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Original Research Article

Factors affecting glycemic control among patients with type-2 diabetes mellitus in Rajkot: a cross-sectional study

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ABSTRACT

Background: Type-2 Diabetes Mellitus (T2DM) is a rapidly growing public health concern worldwide, particularly in developing countries like India. Despite advancements in treatment modalities, achieving optimal glycemic control remains a major challenge due to multiple influencing factors. The present study aimed to assess factors affecting glycemic control among patients with T2DM attending selected hospitals in Rajkot.
Methods: A descriptive cross-sectional research design was adopted for the study. A total of 70 participants were selected using a purposive sampling technique. Data were collected using a semi-structured interview schedule, the Diabetes Self-Management Questionnaire (DSMQ), and biophysical measurements.
Results: The findings revealed that a majority (87%) of participants had poor glycemic control. Significant factors influencing glycemic control included socio-demographic variables (age, education, and income), clinical factors (duration of diabetes and presence of co-morbidities) and behavioural factors including dietary control, physical activity, and medication adherence. Family support was also found to play a crucial role in diabetes management.
Conclusions: The study concludes that glycemic control is influenced by multiple socio-demographic, clinical, and lifestyle-related variables. Strengthening patient education, promoting self-management practices, and enhancing family involvement are essential to improve glycemic outcomes among T2DM patients.

Keywords: Family support, Glycemic control, Lifestyle factors, Self-management, Type-2 diabetes mellitus

INTRODUCTION

Type-2 Diabetes Mellitus (T2DM) is one of the most prevalent chronic non-communicable diseases worldwide and accounts for nearly 90% of all diabetes cases.[1] It is characterized by insulin resistance and relative insulin deficiency, leading to chronic hyperglycemia. The global burden of diabetes is increasing at an alarming rate, with India being among the most affected countries due to rapid urbanization, sedentary lifestyle, and dietary changes.[2]

Effective glycemic control is essential in preventing acute and chronic complications such as retinopathy, nephropathy, neuropathy, and cardiovascular disease.[3] However, despite the availability of various pharmacological and non-pharmacological interventions, many patients fail to achieve optimal glycemic control.[4]

Several factors contribute to poor glycemic control, including socio-demographic characteristics (age, gender, education, income), clinical variables (duration of diabetes, treatment regimen, co-morbidities), and behavioural factors (dietary habits, physical activity, medication adherence, and self-care practices.[5] Psychosocial aspects such as family support and healthcare access also significantly influence diabetes management.[6]

In Rajkot, there is limited region-specific research exploring these factors. Therefore, the present study was

conducted to assess the various factors affecting glycemic control among patients with type-2 diabetes mellitus attending selected healthcare settings in Rajkot.

The objectives of the study were to assess the factors affecting glycemic control among patients with type-2 diabetes mellitus and to determine the association between selected variables and glycemic control.

METHODS

Study design and setting

A descriptive cross-sectional study design was conducted from April 2025 to August 2025 at Mori Diabetes Centre and Arham Diabetes Centre, Rajkot.

Population and sample

The study population consisted of patients diagnosed with Type-2 Diabetes Mellitus (T2DM) A total of 70 participants were selected using a purposive sampling technique.

Inclusion criteria

Patients diagnosed with T2DM, willing to participate and able to understand Gujarati were included in the study.

Data collection tools

Data were collected using a semi-structured interview schedule, Diabetes Self-Management Questionnaire (DSMQ), and biophysical measurements including height, weight and blood sugar levels.

Data analysis

Data were analysed using descriptive and inferential statistics. Frequency, percentage, and chi-square tests were used. Data were collected after obtaining informed consent from participants.

RESULTS

The socio-demographic characteristics of the participants showed that the majority (35.7 %) of participants were aged 60-69 years. Most of the participants (60 %) were female. More than half (54.3 %) had primary education, and the majority (75.7 %) were homemaker. Most participants belonged to the income group of ₹2500-5000 (Table 1).

The clinical characteristics revealed that 60% of participants had diabetes for more than 10 years. About 38.6% of participants were on insulin therapy. Hypertension was the most common co-morbid illness. Only 8.6% of participants had a recent history of infection (Table 2).

Table 1: Socio-demographic characteristics.

Variable	Findings
Age	Majority (35.7%) aged 60-69 years
Gender	60% were female
Education	54.3% had primary education
Occupation	75.7% were homemakers
Income	Majority between ₹2500-5000

Table 2: Clinical characteristics.

Variable	Findings
Duration of diabetes	60% for >10 years
Mode of treatment	38.6% were on insulin therapy
Co-morbid illness	Hypertension most common
Infection history	8.6% had recent history of infection

The glycemic control status of the participants showed that the majority (87%) had poor glycemic control, while only 13% had good glycemic control (Table 3).

Table 3: Glycemic control status.

Category	Percent
Poor glycemic control	87
Good glycemic control	13

Key findings

The key findings of the study showed that higher age, lower educational status and income, longer duration of diabetes, poor dietary practices, low physical activity and inadequate family support were associated with poor glycemic control among participants.

DISCUSSION

The present study revealed that a large proportion of patients had poor glycemic control, which is consistent with findings from previous studies conducted in similar settings.[2,3] Poor glycemic control may be attributed to inadequate awareness, poor adherence to treatment regimens, and lack of lifestyle modifications.

Socio-demographic factors such as age and education significantly influenced glycemic control. Older participants and those with lower educational levels demonstrated poorer glycemic control, which is consistent with findings reported in earlier studies.[2]

Clinical factors such as longer duration of diabetes and presence of co-morbidities were also associated with poor glycemic outcomes. Patients receiving insulin therapy demonstrated comparatively poorer glycemic control, which is consistent with findings reported in previous research.[4]

Behavioural factors play a crucial role in glycemic control. Poor dietary practices, lack of physical activity, and inadequate self-management behaviours contribute significantly to uncontrolled blood glucose levels, as reported in earlier studies.[12]

Family support is a key determinant in improving glycemic control. Participants receiving strong family support demonstrated better adherence to treatment and lifestyle modifications, which is consistent with previous findings.[12]

The present study assessed the factors affecting glycemic control among patients with type-2 diabetes mellitus. The findings revealed that a majority of participants had poor glycemic control, which may be associated with longer duration of diabetes, inadequate adherence to treatment, and poor lifestyle practices, as supported by previous studies.[6]

Similar findings have been reported in previous studies where poor glycemic control was found to be more prevalent among patients with longer duration of diabetes and presence of co-morbid conditions such as hypertension.[4] These findings are consistent with the results of the present study.

In the present study, socio-demographic factors such as age, education, and occupation also influenced glycemic control. Patients with lower educational status and limited awareness were more likely to have poor glycemic control. These findings are comparable to previous studies highlighting the importance of education and self-management in diabetes control.[12]

This study had certain limitations. The sample size was limited and the study was conducted in selected centres of Rajkot, which may limit the generalizability of the findings. Additionally, self-reported data may be subject to response bias.

CONCLUSION

Glycemic control among patients with type-2 diabetes mellitus is influenced by multiple socio-demographic, clinical, and behavioural factors. Improving patient education, promoting lifestyle modifications, and enhancing family involvement are essential strategies for achieving better glycemic control.

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