# **Original Research Article**

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# A study on treatment adherence among patients with type 2 diabetes mellitus attending diabetic clinic

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## **ABSTRACT**

**Background:** Diabetes is one among chronic diseases requiring long term medication and its prevalence is increasing globally. Adherence to prescribed treatment among diabetes patients is very important for good glycemic control. Poor glycemic control following poor adherence is associated with increasing risk of complications, disease progression, morbidity and mortality with increasing costs of care. Hence, the present study was undertaken to assess the adherence of diabetic patients with their prescribed medications.

**Methods:** The study involved 200 diabetic patients on oral anti-diabetic medication visiting out-patient diabetic clinic in a teaching hospital, Bangalore, who met required criteria. Information was collected using predesigned questionnaires by personally interviewing selected patients.

**Results:** A total of 122 patients (61 %) were non-adherent with medication; 36 (18%) and 42 (21%) of patients were moderately adherent and adherent to treatment respectively. Among non adherent patients, males were more (72%) compared to females (50%), which was statistically significant (P<0.05). Non adherence was more among employed (69%) patients compared to unemployed patients (54%), this was significant statistically (p >0.05). Non adherence level was very high among males with history of smoking (80%).

**Conclusions:** It was observed that the proportion of diabetic patients who are non-adherent to their prescribed medications was high. It is recommended that patients should be counselled repeatedly by health care providers on the importance of complying with prescribed drug regimen for better compliance and treatment outcome.

**Keywords:** Adherence, Diabetic, Treatment, Compliance

### INTRODUCTION

Diabetes Mellitus is a collection of metabolic disorders sharing the common underlying feature of hyperglycemia. The prevalence of diabetes for all age groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030. The total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030, and is becoming a major public health problem.

Despite medication, it has been found that there are frequent episodes of inadequate glycemic control in majority of the type 2 diabetic population. Many a times, the reason is attributed to poor drug adherence.<sup>3</sup>

The vast majority of diabetic patients self-administer their own medications. Drug treatment relies heavily on the cooperation of the patient, as patients' compliance in ambulatory care is an important link between medical process and treatment outcome.<sup>4</sup>

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The World Health Organization (WHO) has shown that lack of adherence to medication is widespread in chronic diseases (Including diabetes mellitus) and is a major cause of concern within the medical profession.<sup>5</sup>

Such reduced adherence not only results in poor health outcomes but it also has a significant impact on healthcare costs. Thus, the overall management of type 2 diabetes should also address adherence which may help the physician and the patient to get involved in a joint process of treatment negotiation and decision making for better treatment outcomes as well as appropriate medications.

This study, therefore, aims to study the treatment adherence among patients with type 2 diabetes mellitus on oral hypoglycaemic agents (OHA) attending diabetic clinic.

#### **METHODS**

The study was carried out for a period of 2 months (June and July 2016) in the diabetic clinic of Dr. B R Ambedkar Medical College and Hospital which is a tertiary care hospital in Bangalore. The information for this study was collected using predesigned questionnaires by personally interviewing selected patients. All the patients who attended the clinic between study periods were included in the study after considering inclusion and exclusion criteria. The demographic profile of the patients was recorded in a case report form and treatment adherence level was assessed using eight-item Morisky medication adherence scale (MMAS).<sup>7</sup>

## Inclusion/exclusion criteria for the study

Inclusion criteria for the study

Inclusion criteria were patients diagnosed with type 2 diabetes mellitus, aged 30 years and above, patients taking one or more OHAs for the last six months, willing to provide informed consent

Exclusion criteria for the study

Exclusion criteria were patients on OHAs since less than six months, diabetic patients on injectable hypoglycaemic agents alone or in combination with OHAs, diabetic patients with diagnosed psychiatric problems.

#### **RESULTS**

Two hundred patients were involved in the study. From the results gotten, there were 100 (50%) male and 100 (50%) female patients and majority of them were in the age group of 51 to 65 years 100 (50%) (Table 1). The total number of male patients that were found to be non-adherent, moderately adherent and adherent with their medications was 72, 16 and 12 respectively and among female patients it was 50, 20 and 30 respectively (Table 2) and this difference in adherence to medication between male and female patients was statistically significant (P<0.05). The results showed, though the proportion of non-adherents was more in all age group, it was high among patients aged between 31 to 50 years (Table 3) which was not statistically significant (P>0.05).

Table 1: Distribution of study subjects based on age and sex.

Age	Male	Female	Total
31-50	26	30	56 (28%)
51-65	46	54	100 (50%)
>65	28	16	44 (22%)
Total	100	100	200

Table 2: Distribution of study subjects based on adherence to medication and sex.

	Male	Female	Total	
Adherent	12	30	42 (21%)	D 0.002
Moderately adherent	16	20	36 (18%)	P = 0.002 Chi-Square
Non-adherent	72	50	122 (61%)	= 12.125
Total	100	100	200	- 12.123

Table 3: Distribution of study subjects based on adherence to medication and age.

Age group	Adherent	Moderately adherent	Non-adherent	Total	
31 – 50	12	8	36 (64%)	56	
51 – 65	20	20	60 (60%)	100	P = 0.92
>65	10	8	26 (59%)	44	Chi-Square =0.90
Total	42	36	122 (61%)	200	

Table 4: Distribution of study subjects based on adherence to medication and employment status.

Employment	Adherent	Moderately adherent	Non-adherent	Total	
Employed	14	16	68 (69%)	98	D 0.02
Unemployed	28	20	54 (53%)	102	P = 0.03 Chi-Square =6.64
Total	42	36	122	200	CIII-Square =0.04

Table 5: Distribution of study subjects based on adherence to medication and selected habits (only males).

Habits	Adherent	Moderately adherent	Non-adherent	Total	
Alcoholism	6	4	22 (69%)	32	
Smoking	2	4	24 (80%)	30	P = 0.44
No habits	6	12	38 (68%)	56	Chi-Square =3.73
Total	14	20	84	118	

<sup>\*</sup>Multiple responses

A total 102 of the study patients were unemployed and 98 were employed at the time of study. Table 5 shows that majority (69%) of non-adherent patients with their medications were employed as compared to unemployed patients (52%) and this difference was statistically significant (P <0.05). Non adherence level was very high among males with history of smoking (80%) compared to male patients with alcohol consumption (69%) and no such habits (68%). No female patient had history of smoking or alcohol consumption in our study.

#### **DISCUSSION**

The study showed that only 42(21%) and 36(18%) of patients were adherent and moderately adherent with their medication regimens respectively, while 112(61%) patients were non- adherent. This observation is similar to study by Urquhart which showed that about one-third or more of patients have poor compliance with prescribed medications irrespective of disease. Our study showed more number of male patients were non-compliant to their medications whereas study done by Abdulazeez et al showed marginal difference between male (48.15%) and female (51.85%) patients with respect to their medication non-adherence. In our study most non-adherents were in age group of 51 to 65 years and in study by Abdulazeez et al showed majority of non-adherents were in age group of 60 to 69 years.

The results of our study showed that non-adherence was more among employed (69%) patients compared to unemployed patients (54%), this difference in adherence between unemployed and employed could be attributed to busy work schedule of working patients and no original research article has specifically focused on possible association between employment status and adherence to medication for diabetes mellitus. In our study association between socioeconomic status and treatment adherence could not be assessed because all our study subjects belonged to same socioeconomic class (Class III according to modified Kuppuswamy classification). Other studies showed that cost of drugs is obstacle to adherence with many patients irrespective of diseases.<sup>4</sup>

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