POTENTIAL DETERMINANTS OF DEPRESSION AMONG TYPE 2 DIABETIC PATIENTS IN HYDERABAD, SINDH.

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Abstract

Intoduction: The incidence of depression among diabetics was significantly higher than the general population. **Objective:** To evaluate the potential determinants of different levels of depression among type 2 diabetic patients visiting Red Crescent general hospital Hyderabad. **Methods:** Cross-sectional study was conducted at Red Crescent General Hospital, Hyderabad between May 2019 and September 2019. All willing type2 diabetes mellitus patients between 20 to 65 years of age of either gender without any other predisposing factors like depression, cancers, etc. were included in the study while those not meeting the study inclusion criteria were excluded. A pre-tested questionnaire was used to collect the participant's information. Beck's depression inventory was used to collect information regarding the depression and its severity. SPSS version 22 was used for the statistical analysis of the data. **Results:** Total of 140 diabetic patients with mean age of 48.4 ± 19.0 years were recruited in the study.Majority (52.85%) were non-smokers while more than half (63.57%) had diabetes type2 for more than 5 years. The overall prevalence of depression of any level in the present study was found to be 85% with most (45%) them were suffering from mild depression. Statistically significant relationship (p-value <0.05) between different levels of depression with gender, marital status, smoking status, duration of type 2 diabetes and insulin therapy. **Conclusion:** Based on findings of the study, it is concluded that depression in different levels is more prevalent among type 2 diabetic patients while gender, marital status, smoking status, duration of diabetes as well as insulin therapy are the potential risk factors or determinants of depression among the diabetics.

Keywords: Beck's depression inventory, Depression, Diabetes mellitus Type 2.

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INTRODUCTION

Diabetes mellitus is a metabolic disorder causing hyperglycemia as a result of the inadequacy of either insulin secretion or action.[1]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 the year 2000.[2] With the rise in diabetes worldwide, the incidence among youngsters is skyrocketing, and so is its chronicity and complications.[3, 4]Disability and higher mortality is just one side of the picture. The much darker side of Diabetes entails increased health care costs and decreased social productivity of the patient.[5] Depression is not only common among patients of diabetes but also among the common population. However, the chances of having depression in diabetics are almost twice that of non- diabetics.[6] According to research done in Karachi, Pakistan the incidence of depression among diabetics was significantly higher than the general population.[7] Different studies show that there is a strong link between preexisting depression and the risk of developing diabetes.[8, 9] Diabetes-depression package has a tremendous negative impact that which entails physical and functional disability, the financial burden on both individual and state and ultimately increased mortality.[10-12]

Studies show that diabetic adults suffering from anxiety disorders are associated with less preferred glycemic studies.[13]In the clinical studies carried out, a methodical review established that increased anxiety symptoms were present in 40% of diabetic patients.[14] Among all the diabetics, about 14% showed generalized anxiety disorder which is one of the most common anxiety disorders.[14] 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.[15]In the last five years, a significant chunk of research related to the diabetes-depression duo was done in the west. Even though this condition is on the rise in Pakistan there is no significant and comprehensive research done in Pakistan, partly becauseour society neglects the psychological aspects of life and partly due to less health education. Diabetes associated depression is a public health burden and if diabetes is treated properly in the early stages, the overall morbidity and mortality due to this duo can be prevented. Keeping this in mind, the objective of the current study was to determine the prevalence of depression as well as to evaluate the potential determinants of different levels of depression among type 2 diabetic patients visiting Red Crescent general hospital Hyderabad.

METHODOLOGY

This cross-sectional study was carried out in the diabetic clinic of Red Crescent general hospital (RCGH) Hyderabad after attaining approval from the ethical review committee of Isra University, Hyderabad. The study was conducted from 4th May to 30th September 2019. The sample size was calculated using Epi.info online sample size calculator. While non-probability Convenient Sampling Technique was applied for the selection of participants. All willing diabetic (type2 diabetes mellitus) patients between 20 to 65 years of age of either gender that visited the diabetic clinic of RCGH without any other predisposing factors like depression, cancers, etc. were included in the study while those not meeting the study inclusion criteria were excluded from the study. All study participants were informed about the purpose as well as the benefits of the study after which informed consent was obtained. A structured questionnaire (Beck's depression inventory, 21 item screening questionnaire) was used to collect the information regarding the severity of depression (mild, moderate, and severe). After that, participants were classified into four groups of depression, namely; Minimal (0-13), Mild (14-19), Moderate (20-28), and Severe (29-63), depending on the total score. Data was entered using epi data software, while SPSS V.22 was used for data analysis. Study variables were expressed as frequency and percentage. Statistical significance was taken as $p \leq 0.05$.

RESULTS

Total of 140 diabetic patients were recruited in this study. The mean age of the study population was 48.4 ± 19.0 years with more male participants. The majority of participants were above 45 years. (Table 1)

	n	%
Age Group (years)		
24 – 35	25	17.85
36 – 45	31	22.14
46 – 55	46	32.85
56 and above	38	27.14
Gender		
Male	97	69.28
Female	43	30.71
Marital Status		
Married	80	57.14
Others	60	42.85
Employment status		
Not employed	29	20.71
Employed	89	63.57
Retired	22	15.71
Family status		
Nuclear	41	29.29
Joint	99	70.71
Smoking		
Yes	66	47.14
No	74	52.85
Duration since Diabetes (years)		
≤ 5 years	51	36.42
> 5 years	89	63.57
On insulin therapy		
Yes	82	58.57
No	58	41.42

Table 1: Sociodemographic information of study participants (n=140)

Based on the beck's depression inventory-II (BDI-II), the overall prevalence of depression of any level in the present study was found to be 85%. (Figure 1). The majority of diabetic patients were suffering from mild depression followed by a minimal and moderate level. No participant demonstrated to have severe depression (Figure 2).

Figure 1: Prevalence of depression among diabetics attending RCH (n=140)

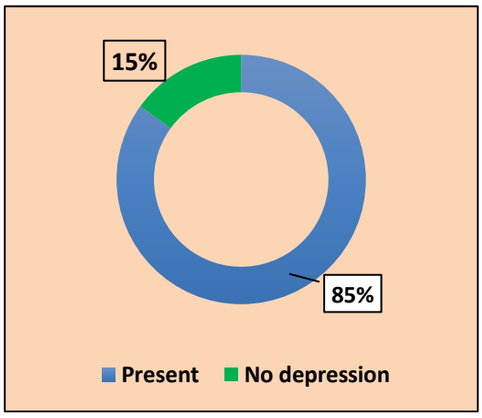
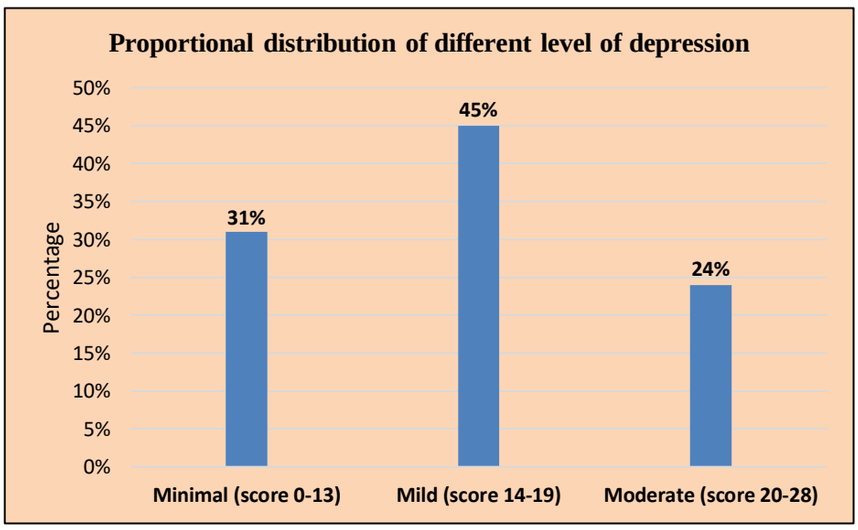


Figure 2: Distribution of participants according to different levels of depression based on Beck's Depression Inventory-II (BDI-II) (n=119)

Table 2 is demonstrating the association between the different levels of depression and sociodemographic details, duration of illness, insulin therapy, and smoking habits. Statistically significant association (p-value < 0.05) was demonstrated between depression (different levels) and determinants like gender, marital status, smoking status, duration of diabetes as well as insulin therapy. (Table 2)

DISCUSSION

As mentioned above, diabetes takes its toll not only on the physical but also on the mental and psychological health of the patients. Diabetes associated depression not only hinders the management of the disease leading to complications but also adds serious medical and monetary consequences. Furthermore, suicidal tendencies associated with depression, which are potentially lethal psychiatric emergencies, have shown to occur more frequently in diabetic patients as compared to healthy individuals.[16]



		Beck's Depression Inventory findings			X^2
Variables	Total (n=119)	Minimal (n=37)	Mild (n=54)	Moderate (n=28)	p-value
Age Group (years) 24 – 35 36 – 45 46 – 55 56 and above	 20 24 41 34	 10 8 9 10	 5 10 22 17	 5 6 10 7	 0.38
Gender Male Female	 81 38	 15 22	 47 7	 19 9	 ***0.000******
Marital Status Married Others	 65 54	 28 9	 25 29	 12 16	 ***0.007******
Employment status Not employed Employed Retired	 25 75 19	 6 25 6	 11 35 8	 8 15 5	 0.76
Family status Nuclear Joint	 34 85	 10 27	 13 41	 11 17	
Smoking Yes No	 57 62	 9 28	 30 24	 18 10	 ***0.002******
Duration since Diabetes (years) ≤ 5 years > 5 years	 39 80	 7 30	 25 29	 5 23	 ***0.004******
On insulin therapy Yes No	 71 48	 18 19	 32 22	 22 6	 ***0.04******

Out of the 140 study participants, the overall prevalence of depression of any level in the present study was found to be 85%. Different studies have reported varying prevalence rates of depression among diabetic patients. These variations can be attributed to differences in the social, environmental, ethnic background as well as the availability of proper healthcare facilities. For instance, similar prevalence rates were reported by a study done in Palestine. but comparatively much lower rates have been reported by studies conducted in America, Jordan, Australia, and Nepal, etc.[6, 17-19] These variations can be owed to war-violence and associated conditions such as unemployment and unavailability of proper medical care in Palestine and comparatively better living conditions with proper medical care and mental health awareness in developed countries. In this present study, the prevalence of depression was found to be higher in patients using insulin as compared to patients using other conventional anti-diabetic therapies. Similar results regarding the association of insulin therapy with a higher prevalence of depression have been reported by Noh et al. and Sun et al. in studies conducted in Korea and China respectively. [20, 21] This positive association between insulin therapy and depression can partly be explained by the undesirable attitude directed toward insulin use. Insulin self-injections, dose adjustments, and associated complications such as weight gain, hypoglycemia, and infections, etc. can often lead to depression in such patients. In the current study, both gender and age showed to play an important role in the occurrence of depression with higher prevalence being found in older males. These findings are similar to those reported by Joshi et al. and Roy et al. in studies conducted in Nepal and Bangladesh respectively. [22, 23] With strengths to this study, there were certain limitations. Firstly, due to monetary restrictions, the blood glucose level and plasma HbA1C levels could not be assessed as potential predictors to help formulate an association with depression. Secondly, the total prevalence of depression among the population was underestimated by the current study as it didn't account for patients with clinically diagnosed depression as well as those on anti-depressant therapy.

CONCLUSION

Based on findings of the study, it is concluded that depression in different levels is more prevalent among type 2 diabetic patients while gender, marital status, smoking status, duration of diabetes as well as insulin therapy are the potential risk factors or determinants of depression among the diabetics.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin.

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CONFLICT OF INTEREST: No competing interest declared.

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