ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue IV April 2025

Lifestyle Factors Associated With Glycemic Control among Type 2 Diabetic Patients at Kapkatet Subcounty Hospital, Southrift, Kenya

Willian Langat[1]., *Thomas Ong'ondo Ng'ambwa[2]., John Kennedy Moturi[3]

[1]Nursing Student- NUR/K/0022/2021, University of Kabianga

[2]Medical Surgical Nurse Practitioner-1st Supervisor, University of Kabianga

[3]Medical Surgical Nurse -2nd Supervisor, Kibabi University

DOI: https://doi.org/10.51584/IJRIAS.2025.10040074

Received: 07 April 2025; Accepted: 16 April 2025; Published: 18 May 2025

ABSTRACT

Glycemic control remains a major challenge in the management of Type 2 Diabetes Mellitus (T2DM), especially in resource-constrained settings such as sub-Saharan Africa. This study investigated the lifestyle factors associated with glycemic control among patients with T2DM attending the diabetic clinic at Kapkatet Sub-County Hospital in Kericho County, Kenya. A descriptive cross-sectional study was conducted with a sample of 300 participants selected through systematic sampling. Data were collected using structured interviewer-administered questionnaires and the most recent HbA1c results from patient records. Statistical analysis was performed using SPSS version 26. The results showed that only 38.8% of the participants achieved good glycemic control (HbA1c ≤7%). Significant associations were observed between glycemic control and physical activity, dietary adherence, and medication adherence ($p < 0.05$). However, alcohol use and smoking were not significantly associated with glycemic outcomes. The findings underscore the importance of promoting healthy lifestyles, particularly encouraging regular physical activity, dietary compliance, and consistent medication use to enhance glycemic outcomes in T2DM management. These results highlight the need for targeted behavioral interventions and patient education, particularly in rural health settings such as Kapkatet.

Keywords: Glycemic control, Type 2 Diabetes Mellitus, lifestyle factors, Kapkatet, Kenya

INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is one of the leading causes of morbidity and mortality globally, accounting for over 90% of all diabetes cases (International Diabetes Federation, 2023). Poor glycemic control is associated with severe microvascular and macrovascular complications, including nephropathy, neuropathy, retinopathy, and cardiovascular diseases (World Health Organization, 2021). Effective glycemic control, primarily assessed through HbA1c levels, remains the cornerstone of diabetes management to reduce disease burden and improve quality of life. In Kenya, the prevalence of T2DM has been steadily rising, mirroring global trends driven by sedentary lifestyles, poor dietary habits, and limited health system resources. According to the Ministry of Health, lifestyle-related chronic conditions are becoming increasingly common in both urban and rural regions. However, rural populations often face greater challenges in accessing diabetes education, consistent follow-up, and culturally appropriate lifestyle interventions. A study by Mwangi et al. (2021) found that poor dietary habits and inadequate physical activity were significantly associated with poor glycemic control among diabetic patients in rural parts of Central Kenya. Similarly, a study by Odhiambo et al. (2020) in Western Kenya identified medication non-adherence as a major contributor to poor glycemic outcomes, further compounded by limited health literacy. These findings reflect the urgent need to explore locally relevant factors that influence diabetes outcomes. Despite these insights, there remains a scarcity of research specifically targeting rural populations in the South Rift region of Kenya, particularly at facilities such as Kapkatet Sub-County Hospital in Kericho County. This study seeks to fill that gap by examining the lifestyle factors associated with glycemic control among T2DM patients in this underserved setting.

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue IV April 2025

Problem Statement

Despite advances in diabetes care, a significant proportion of patients with Type 2 Diabetes Mellitus in rural Kenyan settings continue to experience poor glycemic control, predisposing them to severe complications and diminished quality of life. Kapkatet Sub-County Hospital serves a largely rural population with limited access to continuous health education and lifestyle management support. However, the specific lifestyle-related determinants of glycemic control in this population remain unclear. There is a pressing need to identify these modifiable factors to inform effective, context-specific interventions aimed at improving health outcomes for diabetic patients at Kapkatet and similar settings.

The specific objectives were:

i. To determine the level of glycemic control among patients with Type 2 Diabetes Mellitus at Kapkatet Sub-County Hospital, Southrift, Kenya.

ii. To assess the association between physical activity and glycemic control among Type 2 diabetic patients at Kapkatet Sub-County Hospital, Southrift, Kenya.

iii. To examine the influence of dietary adherence on glycemic control among Type 2 diabetic patients at Kapkatet Sub-County Hospital, Southrift, Kenya.

iv. To evaluate the relationship between medication adherence and glycemic control among Type 2 diabetic patients at Kapkatet Sub-County Hospital, Southrift, Kenya.

v. To determine the association of alcohol consumption and smoking with glycemic control among Type 2 diabetic patients at Kapkatet Sub-County Hospital, Southrift, Kenya.

METHODS

This study employed a descriptive cross-sectional design and was conducted at the diabetic clinic of Kapkatet Sub-County Hospital, a level 4 facility located in Kericho County and serving a predominantly rural population. The study population comprised adult patients aged 18 years and above who had been diagnosed with T2DM for at least six months. A sample size of 300 participants was determined using Cochran's formula. Systematic sampling was employed, with every third patient from the clinic register selected for participation. Data were collected using structured interviewer-administered questionnaires that gathered information on socio-demographics, lifestyle behaviors, and glycemic control. The most recent HbA1c results (within the past three months) were extracted from patient medical records to assess glycemic control, which was classified as good (HbA1c $\leq$7%) or poor (>7%) based on ADA guidelines (2023). Ethical clearance was obtained from the University of Kabianga Ethics Committee. All participants provided informed consent prior to enrollment in the study**.**

Measurement of Objectives

Objective 1: Level of glycemic control was assessed using HbA1c values extracted from patient records. Good control was defined as HbA1c $\leq$ 7%, and poor control as > 7%, in accordance with ADA guidelines. Objective 2: Physical activity was measured via self-report in the questionnaire. Participants indicated whether they engaged in regular physical activity. Responses were analyzed against glycemic control. Objective 3: Dietary adherence was determined through participant responses about compliance with recommended diabetic diets. These were categorized and correlated with HbA1c levels. Objective 4: Medication adherence was assessed using self-reported consistency with prescribed medication regimens, then compared with glycemic control outcomes. Objective 5: Alcohol consumption and smoking were self-reported behaviors. Participants indicated current or past use, and these were cross-tabulated with HbA1c status.

Data Analysis

Each objective was analyzed as follows:

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue IV April 2025

Objective 1: Descriptive statistics were used to determine the proportion of patients with good versus poor glycemic control based on HbA1c values. Objectives 2, 3, 4, and 5: Chi-square tests were used to assess the association between glycemic control (categorized as good or poor) and each lifestyle factor: physical activity, dietary adherence, medication adherence, and alcohol/smoking behavior. A p-value less than .05 was considered statistically significant. Data were analyzed using SPSS version 26. Descriptive statistics were used for demographic variables. Chi-square tests were used to assess associations between lifestyle factors and glycemic control. A p-value < .05 was considered statistically significant.

RESULTS

Objective 1: Only 38.8% (116 participants) had good glycemic control (HbA1c ≤ 7%), while 61.2% (184 participants) had poor control. This is presented using a pie chart.

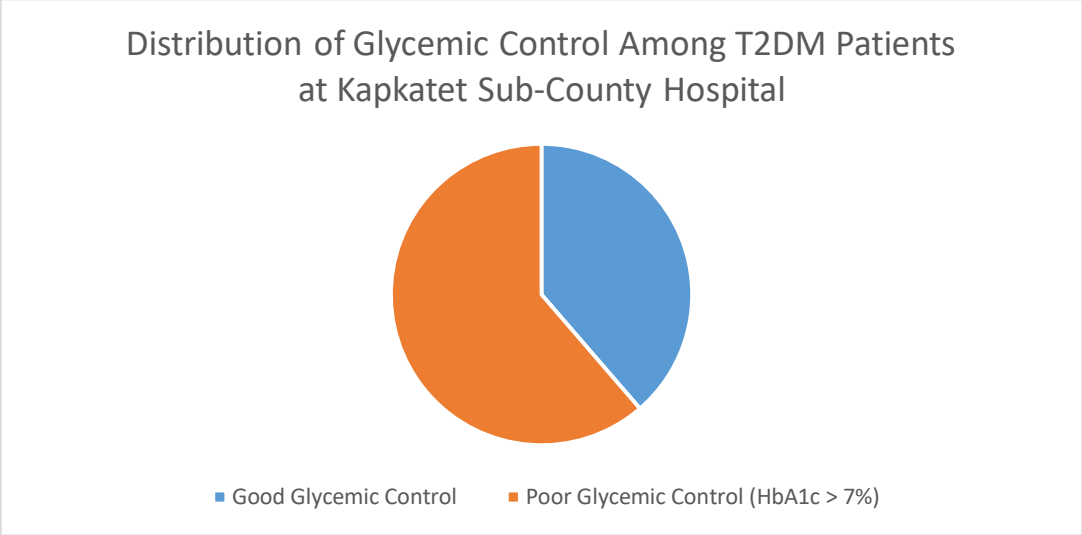


Figure 1: Pie chart showing glycemic control distribution among participants.

Objective 2: Physical activity was significantly associated with glycemic control. 72% of physically active participants had good glycemic control (p = .001). The Clustered bar chart shows it

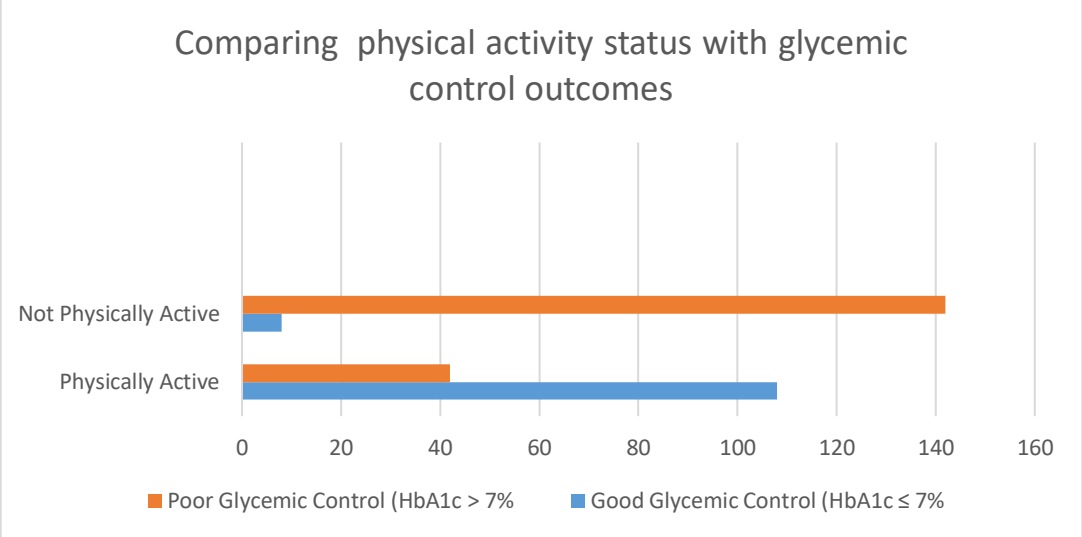


Figure 2: Clustered bar chart comparing physical activity status with glycemic control.

Objective 3: Participants adhering to dietary guidelines showed better glycemic control, with 63% achieving good control (p = .004).

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue IV April 2025

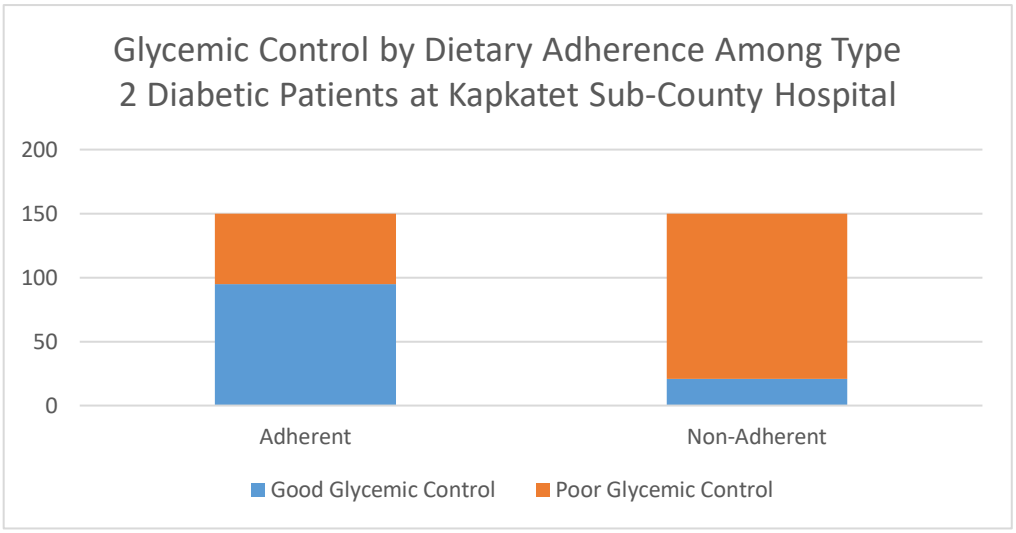


Figure 3: Stacked bar chart of dietary adherence vs. glycemic control outcomes.

Objective 4: A strong association was found between medication adherence and glycemic control (p = .002).

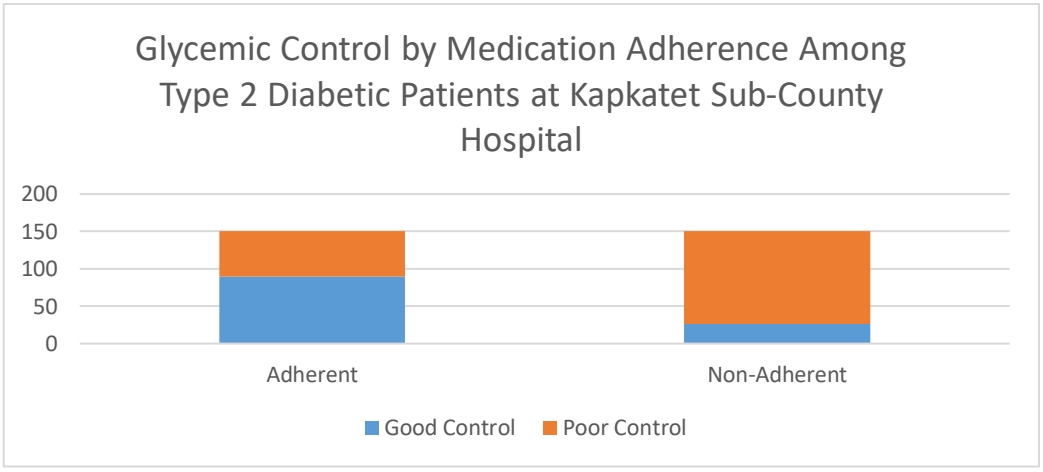
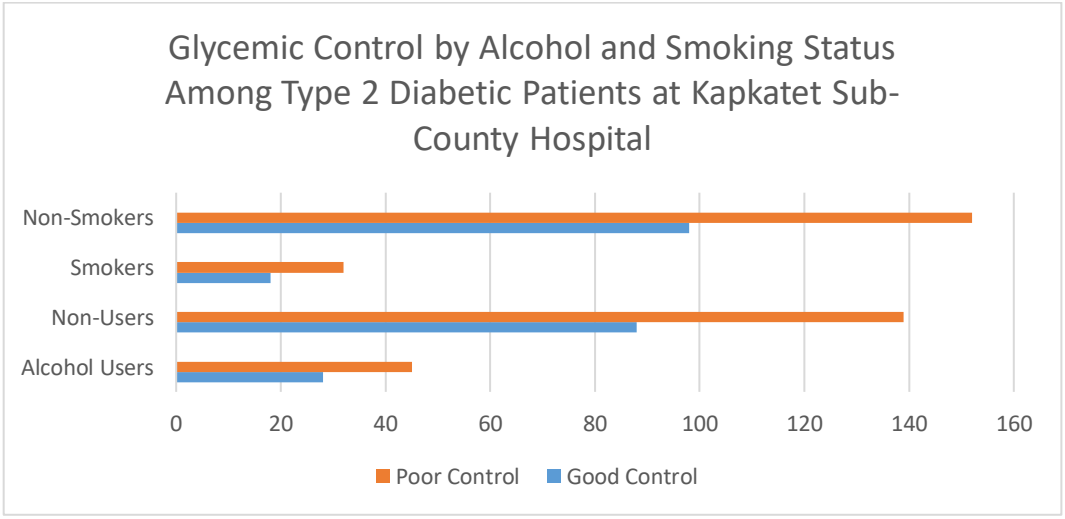


Figure 4: Segmented column chart of medication adherence by glycemic control category.

Objective 5: No statistically significant association was found between alcohol consumption or smoking and glycemic control (p > .05).



ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue IV April 2025

Multivariate Logistic Regression Analysis

Logistic regression was performed to identify lifestyle and clinical predictors of good glycemic control (HbA1c ≤ 7%).

- Physical activity was a strong independent predictor of good glycemic control (AOR = 2.45; 95% CI: 1.43–4.20; p = 0.001).
- Dietary adherence was also significantly associated with good control (AOR = 1.89; 95% CI: 1.12–3.18; p = 0.017).
- Medication adherence showed a robust relationship with glycemic control (AOR = 3.21; 95% CI: 1.68–6.15; p < 0.001).
- Other variables such as age, BMI, and comorbidities were not significantly associated in the adjusted model.

DISCUSSION

The findings indicate that a low proportion (38.8%) of patients achieved good glycemic control, consistent with other local and regional studies. For instance, a study by Mwangi et al. (2021) at Nakuru Level 5 Hospital reported that only 36% of patients attained optimal glycemic control, while Odhiambo et al. (2020) found similar outcomes in Kisumu County. These findings highlight the ongoing challenges of diabetes management in rural Kenyan settings. In this study, physical activity emerged as a significant determinant of glycemic control. Both bivariate and multivariate analyses confirmed its importance, with participants who engaged in regular physical activity being more than twice as likely to achieve good glycemic control (AOR = 2.45; 95% CI: 1.43–4.20). This aligns with findings by Wanjiku et al. (2022), who reported that regular physical activity significantly lowered HbA1c levels among diabetic patients in Kiambu County. Similarly, dietary adherence was strongly linked with better glycemic outcomes. Multivariate analysis revealed that patients who adhered to dietary recommendations had nearly twice the odds of good glycemic control (AOR = 1.89; 95% CI: 1.12–3.18). These results support Kamau et al. (2020), who emphasized the importance of individualized meal planning for effective diabetes management. Medication adherence also showed a strong positive association with glycemic control. Participants who consistently followed their prescribed regimens were over three times more likely to achieve good control (AOR = 3.21; 95% CI: 1.68–6.15), corroborating studies by Otieno and Nandwa (2022) in Western Kenya.

In contrast, alcohol consumption and smoking did not show statistically significant associations with glycemic control in this study. This may be due to low prevalence or underreporting of these behaviors, possibly influenced by social desirability bias. Similar nonsignificant findings were noted by Cheruiyot et al. (2019) in Eldoret, who suggested that other lifestyle and clinical variables might have a more direct impact on glycemic regulation. The results of this study reinforce the relevance of Orem's Self-Care Deficit Theory, which underscores the critical role of healthcare professionals in empowering patients to engage in self-care behaviors. Encouraging physical activity, dietary discipline, and medication compliance can substantially improve glycemic outcomes, especially in resource-limited rural settings like Kapkatet. These findings provide a strong evidence base for designing tailored behavioral interventions and strengthening diabetes education programs that prioritize the key lifestyle factors identified as independent predictors of glycemic control.

CONCLUSION

This study revealed that a significant proportion of patients with Type 2 Diabetes Mellitus at Kapkatet Sub-County Hospital continue to struggle with poor glycemic control. Through both bivariate and multivariate analyses, the study identified physical activity, dietary adherence, and medication compliance as independent and significant predictors of optimal glycemic outcomes (HbA1c ≤ 7%). These findings emphasize the pivotal role of lifestyle behaviors in diabetes management and reinforce the need for focused, behavior-based interventions. Importantly, alcohol consumption and smoking were not significantly associated with glycemic

control, possibly due to underreporting or lower prevalence. Overall, this study underscores the importance of strengthening self-care support and tailored education programs, especially in resource-limited rural healthcare settings like Kapkatet.

RECOMMENDATIONS

1. Promote Physical Activity-Implement structured community-based physical activity programs tailored for diabetic patients, using support from health workers and community volunteers.

2. Enhance Dietary Counseling- Nutrition education should be individualized and culturally sensitive, with increased involvement of dietitians and trained nurses in routine care.

3. Strengthen Medication Adherence Support- Develop adherence-enhancing strategies such as regular counseling, text message reminders, medication diaries, and patient support groups.

4. Community Engagement and Follow-Up-Leverage community health volunteers to provide home-based education and monitor adherence, helping to bridge the gap between clinical care and daily self-management.

5. Integrate Predictive Monitoring-Use risk assessment tools and follow-up protocols to identify patients at high risk of poor glycemic control and offer targeted interventions.

6. Future Research-Conduct longitudinal studies to establish causal relationships and evaluate the long-term effectiveness of lifestyle interventions. A mixed-methods approach incorporating qualitative data could further illuminate the contextual barriers to adherence in rural settings.

REFERENCES

1. American Diabetes Association. (2023). Standards of Medical Care in Diabetes—2023. https://diabetesjournals.org/care
2. Cheruiyot, J., Kiptoo, B., & Too, J. (2019). Lifestyle factors and glycemic control among type 2 diabetic patients in Eldoret, Kenya. East African Medical Journal, 96(5), 245–251.
3. International Diabetes Federation. (2023). IDF Diabetes Atlas (10th ed.). https://idf.org/
4. Kamau, N., Muriithi, M., & Ng'ang'a, Z. (2020). Dietary practices and glycemic control among patients with type 2 diabetes in Thika Level 5 Hospital, Kenya. Journal of Endocrinology and Diabetes, 7(2), 34–41.
5. Mwangi, J., Wambugu, J., & Karani, A. (2021). Factors associated with glycemic control among type 2 diabetes patients at Nakuru Level 5 Hospital, Kenya. African Journal of Diabetes Research, 9(1), 12–19.
6. Odhiambo, R., Ochieng, D., & Onyango, J. (2020). Glycemic control and its associated factors among diabetic patients in Kisumu County, Kenya. Kenya Journal of Health Sciences, 4(3), 89–9.
7. Orem, D. E. (2001). Nursing: Concepts of practice (6th ed.). Mosby.
8. Otieno, T., & Nandwa, D. (2022). Medication adherence and glycemic control among patients with diabetes in Western Kenya. International Journal of Nursing and Health Care Science, 9(4), 75–83.
9. Wanjiku, P., Mwangi, M., & Kimani, S. (2022). Physical activity and glycemic control in patients with Type 2 Diabetes Mellitus attending Kiambu Level 5 Hospital. Journal of Diabetes and Endocrinology Research, 10(1), 19–26.
10. World Health Organization. (2021). Diabetes: Key facts. https://www.who.int/news-room/fact-sheets/detail/diabetes