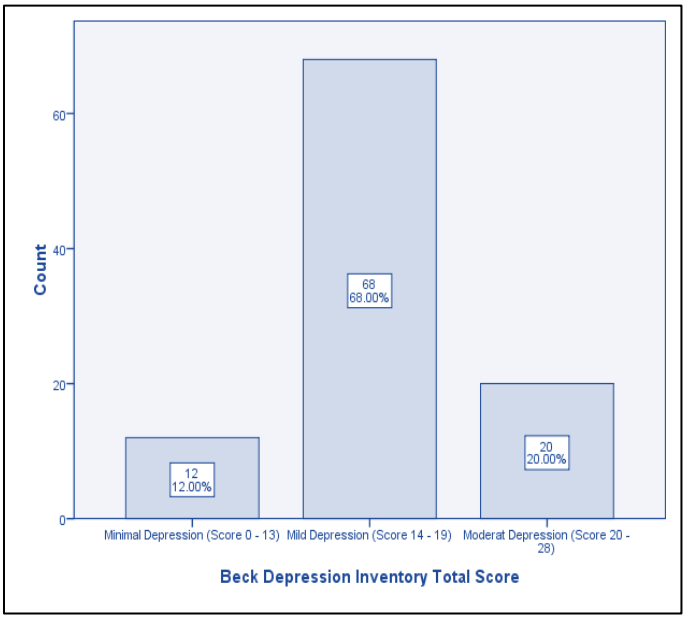
Graph 2: BDI score in gender and age group



Graph 3: BDI score

DEPRESSION INVENTORY – II

Score	Range
0-13	Minimal
14-19	Mild
20-28	Moderate
29-	Severe



Graph 4: Type of depression and frequency

Table 6: Crosstab

			Gender of respondent		Total
			M	F	
Beck Depression Inventory Total Score	Minimal Depression (Score 0 - 13)	Count	8	4	12
		% within Gender of respondent	10.7%	16.0%	12.0%
	Mild Depression (Score 14 - 19)	Count	52	16	68
		% within Gender of respondent	69.3%	64.0%	68.0%
	Moderate Depression (Score 20 - 28)	Count	15	5	20
		% within Gender of respondent	20.0%	20.0%	20.0%
Total		Count	75	25	100
		% within Gender of respondent	100.0%	100.0%	100.0%

Table 7: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.523[a]	2	.770

Table 8: Crosstab

			Age of respondent			Total
			20-40	41-60	61-80	
Beck Depression Inventory Total Score	Minimal Depression (Score 0 - 13)	Count	4	7	1	12
		% within Age of respondent	11.8%	14.6%	5.6%	12.0%
	Mild Depression (Score 14 - 19)	Count	26	32	10	68
		% within Age of respondent	76.5%	66.7%	55.6%	68.0%
	Moderate Depression (Score 20 - 28)	Count	4	9	7	20
		% within Age of respondent	11.8%	18.8%	38.9%	20.0%
Total		Count	34	48	18	100
		% within Age of respondent	100.0 %	100.0 %	100.0 %	100.0 %

Table 9: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.074[a]	4	.194

DISCUSSION

Evidence from prospective and cross-sectional studies demonstrates that the presence of diabetes doubles the risk of co morbid depression. This commonly overlooked co morbidity affects more than one quarter of the diabetic population, making its recognition and treatment in diabetic patients clinically relevant. According to a research done about Prevalence of Co morbid Depression in Adults with Diabetes by Ryan J Anderson and his team,[5] the odds of depression in diabetics was twice as those in non-diabetics. This is in accordance with the findings of our research where we found a prevalence of mean state of mild depression among diabetics.

According to a research done in Karachi about association of depression in type 2 diabetics,[6] there was a significant association with an odds ratio of mild depression to be 3.86 and moderate to severe level to be 3.41. Another research on association of depression in type 2 diabetes by Wayne J Kenton and his team,[12] showed that there were a 2.3-fold increase in deaths of patient with major depression as compared to no or mild depression. This is in accordance with our results where the diabetes was associated with a prevalence of mild depression.

Our research findings indicated that there was a no significant gender association with depression among diabetics. However, a research done on prevalence of anxiety in adults with diabetes[18] showed that depression and anxiety was 55.3% more common in females as compared to men.

CONCLUSION

From this study we concluded that there is a prevalence of depression among diabetics. Though the depression was of varying degree, on average there is a mild state of depression among diabetics.

Early diagnosis of depression may improve the quality of life of patients.

REFERENCES

1. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care. 2004;27(5):1047-53.
2. Pinhas-Hamiel O, Zeitler P. The global spread of type 2 diabetes mellitus in children and adolescents. J Pediatr. 2005;146(5):693-700.
3. Hannon TS, Rao G, Arslanian SA. Childhood obesity and type 2 diabetes mellitus. Pediatrics. 2005;116(2):473-80.
4. Hogan P, Dall T, Nikolov P. Economic costs of diabetes in the US in 2002. Diabetes Care. 2003;26(3):917-32.
5. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. Lustman, The Prevalence of Comorbid Depression in Adults with Diabetes. Diabetes Care. 2001;24(6):1069-78.
6. Perveen S, S Otho, N Siddiqi, Hatcher J, Rafique G. Association of depression with newly diagnosed type 2 diabetes among adults aged between 25 to 60 years in Karachi, Pakistan. Diabetol Metab Syndr. 2010;17(2):155-60.
7. Eaton WW, Armenian H, Gallo J, Pratt L, Ford DE. Depression and risk for onset of type II diabetes. A prospective population-based study. Diabetes Care. 1996;19(10):1097-102.
8. Engum A. The role of depression and anxiety in onset of diabetes in a large population-based study. J Psychosom Res. 2007;62(1):31-8.
9. Knol MJ, Twisk JW, Beekman AT, Heine RJ, Snoek FJ, Pouwer F. Depression as a risk factor for the onset of type 2 diabetes mellitus. A meta-analysis Diabetologia. 2006;49(5):837-45.
10. Simon G, Ormel J, VonKorff M, Barlow W. Health care costs associated with depressive and anxiety disorders in primary care. Am J Psychiatry. 1995;152(3):352-7.
11. Lin EHB, Katon W, Von Korff M, Rutter C, Simon GE, Oliver M, Ciechanowski P, Ludman E, Bush T, Young B. Relationship of depression and diabetes self-care, medication adherence and preventive care. Diabetes Care. 2004;27(9):2154-60.
12. Katon WJ, Rutter C, Simon G, Lin EH, Ludman E, Ciechanowski P, Kinder L, Young B, Von Korff M. The association of comorbid depression with mortality in patients with type 2 diabetes. Diabetes Care. 2005;28(11):2668-72.
13. de Groot M, Anderson R, Freedland KE, Clouse RE, Lustman PJ. Association of depression and diabetes complications: a meta-analysis Psychosom Med. 2001;63(4):619-30.
14. Von Korff M, Katon W, Lin EH, Simon G, Ciechanowski P, Ludman E, Oliver M, Rutter C, Young B. Work disability among individuals with diabetes. Diabetes Care. 2005;28(6):1326-32.
15. Egede LE, Zheng D, Simpson K. Comorbid depression is associated with increased health care use and expenditures in individuals with diabetes. Diabetes Care. 2002;25(3):464-70.

16. Anderson RJ, Grigsby AB, Freedland KE, de Groot M, McGill JB, Clouse RE, Lustman PJ. Anxiety and poor glycemic control: a meta-analytic review of the literature. Int J Psychiatry Med. 2002;32(3):235-47.
17. Lloyd CE, Dyer PH, Barnett AH. Prevalence of symptoms of depression and anxiety in a diabetes clinic population. Diabet Med. 2000;17(3):198-202.
18. Grigsby AB, Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. Prevalence of anxiety in adults with diabetes: a systematic review. J Psychosom Res. 2002;53(6):1053-60.
19. Zhang J, Markides KS, Lee DJ. Health status of diabetic Mexican Americans: results from the Hispanic HANES. Ethn Dis. 1991;1(3):273-9.
20. Wells KB, Golding JM, Burnam MA. Chronic medical conditions in a sample of the general population with anxiety, affective, and substance use disorders. Am J Psychiatry. 1989;146(11):1440-6.

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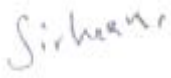
Dr. Sirhaan Zaib House Officer Jinnah Hospital, Lahore	Collection of References	
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