

ORIGINAL ARTICLE

A community based study to determine prevalence and associated factors among patients with nonadherence to diabetic medication

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ABSTRACT:

Background: Diabetes mellitus refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. The present study was conducted to determine prevalence and associated factors among patients with nonadherence to diabetic medication. **Materials & Methods:** The present community based study was conducted on 256 patients of type II diabetes mellitus of both genders. Place of treatment, satisfaction, cost of treatment, type of treatment, satisfaction with treatment and perceived knowledge about diabetes, complications, and effects of missing doses were also recorded. Medication adherence was measured using Morisky Medication Adherence Scale. **Results:** Out of 256 patients, males were 176 and females were 80. There was high significant difference in non- adherence to diabetic medication ($P < 0.05$). Reason for poor adherence were poor knowledge about disease in 45, myths in 126, distance from medical facility in 38, cost of treatment in 70, lack of satisfaction in 60 and forget to take medication in 84. The difference was significant ($P < 0.05$). **Conclusion:** Reason for poor adherence was poor knowledge about disease, myths, distance from medical facility, cost of treatment, lack of satisfaction and forget to take medication.

Key words: adherence, diabetes, knowledge.

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INTRODUCTION

Diabetes mellitus refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. The prevalence of diabetes mellitus is growing rapidly worldwide and is reaching epidemic proportions. It is estimated that there are currently 285 million people with diabetes worldwide and this number is set to increase to 438 million by the year 2030.¹ It is considered to be one of the most psychologically and behaviorally demanding of the chronic diseases and it requires frequent self- monitoring of blood glucose, dietary modification, diet, and administration of medication under schedule. Medication nonadherence is common among diabetics and it is one of the leading public health challenges. In a resource-poor country like India with low literacy levels and restricted access to health- care facilities, the prevalence of medication nonadherence is much more common.²

Medication-taking behavior is complex and involves patient, clinician, and health system factors. Patient factors that influence adherence include lack of involvement in the treatment decision- making process, poor health literacy, personal and community beliefs regarding medication effectiveness, and previous experiences with pharmacologic therapies (eg, adverse effects).³ Clinician factors include failure to recognize nonadherence, prescription of complex and multidrug regimens, ineffective communication of benefits, and inadequate communication between prescribers (ie, specialists and primary care

clinicians). Health system factors include medication co-payments and poor coordination of care between inpatient and outpatient settings. The multiplicity of reasons related to patient, clinician, and health system factors make nonadherence a challenging problem to address.⁴ The present study was conducted to determine prevalence of nonadherence to diabetic medication.

MATERIALS & METHODS

The present community based study was conducted in the department of Community Medicine to determine prevalence and associated factors among patients with nonadherence to diabetic medication. It comprised of 256 patients of type II diabetes mellitus of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

INCLUSION CRITERIA

Inclusion criteria include ambulatory patients who

- i) are on antidiabetic medications for more than six months;
- ii) consented to participating in the study;
- iii) will attend the diabetic clinic during the study period.

EXCLUSION CRITERIA

Exclusion criteria are as follows:

- (i) unconscious patients;
- (ii) patient age less than 18 years;

(iii) very ill patients.

General information such as name, age, sex etc. was recorded. Place of treatment, satisfaction, cost of treatment, type of treatment, satisfaction with treatment and perceived knowledge about diabetes, complications, and effects of missing doses were also

recorded. Medication adherence was measured using Morisky Medication Adherence Scale. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

| Gender | Males | Females |
|--------|-------|---------|
| Number | 176 | 80 |

Table I shows that out of 256 patients, males were 176 and females were 80.

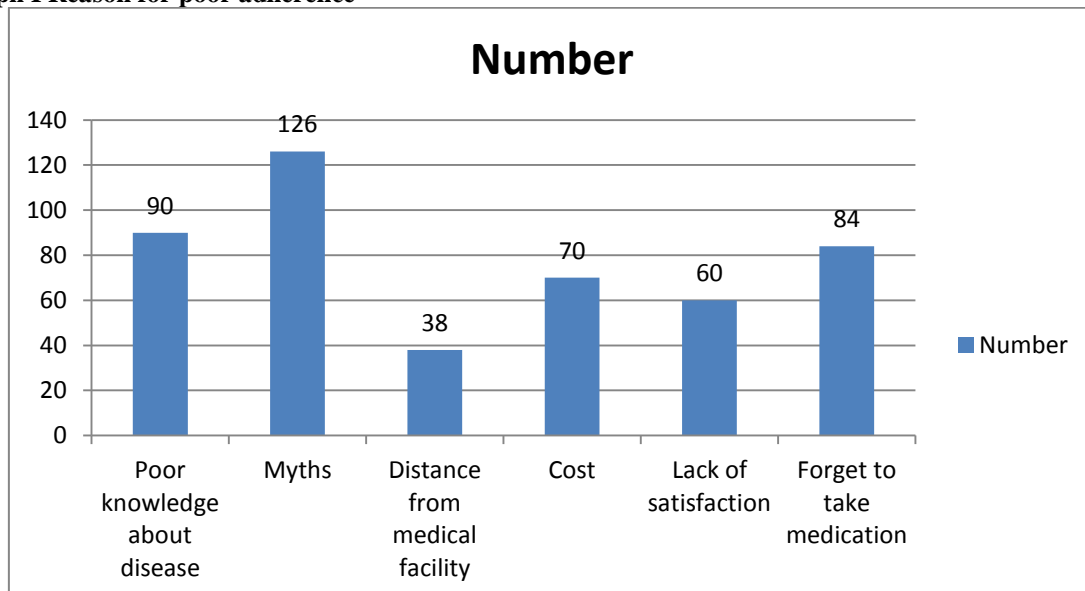
Table II various factors associated with low adherence for treatment

| Parameters | Number | P value |
|------------------------------------|--------|---------|
| Hypertension | | |
| Present | 176 | 0.42 |
| Absent | 120 | |
| Pace of treatment | | |
| Private | 36 | 0.12 |
| Government | 220 | |
| Doctor- Patient relationship | | |
| Satisfied | 196 | 0.01 |
| Not satisfied | 60 | |
| Perceived knowledge about diabetes | | |
| Present | 204 | 0.02 |
| Absent | 52 | |

Table II shows that there was high significant difference in non- adherence to diabetic medication (P< 0.05).

Graph1 shows that reason for poor adherence was poor knowledge about disease in 90, myths in 126, distance from medical facility in 38, cost of treatment in 70, lack of satisfaction in 60 and forget to take medication in 84. The difference was significant (P< 0.05).

Graph I Reason for poor adherence



DISCUSSION

The management of diabetes mellitus involves both pharmacologic and nonpharmacologic approaches. For the patient both approaches need a strict compliance to the agreements reached with the

physician in order to achieve the desired goals of treatment. Despite this fact most patients were found to be nonadherent to their recommended treatments and this is caused by several factors. As a result assessment of adherence of patients to their respective

treatments through continued researches is crucial. Non-adherence affects both the individual patients and the healthcare system. Studies have shown that patients with good adherence to treatment had both a lower rate of mortality.⁵

Among adults with chronic illness such as diabetes or hypertension, between 30% and 50% of medications are not taken as prescribed. Poor adherence is associated with increased morbidity and mortality and may account for approximately 125 000 deaths and 10% of hospitalizations in the United States annually.⁶ Nonadherence is also a significant contributor to health care costs: it is estimated that \$100 billion annually is spent on US health care services that are directly related to poor medication adherence, such as successive hospitalizations and increased need for medical interventions. Over the last 15 years, studies have been conducted in an effort to improve rates of medication adherence, but the rate of medication nonadherence has not appreciably improved.⁷ The present study was conducted to determine prevalence of nonadherence to diabetic medication.

We found that out of 256 patients, males were 176 and females were 80. There was high significant difference in non-adherence to diabetic medication ($P < 0.05$). Venkatesan et al⁸ found the prevalence of nonadherence to diabetic medication and to identify various factors associated with it. It was conducted among 328 type 2 diabetic patients. The quantitative data were collected from diabetic patients and qualitative data from health-care providers to identify their perceived barriers for patient's nonadherence. The prevalence of low adherence to diabetic medication was 45.4% among the study population. Bivariate analysis shows significant association with the patients who are literate, hypertensive, taking treatment from private facility perceived lack of satisfaction with doctor-patient relationship and perceived lack of knowledge about diabetes with low adherence to medication.⁹

Significant factors associated with low adherence for medication are illiterate, not having comorbid condition such as hypertension, poor satisfaction with government health facility, perceived poor satisfaction with doctor-patient relationship, perceived lack of knowledge about diabetes, perceived lack of knowledge about effect of missing doses, and initial years of having diabetes. Qualitative analysis shows that the common reasons are lack of knowledge about disease, distance, travel, lack of transport to health facility, inaccessible timing of the health facility, cost of drugs in private hospitals, and side effects.¹⁰

We found that reason for poor adherence was poor knowledge about disease in 90, myths in 126, distance from medical facility in 38, cost of treatment in 70, lack of satisfaction in 60 and forget to take medication in 84.

Medication-taking behavior is complex and involves patient, clinician, and health system factors. Patient factors that influence adherence include lack of involvement in the treatment decision-making process, poor health literacy, personal and community beliefs regarding medication effectiveness, and previous experiences with pharmacologic therapies.¹¹ Clinician factors include failure to recognize nonadherence, prescription of complex and multidrug regimens, ineffective communication of benefits, and inadequate communication between prescribers (ie, specialists and primary care clinicians). Health system factors include medication co-payments and poor coordination of care between inpatient and outpatient settings. The multiplicity of reasons related to patient, clinician, and health system factors make nonadherence a challenging problem to address.¹²

Gelaw et al¹³ conducted a study to determine the magnitude of nonadherence and its contributing factors among diabetic patients. Every other patient was selected and data regarding their medication adherence was collected using a structured interview. A total of 270 patients were interviewed; 51.5% were males. A total of 68.1% of the patients included in the study were married. 14% were younger than 40 years, and 50% were between 40 and 60 years. 21.8% of the participants ascribed their nonadherence to forgetting to take their medications. Patients with duration of diabetes 5 years (82.07%) were more compliant to their medication than those with 5 years (60.8%), which was found to be statistically significant. Insulin, 47%, and glibenclamide plus metformin, 43.7%, were the most commonly prescribed mono- and combination therapies, respectively. Common comorbid conditions include hypertension, 148 (54.82%), and visual impairment, 89 (32.96%). The proportion of male patients adherent to their antidiabetic medications was found to be lower than 69.78% compared to the female patients (74.81%), but the difference was not statistically significant. Authors concluded that most diabetic patients are currently being managed with the most effective available drugs. However the result from this study indicates that the desired blood sugar level could not be controlled and maintained adequately. This was because of poor adherence to the prescribed drug regimen and poor knowledge and practice of successful self-management.

CONCLUSION

Authors found that reason for poor adherence was poor knowledge about disease, myths, distance from medical facility, cost of treatment, lack of satisfaction and forget to take medication.

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