

A PROSPECTIVE STUDY ON RELATIONSHIP BETWEEN MEDICATION ADHERENCE AND SEVERITY OF DEPRESSION AMONG PATIENTS WITH TYPE 2 DIABETES MELITUS IN SOUTH INDIAN TERTIARY CARE HOSPITAL**Roshin Elizabeth Mathew¹, Aswathy Vijayan¹, Mamen Alex¹, Veena Vijayan G.^{2*} and Dr. Archana Babu³**¹Pharm.D Interns, Sree Krishna College of Pharmacy and Research Centre, Trivandrum, Kerala, India.²Assistant Professor, Department of Pharmacy Practice, Sree Krishna College of Pharmacy, Trivandrum, Kerala, India.³Senior Consultant, Department of General Medicine, Cosmopolitan Hospital, Pattom, Trivandrum, Kerala, India.***Corresponding Author: Veena Vijayan G.**

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ABSTRACT

Aim: The main objective of the study was to evaluate Medication Adherence and also to find its association with Severity of Depression in Type 2 Diabetes Mellitus patients. **Materials and Methods:** A prospective-observational study carried out among 200 patients with Type II Diabetes Mellitus in the General Medicine Department for a period of six months based on inclusion and exclusion criteria. A structured interview with patient or parent was conducted by using various questionnaires to elicit information about severity of depression by Hamilton Depression Rating scale (HAM-D) and medication adherence using Morisky Medication Adherence Scale-8 (MMAS-8). Then data were well analyzed. Finally, correlation between Medication Adherence and Severity of Depression were assessed. **Result:** Majority of them shows (57%) high adherence, followed by medium adherence only 14.5% show low adherence. About 27.6% of poor adherence to anti-diabetic medication is due to forgetfulness, lack of disease knowledge, Long treatment duration, Increased cost of therapy, lack of family or social support, Polypharmacy, only 6.5% due to side effects of medicine especially for patients on insulin. Diabetics without depression are highly adherent to medication (49.1%) medium adherence (28.1%), only 13.8% shows low adherence. Majority of diabetic patients with severe/very severe depression shows low adherence to medication (44.8%), followed by medium adherence (28.1%) and only 9.6% are highly adherent. **Conclusion:** The studies on medication adherence will definitely help the physician to improve the prescribing pattern, efficient clinical management delays the progression of disease, reduce the diabetic related complications, improves the quality of life, improves clinical outcomes of patients and better QOL of patients.

KEYWORDS: Diabetes Mellitus, Depression, Medication Adherence, MMAS-8, HAM-D.**INTRODUCTION**

As per WHO, Diabetes Mellitus (DM) is a group of metabolic disorders characterized by common feature of chronic hyperglycemia with disturbance of carbohydrate, fat and protein metabolism and results in chronic complications including microvascular, macrovascular and neuropathic disorders.^[1] The incidence of type 2 diabetes mellitus (DM) is increasing. This has been attributed in part to increasing obesity, sedentary lifestyle, and an increasing minority population.^[2] According to sixth edition of International Diabetes Federation there were 382 million diabetes patients by the year 2013 and more than 396 million people worldwide die from diabetes and its complications.

➤ IN USA

Type 1 DM develops in childhood or early adulthood, although latent forms do occur. Type 1 DM accounts for up to 10% of all cases of diabetes mellitus.

Type 2 DM accounts for as much as 90% of all cases of DM. Overall prevalence of type 2 DM in the US is about 6.6% in person's age 20-74 yrs. The prevalence of type 2 DM increases with age is more common in women than in man in US, being increased in some groups of native Americans, Hispanic American, Asian American, African American, and Pacific island people. Gestational diabetes mellitus complicates roughly 4% of all pregnancies in US.

➤ IN INDIA AND KERALA^[3]

According to statistics from the International Diabetes Federation (IDF), India has more diabetics than any other nation of the world. Current estimates peg the number of diabetics in the country at about 62 million – an increase of over 10 million from 2011 when estimates suggested that about 50.8 million people in the country were suffering from the disease. If you think the disease has

already reached endemic proportions in the country, consider this. By the year 2030, over 100 million people in India are likely to suffer from diabetes, say researchers.

Kerala is the diabetes capital of India with a prevalence of diabetes as high as 20% – double the national average of 8%. In a large multi-center study involving nearly 20,000 subjects, the prevalence of diabetes in Thiruvananthapuram was 17% compared to 15% in Hyderabad and New Delhi, 4% in Nagpur and 3% in Dibrugarh.

And this study aims in evaluating Medication Adherence and to find out association between Severity of Depression and Medication Adherence among patients with Type 2 Diabetes Mellitus. patients in a South Indian tertiary care hospital.

MATERIALS AND METHODS

A Prospective-Observational study carried out among 200 patients diagnosed with Type II Diabetes Mellitus in the General Medicine department of Cosmopolitan Hospital, a tertiary care centre for a period of 6 months(from October 2015-March 2016) irrespective of age and gender based on inclusion and exclusion criteria. The study was reviewed and approved by the institutional ethical committee. The datas of the patients were obtained from Medical Record Department (MRD), and all the datas were documented in a suitable designed Case Record Form (CRF). A structured interview with patient or parent was conducted by using various questionnaires to elicit information about the severity of depression and medication adherence. In the study severity of depression was assessed by using Hamilton Depression Rating scale(HAM-D) and medication adherence is assessed by using Morisky Medication Adherence Scale -8 (MMAS-8) Then data were well analyzed. Finally, correlation between Medication Adherence and Severity of Depression were assessed The sample size was calculated by using the formula,

$$n = \frac{Z_{\alpha}^2 p(1 - p)}{d^2}$$

Where;

- In the present study: - n = Sample Size
- P = 0.25 (Prevalance of depression among DM patients)
- d = 25% of p = 0.063(level of precision)
- Z_∞ = 1.96 for ∞ = 0.05(Z statistics for a level of confidence).

The calculation was made in 95% confidence interval and 80% power. Minimum sample size for the study is 185.

Patients included in study were, Patients diagnosed with Type 2 Diabetes Mellitus of age above 18year who were on Anti-diabetic treatment > 6months with complete Medical Records and who are willing to participate in the study. Patients excluded include Patients with Type 1 Diabetes Mellitus/ with other psychiatric disorder and

pregnant womens.

All medication history, severity of depression and finally a between Medication Adherence and Severity of Depression were assessed.

The data was analysed with SPSS 16.0 and Excel 2013 as a statistical tool.

RESULTS

Table. 1: Percentage distribution of the sample according to age.

Age	Count	Percent
<=50	34	17
51 – 60	68	34
61 – 70	57	28.5
>70	41	20.5
Mean ± SD	60.6 ± 11.2	

Table. 2: Percentage distribution of the sample according to gender.

Gender	Count	Percent
Male	111	55.5
Female	89	44.5

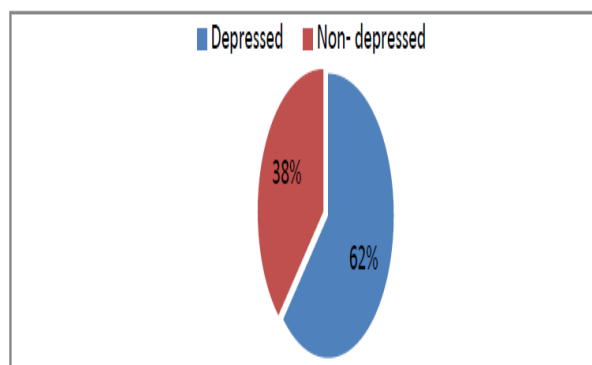


Fig.1: Distribution of depressed and non depressed diabetic patients.

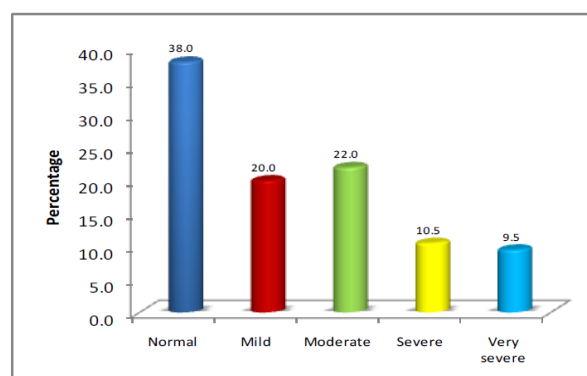


Fig. 2: Percentage distribution of the sample according to severity of depression.

Table. 3: Percentage distribution of the sample according to medication adherence.

Medication adherence	Count	Percent(%)
Low	29	14.5
Medium	57	28.5
High	114	57.0

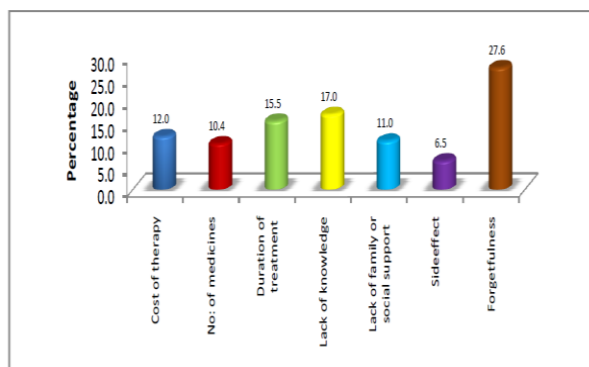


Fig. 3: Percentage distribution of the sample according to factors of poor medication adherence.

Table 4. Association of Medication adherence and Severity of Depression.

Mode of therapy	Normal	Mild	Moderate	Severe/ Very severe	χ^2	P
Low	4 (13.8)	5 (17.2)	7 (24.1)	13 (44.8)	29.31**	0.000
Medium	16 (28.1)	9 (15.8)	16 (28.1)	16 (28.1)		
High	56 (49.1)	26 (22.8)	21 (18.4)	11 (9.6)		

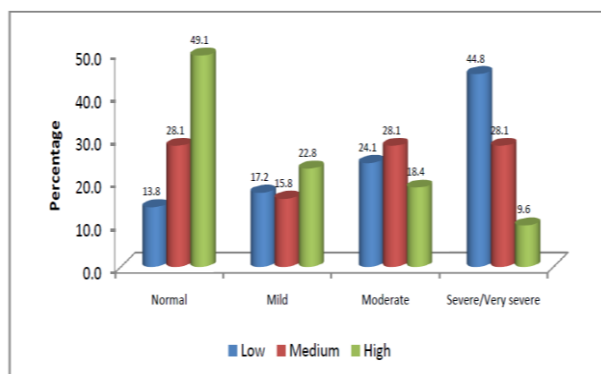


Fig.4 Association of Medication adherence and Severity of Depression.

DISCUSSION

A total of 200 patients with Type 2 DM was assessed for a period of 6 months. There were 89 females and 111 males (Table 2.) with mean age 60.6±11.2 (Table 1.). Most of diabetic patients were male.

Fig.1 and Fig.2 showed that out of 200 diabetic patients, 124 (62%) patients were depressed. About 22% patients shows moderate depression, followed by mild depression (20%), severe (10.5%) and very severe (9.5%). Mild-Moderate level of depression is more prevalent in diabetics than general population. This is supported by a Cross Sectional Study conducted by Irum Siddique et.al (2014) [4] shows that depression was present among 53%

of the patients.

The severity of Depression was: mild in 20% of the surveyed population, moderate in 23% and severe in 10% of subjects.

Fig 3 shows that 27.6% of poor adherence to antidiabetic medication is due to forgetfulness, followed by lack of knowledge about the disease or medicine (17%), Long duration of treatment (15.5%), Increased cost of therapy (12%), lack of family or social support (11%), Increased number of medicine (Polypharmacy) 10.4%, only 6.5% due to side effects of medicine especially for patients on insulin. This study is contrary to study done by Manjusha Sajith et al, [5] in her study poor adherence is mainly due to the inadequate knowledge regarding therapy followed by lack of financial resources, Costs of medication too expensive, etc.

Fig.4 shows that diabetics without depression are highly adherent to medication (49.1%), followed by medium adherence (28.1%), and only 13.8% shows low adherence. Majority of diabetic patients with severe/very severe depression shows low adherence to medication (44.8%), followed by medium adherence (28.1%) and only 9.6% are highly adherent. It concludes that Medication adherence are high in diabetics without depression, where as it is poor in diabetic with depression, especially for those who have severe or very severe depression. This result is supported by study done

by Atta Abbas et al^[6], in her study poor medication adherence are associated with depression. Management of Type 2 Diabetes aims at achieving different goals, one of which is to reduce the symptoms of hyperglycemia which usually hinders the patient's everyday life^[7] and thereby it can help in various strategies like prescribing pattern, Medication adherence etc.

CONCLUSION

The study was able to describe the medication adherence and the relationship between depression and medication adherence in patients with Type 2 Diabetes mellitus. Studies on medication adherence will definitely help the physician to improve the prescribing pattern and efficient clinical management delays the progression of disease reduce the diabetic related complications and improves the quality of life. This study showed that depression is more prevalent in diabetic patients. This study also point out the need of clinical pharmacist along with other healthcare professional for implementing adequate therapeutic strategies for management of comorbid depression in diabetic patients for improving clinical outcomes and better QOL of patients.

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