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Evaluation for the occurrence of depression in diabetic patients of Nilgiris district

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ABSTRACT

Diabetes currently affects more than 62 million Indians, which is more than 7.1% of the adult population. The average age on onset is 42.5 years. Nearly 1 million Indians die due to diabetes every year. This means that some 170 million men and women, who will reside in the developing regions of the world in less than 30 years from now, will be suffering from diabetes in their most productive years of life. It has been observed and vividly the presence diabetes would subject the individuals to various level of stress which leads to depression. Having this concern on mind and the aforementioned problems, in our current study, we have done an extensive study prevalence of depression in diabetic patients in Nilgiris district of tamilnadu, India. We found that the diabetes patients in the Nilgiris were found to have significant depression level. The depression was assessed in diabetic patients on different parameters include age, gender, marital status, social habits (smoking, alcohol consumption), BMI, blood pressure and blood sugar levels. We have obtained significant study outcomes, which has been found very imperative and interesting regarding the substantial impact and strong prevalence of depression in the diabetes population.

Keywords: Prevalence of depression, Diabetes Type-I and Type-II, Patient Health Questionnarie

INTRODUCTION

World Health Organization (WHO), projects a 170% growth in the number of people with diabetes in developing countries by 2025. Between 1995 and 2025 the number of the adult population affect by DM in developing countries is projected to grow by 170%, from 84 to 228 million people. By 2025, these countries will be home to 76% of all persons with diabetes, as compared with 62% in 1995. In the same period, the developed world will see a 41% increase, from 51 to 72 million people. Worldwide, a 122% rise is projected, from the total of 135 to 300 million. This more than twofold global increase will occur because of population ageing and growth, as well as from obesity, unhealthy diets and a sedentary lifestyle. These latter factors are closely associated with urbanization and industrialization. The WHO study also contains estimates of sex ration, urban-rural ratio and the age structure of the diabetic population. In 1995, for the world as a whole, there were more women than men with diabetes. The female excess was pronounced in the developed countries. For developing countries as a whole, a considerable excess of people affected with diabetes in the urban areas is predicted. If the present trend persists, by 2025 most people with diabetes in developed countries will be aged 65 years or more, while the majority of diabetic persons in developing countries will be in the 45-64year age group[1-7]. This means that some 170 million men and women, who will reside in the developing regions of the world in less than 30 years from now, will be suffering from diabetes in their most productive years of life.

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Depression is one of the most common psychological problems affecting nearly everyone either personally or through a family member. Depression can interfere with normal functioning and frequently causes problems with work, social and family adjustment. Serious depression can destroy the family life and the life of the depression person. The term depression is used in many different ways to describe transient states of low mood experienced by all people at some time in their life through to severe psychiatric disorders. Depression is understood to be a condition that generally comes and goes that is more likely at certain stages of the life cycle and with some types driven by genetic, biological factors and other types being more a response to major life events. The clinical diagnosis of depression is made on the basis of the existence of a collection of signs and symptoms also called a syndrome. Currently, the most widely used classification systems for depressive disorders are the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and International Classification of Disease (ICD-10) which has replaced by ICD-9. The DSM-IV system underpins much clinical practice and is both a dimensional and categorical are the sub typing of DSM-IV system. It allows a continuum of severity but also includes three major depressions.

Relationship between depression and diabetes

Depression and Diabetes are two separate disease condition and are by themselves a major health problem in the world. The co-existence of depression in people with diabetes might be associated with poor adherence to treatment, poor metabolic control, higher complication rates, decreased quality of life, increased healthcare use and cost, increased disability and loss of productivity, and increased risk of death. There is evidence that the prevalence of depression is moderately increased in prediabetic patients and undiagnosed diabetic patients, and markedly increased in the previously diagnosed diabetic patients compared to the normal individuals. The prevalence rates of depression could be up to three-times higher in patients with type-1 diabetes twice as high in people with type-2 diabetes compared with general population worldwide[8-13]. The presence of depression and anxiety in diabetic patients worsens the prognosis of diabetes, increase the non-compliance to the medical treatment, decrease the quality of life and increases mortality. On the other hand, depression may increase the risk of developing type-2 diabetes with 60%.There is a bidirectional association between diabetes and depression, a complex relation that might share biological mechanisms, whose understanding could provide a better treatment and improve the outcomes for these pathologies.

METHODOLOGY

Study Site: The study was conducted at various health care centers providing primary and secondary health care to the patients in the Nilgiri District. The study was also carried out in some of the community pharmacies in the Nilgiri District.

Study Type: Observational
Study Design: Cross-sectional study
Time perspective: Prospective
Study Population: Diabetes Mellitus patients
Duration of the study: The duration of the study is 6 months. This includes the review of literature, preparation of the project proposal and preparation of patient data collection form and SPSS for data coding and data collection[14-21].
Sample Size: This is a pilot study with minimum of 160 patients.

Study Criteria

Eligibility Criteria

- ✓ Age: ≥ 18 years of Age
- ✓ Gender: Male/Female

Inclusion Criteria

- ✓ Confirmed diagnosis for Diabetes mellitus
- ✓ Full awareness and ability to talk and respond to questions orally.

Exclusion Criteria

- ✓ Any other acute/chronic illness during the study period that might lead to depression i.e., cardio vascular diseases, COPD, CKD etc.

Source of data

The data was collected prospectively from each patient from their respective medical records who attended the outpatient unit and who were admitted in the inpatient unit of District Government Head Quarters Hospital, Ooty and various primary health centers and community pharmacies across various places in Nilgiris District[22-25]. The data was a single snapshot data.

Method of Data Collection

The data was collected prospectively as a single encounter from each patient from their respective medical records attending the various health centres at Nilgiris district with a concomitant diagnosis of Diabetes Mellitus. The informed consent form in the language best understood by the subject was obtained (Annexure-1).
The study criteria for inclusion and exclusion criterion were checked. On entry of the study, the relevant data required was collected from medical records of the patients[26-30]. A specially designed patient data collection form (Annexure 2) was used to collect the socio-demographic and PHQ-9 Questionnaire was noted.

Study procedure

1. The patient with Diabetes mellitus were explained about the project
2. The interested patient was explained about informed consent and their consent was taken before including them in the study.
3. The patients social, demographic & diseases related data were collected and entered into Data Collection Form.
4. The questionnaire (PHQ-9) was administered and data were recorded.
5. The collected data was entered into the analytical software's and analysis was done.

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RESULTS & DISCUSSION

The study was carried out by attempting to enroll 200 patients based on inclusion and exclusion criteria. After certain screening a total of 160 patients were enrolled. The study patients were classified according to the socio-demographic, lifestyle and medical variables. The socio-demographic variables include age, sex, BMI and marital status. The lifestyle variables are smoker, alcoholics, and food habits. Variables related to medical are patients with different diagnosis and co- morbidities. Out of 160 Diabetes patients enrolled, 10% (16) were aged between 18-40 years, 16.87 % (27) were aged between 41-50 years, followed by 33.75%(54) and 39.37%(63) that were aged between 51-60 and above 60 years respectively (fig 1).

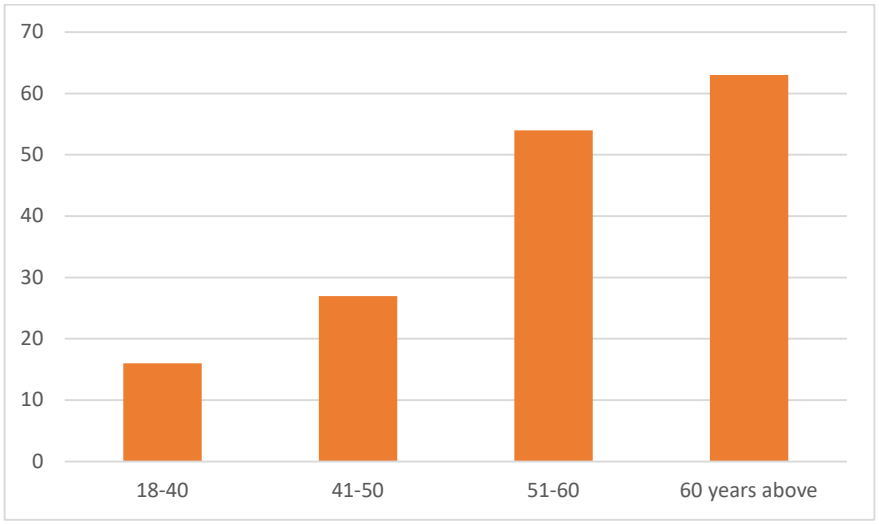

Fig 1: Age group & distribution

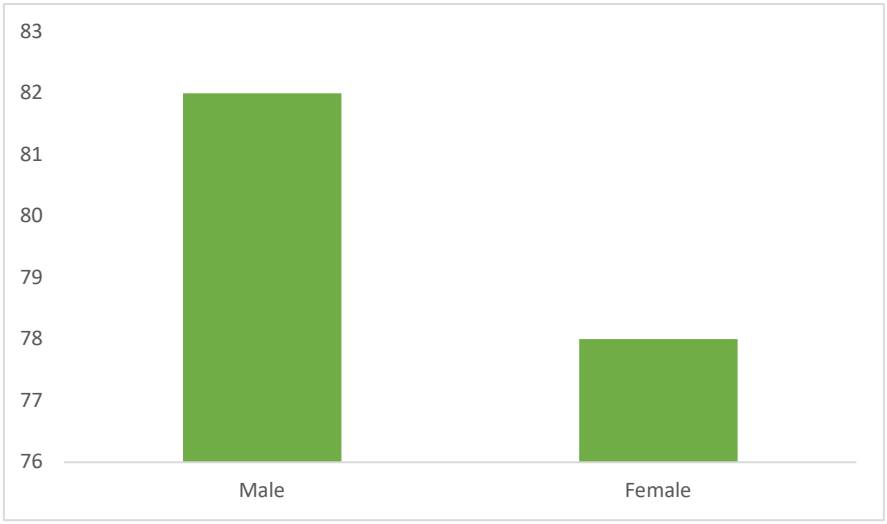

Fig 2: Gender & Distribution

Blood Sugar level

Out of the 160 recruited Diabetes patients 47.5% (76) had high FBS level, 36.25% (58) patients had PPBS level between 200-300, and the remaining 16.25% (26) had blood sugar level above 300 (fig 2).

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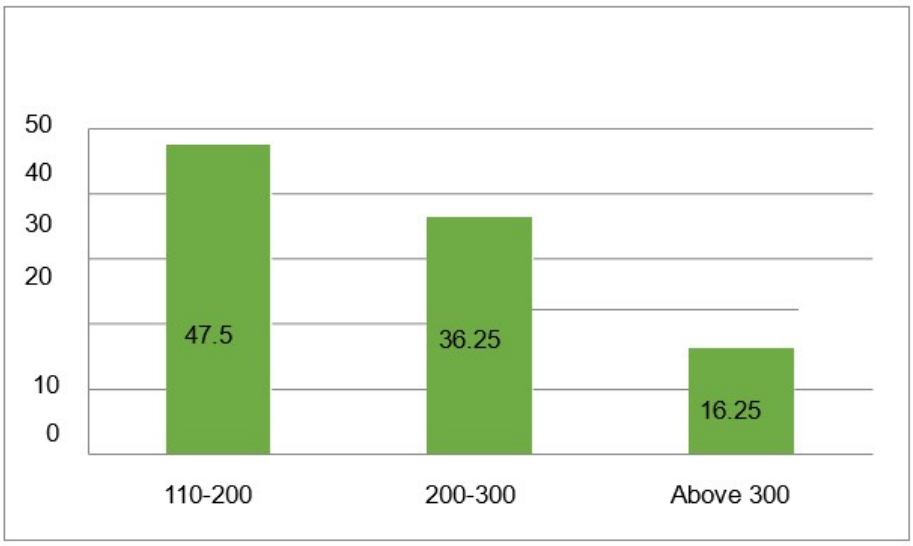

Fig 3: Blood Sugar level

In the present study, we assessed the level of depression in diabetes patients. We also assessed the various determinants of depression like age, gender, education, food habits, social habits, diabetes type, blood sugar level and blood pressure levels. Statistical analysis (Chi-Square Test) was performed to find the significant association between the PHQ-9 scores and the determinants of depression (Table 1&2).

Table 1: Effect of Blood Pressure on PHQ-9 scores

	Interpretation				Total
Blood Pressure	**None**	**Mild**	**Moderate**	**Severe**	
Normal	10	50	14	1	75
High	7	48	16	1	72
Low	2	8	3	0	13
Total	19	106	33	2	160

Table 2: Chi-Square Tests- Blood Pressure

Parameters	Value	Df	Asymp.sig.(2-sided)
Pearson chi- square	1.042[a]	6	0.984
Likelihood ratio	1.208	6	0.976
Linear-by-association	167	1	0.683
No of valid cases	167	-	-

Over 160 patients were enrolled for the study. After assessing the depression level in patients with PHQ-9 questionnaire, it was found that 19 patients did not have depressive symptoms, remaining people had various level of depression (mild=66%, moderate=20%, moderately severe=1.25%) (Table 3&4).

Table 3: Effect of Blood Sugar Values on PHQ-9 scores

	Interpretation				Total
Blood sugar values	**None**	**Mild**	**Moderate**	**Severe**	
Group A (110- 200)	10	48	17	1	76
Group B (210=300)	5	43	10	0	58
Group C(above300)	4	15	6	1	26
Total	19	106	33	2	160

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Table 4: Chi-Square Tests- Blood Sugar

Parameters	Value	Df	Asymp.sig. (2-sided)
Pearson chi-square	4.473[a]	6	0.613
Likelihood ratio	4.730	6	0.579
Linear-by-association	0.012	1	0.911
No of valid cases	160	-	-

CONCLUSION

In this context, the depression were assessed in diabetic patients on different parameters include age, sex, marital status, social habits (smoking, alcohol consumption), BMI, blood pressure and blood sugar levels. There was variation in depression level in Type-1 DM and Type-2 DM. The depression was higher in patients with Type-2 DM. The prevalence of depression was higher in women compared to men. The patients were found to have mild to moderate depression level, none of the patients had severe depression levels. Depression was higher in patients with the age range of 50 to 60 and above 60. There was no significant association between depression and other factors like social habits, BMI, blood pressure and blood sugar levels. Special attention needs to be paid to diagnose depression in diabetes patients. Diabetes patients need to be treated collaboratively by the physicians and psychiatrists. The depression level may be due to the impact of the patient's personnel life problems or may be related to his social life. However further research is required in large population to understand the influence of other confounding factors so as to reach a definite conclusion.

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