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ORIGINAL ARTICLE

An Evaluation of Barriers and Facilitators to Treatment Compliance in Diabetes Mellitus

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ABSTRACT:

Background: Diabetes mellitus, a chronic metabolic disorder, requires consistent long-term therapy for effective management. However, treatment adherence among patients often remains suboptimal due to a multitude of individual and systemic barriers. Understanding these factors is essential for developing targeted interventions to improve compliance and clinical outcomes. **Aim:** To evaluate the barriers and facilitators influencing treatment compliance among patients with diabetes mellitus attending a tertiary care facility. **Material and Methods:** This prospective cross-sectional study was conducted in the Department of General Medicine on 491 diabetes patients aged over 18 years who were on antidiabetic medication. Patients with serious complications requiring hospitalization or aged below 18 were excluded. A structured questionnaire comprising 25 items, including demographic data and specific questions related to treatment interruptions, was administered. Patients responded in a yes/no format to factors such as financial constraints, lack of accompaniment, medication availability, time constraints, family obligations, side effects, awareness about consequences of non-adherence, and perceptions about lifelong medication. Data were analyzed using IBM SPSS Version 20.0. Descriptive statistics were presented as means ± standard deviation for continuous variables and as percentages for categorical data. **Results:** The average age of participants was 49.65 ± 10.12 years with a mean BMI of 25.35 ± 4.06 kg/m². The majority (98.4%) were diagnosed with T2DM, and 15.9% reported a family history of diabetes. Most patients (73.5%) used oral antidiabetic medication, while 18.5% combined Ayurvedic therapy. Major reported barriers to adherence included the perception of lifelong medication burden (73.7%), lack of awareness regarding consequences of missed doses (68%), medication side effects (66.6%), and inadequate awareness of treatment importance (64.8%). Financial problems (57.8%), lack of time (43.2%), alternative treatment use (37.1%), and logistical difficulties such as medication availability and lack of companionship also contributed significantly. **Conclusion:** The study underscores a low level of medication adherence among diabetes patients, primarily driven by modifiable behavioral and educational factors. Improving physician-patient communication, enhancing awareness through structured diabetes education, and involving family support systems are crucial to overcoming these barriers and promoting sustainable disease management.

Keywords: Diabetes Mellitus, Treatment Compliance, Medication Adherence, Barriers to Care, Patient Education.

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INTRODUCTION

Medication adherence refers to the extent to which a patient properly takes and follows their medication, as prescribed by their doctor. For a patient to be considered as an adherent to prescribed medication, several factors must be met: the doctor's prescriptions must be filled, the patient must remember to take their medication at the right time and with the right dose, and the patient must follow and understand the prescription's directions.[1] Medication adherence is critical as it improves quality of life by controlling chronic conditions and treating temporary conditions. It also plays a crucial role in individuals' long-term health and well-being, according to the World Health Organization (WHO). Medication adherence is a key factor in managing diabetes mellitus (DM). Treating patients with DM requires that they achieve optimal glycemic control, which reduces diabetes complications and the likelihood of risk and death. To achieve this glycemic control, a patient is predicated on the rational taking of an antidiabetic regimen. Patients who are not adhering to a recommended antidiabetic medication regimen are anticipated to suffer from suboptimal glycemic control, which drastically increases the risk of diabetic complications.[2-4] Therefore, good adherence to their medication is a key step in managing diabetes mellitus and achieving successful self-management by patients. Perceptions of illness are structured ideas about a disease's signs, symptoms, progression, controllability, and causation. It has been demonstrated that patients' views of their illness can predict various psychological and disease-related consequences, such as depression and lack of adherence to the prescribed medications. Perceptions of illness are mainly concerned with the anxiety and depression levels normally resulting from patients who are suffering from a chronic illness such as DM.[5-7] Patients with DM usually develop depression and stress, which creates their perception of the disease and certain beliefs about the cause and controllability of the disease. These perceptions normally affect

patients' medication adherence because patients may perceive the cause of the disease, such as DM, as different from what the doctor prescribed. Therefore, this may force patients to not follow the prescription of the doctor. In treating these chronic diseases, more so for DM, it is, therefore, essential to assess a patient's brief perception of the disease so that an understanding of the condition is reached to avoid the patient's nonadherence to their medication. Patients' awareness of and knowledge about their chronic illness and its management are two of the essential components for their better understanding of the treatment protocols. Previous studies demonstrated that in order to properly self-manage diabetes, a patient must have a thorough understanding of medications, food, exercise, home glucose monitoring, foot care, and necessary treatment changes. The assessment of diabetes-related knowledge among T2DM patients is a critical initial step from which to customize diabetes education programs and measure their efficacy.[8-10]

MATERIAL AND METHODS

Present prospective cross-sectional study was done in the Department of general medicine, on 491 diabetes patients. All diabetes patients (both Type 1 and type 2) having age more than 18 years and who were on diabetes medication were included. Diabetes patients having age <18 years and suffering from serious complication and require hospitalization were excluded from the present study. A detailed questionnaire consisting of 25 questions which included demographic details and the questions on the reasons for the treatment interruption were given to all thepatients visiting to study center. Patients responded yes or no to each of the following questions: do you have financial problem, do you have no one to accompany you for visit, is diabetes medicine available in your area, do you find sufficient time to come for visit, are you busy in family obligation, is your medication lead to side effects, are you aware about the consequences of missing the doses, do you find it good totake long life medications. All the data analysis was performed using IBM SPSS ver. 20 software. Frequency distribution was used for preparing tables. Quantitative data was expressed as mean±standard deviation whereas categorical data is expressed as percentage.

RESULTS

Table 1: Demographic and Anthropometric Characteristics of the Study Cohort

The study cohort had a mean age of 49.65 ± 10.12 years, suggesting that most participants were middle-aged, which aligns with the common onset age for type 2 diabetes. The mean body weight was 67.97 ± 12.08 kg, while the average height was 163.75 ± 8.08 cm, indicating a generally average adult physique. The mean Body Mass Index (BMI) was 25.35 ± 4.06 kg/m², which places the average participant in the overweight category according to WHO classification. This finding reinforces the association between increased BMI and risk of diabetes, especially type 2 diabetes mellitus (T2DM).

Table 2: Clinical and Socioeconomic Profile of the Study Cohort

Among the 491 participants, a vast majority (98.4%) were diagnosed with Type 2 Diabetes Mellitus (T2DM), while only 1.6% had Type 1 Diabetes Mellitus (T1DM), reflecting the typical epidemiological dominance of T2DM in adult populations. Additionally, 15.9% of the cohort reported a family history of diabetes, indicating a potential genetic or hereditary predisposition in a subset of patients.

Table 3: Medication and Treatment Profile of the Study Cohort

The data reveal that oral antidiabetic medications were the primary mode of treatment, used by 73.5% of the patients, consistent with standard treatment guidelines for T2DM. Notably, 18.5% of the cohort reported combining Ayurvedic and oral antidiabetic medications, highlighting the prevalent use of traditional medicine either as adjunct or alternative therapy. A smaller portion of the cohort was managed with insulin therapy (4.5%), which is generally reserved for more advanced cases or when oral therapy is insufficient. An additional 3.5% used unspecified "other" treatments, which may include supplements or non-standard interventions.

Table 4: Factors Responsible for Treatment Interruptions Among Diabetes Patients

This table provides critical insight into the barriers to treatment adherence among diabetic patients. The most commonly reported reason was the long duration of required medication, cited by 73.7% of participants, highlighting the psychological burden of lifelong treatment. Lack of awareness regarding the consequences of missed doses (68%) and side effects of medication (66.6%) were also major contributors to non-adherence. Interestingly, 64.8% reported a lack of awareness about the importance of taking medications, emphasizing the need for patient education. Financial difficulties were cited by 57.8%, underlining the economic burden of chronic disease management. Other reasons included shifting to alternative treatment modalities (37.1%), lack of time (43.2%), and unavailability of medicines in local areas (19.6%). Moreover, 27.3% faced difficulty attending visits due to lack of companionship, and 21.8% cited family obligations as a barrier. These multifaceted challenges indicate that both systemic and personal factors significantly influence treatment continuity.

Table 1: Demographic and Anthropometric Characteristics of the Study Cohort

Characteristic	Mean ± SD
Age (years)	49.65 ± 10.12
Weight (kgs)	67.97 ± 12.08
Height (cm)	163.75 ± 8.08
BMI (kg/m²)	25.35 ± 4.06

Table 2: Clinical and Socioeconomic Profile of the Study Cohort

Clinical Profile	Frequency (%)
T2DM	483 (98.4%)
T1DM	8 (1.6%)
Family history of diabetes	78 (15.9%)

Table 3: Medication and Treatment Profile of the Study Cohort

Medication Type	Frequency (%)
Oral Antidiabetic Medication	361 (73.5%)
Ayurvedic + Oral Antidiabetic Medication	91 (18.5%)
Insulins	22 (4.5%)
Other	17 (3.5%)

Table 4: Factors responsible for the treatment interruptions among diabetes patients.

Response (patients who had"Yes")	N (n=491)	%
Financial problem	284	57.8
No one to accompany for visit	134	27.3
Non availability of medicines inhis area	96	19.6
Lack of time to come for visit	212	43.2
Busy in family obligation	107	21.8
Shifted to alternative treatment	182	37.1
Side effects of medication	327	66.6
Not aware of the consequences ofmissing the doses	334	68
Long life medication period	362	73.7
Lack of awareness to takemedication	318	64.8

DISCUSSION

Medication adherence is the important element of self- management for patients with diabetes mellitus.[6] Uncontrolled hyperglycemia can result in micro- and macrovascular complications such as retinopathy, nephropathy, neuropathy and associated cardiovascular diseases. For achieving a good glycemic control in diabetes patients, a right treatment and its strict adherence is very important.[7] Present study has shown that mean age of study cohort was 49.65±10.12 years which is in agreement to Ascher-Svanum et al, which included 74,399 individuals where mean age of patient was 51.0 years (SD 9.0) years.[8] In present study authors observed male preponderance (68.4%) among diabetes patients which is hand in hand with the study done by Ascher-Svanum et al, where more than half of the enrolled diabetes patients were males (54%). Contrary to present study Awodele et al, reported female preponderance.[8,9] Previous studies have highlighted the cost of medication as the main influencing factor for the non- adherence to their medication (Table 1). Mojtabai et al, also reported that 7% of the patients were finding difficulties in purchasing medication due to the cost.[10] Awodele et al, also reported that more than half of the patients found their medication unaffordable.[9] These findings are in agreement to the present study findings were more than half of the patients responded to have financial problem because of that they were finding difficulty in purchasing diabetic medication. In entred study, financial difficulties were one of the key factor influencing the non-adherence among diabetes patients.[11] It is also evident from the present study majority of the patients had monthly income between 5001 to 15000 rupees (Table 1). Therefore the possibility of treatment interruption is high due to the cost of medication because of financial problem. In present study majority of the patients were illiterate. This shows a low level of skills in the study population. Due to that the possibility of getting an employment is less when the qualification is low. The significance of lower income among the study cohort is the reason for not sustaining the cost of diabetes medication. In present study lack of awareness to take medication was another reason for the treatment interruption which may be due to the forgetfulness to take the medicine on time. In agreement to this study done by Lawton et al, who found that non-adherence was more related to patient forgetfulness than to specific concerns about medications or interaction with the physicians.[12] Support from family play a crucial role in diabetes

management. Family members function as counselors encouraging diet and exercise behaviors. Family members facilitate adherence with medication, and altogether helping patients to win with diabetes.[13]In present study more than a quarter patients responded that they missed the visit to the physician as there was no one to accompany them . In previous study by Awodele et al, who also reported that taking medicine alone was the one of the risk factor for the poor adherence among the diabetes patients.[9] Majority of the patients in present study were not aware of the consequences of missing the doses this may be due to the higher illiteracy rates among the study population (Table 1). Education is the key component for the management of diabetes. Previous studies have also highlighted the importance of need of information related to consequences of missing the dose.[9] Hence it is very important to inform the patients about their disease and medication. It is also important to educate the person accompanying the patients regarding the information on missing the dose. However few previous studies which have found no relation of education on improving self- management skills and psychosocial competencies in diabetes patients.[14,15] Risk factors for poor adherence can be distinguished as unmodifiable factors such as age and sex and factors such as education, financial difficulties and presence of professional activity can be hardly modified in contest to medical relationship. There are some modifiable risk factors such as family support, lack of information related to medication, and poor acceptability of medical recommendations on which treating physician could focus more in order to improve the medications adherence and in result could improve the glycaemic control. Present study had few limitations; one was the use of self- reported data on the risk factors of treatment interruptions or medication adherence. However, majority of the previous studies have used self-reported questionnaires as they are low in cost and time expenditure. Self-reported questionnaires are also appropriate for the large population based sample. Previous report have also found the self- reported questionnaires provide a reasonably accurate estimate of adherence among the diabetes patients.[16] Lastlythis was a cross sectional study because of that authors can-not apply the present study findings to large population. However a large randomized control trial is required to provide the strength to present study findings.

CONCLUSION

For effective diabetes management medication adherence plays a very important role. Authors found a low level of medication adherence among the study population. This findings highlight the importance of improving the physicians approach on the modifiable risk factors on individual basis. However, it is the patients and their family who play a vital role in the diabetes management. It is very important to develop knowledge and appropriate skills by the patients; also behavioral change is very important.

REFERENCES

1. Cramer JA. A systematic review of adherence with medications for diabetes. *Diabetes Care*. 2004;27(5):1218–24.
2. Sabaté E, editor. *Adherence to long-term therapies: evidence for action*. Geneva: World Health Organization; 2003.
3. Krapek K, King K, Warren SS, George KG, Caputo DA, Mihelich K, et al. Medication adherence and associated hemoglobin A1c in type 2 diabetes. *Ann Pharmacother*. 2004;38(9):1357–62.
4. Rubin RR. Adherence to pharmacologic therapy in patients with type 2 diabetes mellitus. *Am J Med*. 2005;118 Suppl 5A:27S–34S.
5. Osterberg L, Blaschke T. Adherence to medication. *N Engl J Med*. 2005;353(5):487–97.
6. García-Pérez LE, Álvarez M, Dilla T, Gil-Guillén V, Orozco-Beltrán D. Adherence to therapies in patients with type 2 diabetes. *Diabetes Ther*. 2013;4(2):175–94.
7. Pollack MF, Purayidathil FW, Bolge SC, Williams SA. Patient-reported tolerability issues with oral antidiabetic agents: Associations with adherence; treatment satisfaction and health-related quality of life. Diabetes Res Clin Pract. 2010;87(2):204-10.
8. Ascher-Svanum H, Lage MJ, Perez-Nieves M, Reaney MD, Lorraine J, Rodriguez A et al. Early Discontinuation and Restart of Insulin in the Treatment of Type 2 Diabetes Mellitus. Diabetes Ther. 2014;5(1):225-42.
9. Awodele O, Osuolale JA. Medication adherence in type 2 diabetes patients: study of patients in Alimosho General Hospital, Igando, Lagos, Nigeria. African Health Sciences. 2015;15(2):513-22.
10. Mojtabai R, Olfson M. Medication Costs, Adherence and Health Outcomes Among Medicare Beneficiaries. Health Aff. 2003;22(4):220-9.
11. Tiv M, Viel J-F, Mauny F, Eschwe`ge E, Weill A, et al. Medication Adherence in Type 2 Diabetes: The ENTRED Study 2007, a French Population- Based Study. PLoS One. 2012:7(3):e32412.
12. Lawton J, Peel E, Parry O, Douglas M. Patients' perceptions and experiences of taking oral glucose-lowering agents: a longitudinal qualitative study. Diabet Med. 2008;25(4):491-5.
13. Mosnier-Pudar H, Hochberg G, Eschwege E, Virally ML, Halimi S et al. How do patients with type 2 diabetes perceive their disease? Insights from the French diabasis survey. Diabetes Metab. 2009;35(3):220-7.
14. Cegala DJ, Marinelli T, Post D. The effects of patient communication skills training on compliance. Arch Fam Med. 2000;9(1):57-64.
15. Magadza C, Radloff SE, Srinivas SC. The effect of an educational intervention on patients' knowledge about hypertension, beliefs about medicines, and adherence. Res Social Adm Pharm. 2009;5(4):363- 75.
16. Garber MC, Nau DP, Erickson SR, Aikens JE, Lawrence JB. The concordance of self-report with other measures of medication adherence: a summaryof the literature. Med Care. 2004;42:649-52