

DETERMINANTS OF ACHIEVING HbA1C <6.5% AMONG OUTPATIENT TYPE 2 DIABETIC PATIENTS IN SIK, MALAYSIA: A CROSS-SECTIONAL STUDY USING NATIONAL DIABETES REGISTRY DATA

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Introduction

Achieving optimal glycaemic control is crucial in the management of Type 2 diabetes mellitus (T2DM) to reduce the risk of microvascular and macrovascular complications. The 2024 National Diabetes Registry (NDR) Audit reported that in Sik; fewer than 30% of outpatients T2DM achieving HbA1c levels below 6.5%. This study aims to identify factors associated with achieving optimal glycaemic control (HbA1c < 6.5%) among outpatient T2DM patients in Sik.

Methods

This cross-sectional study utilized secondary data from the 2024 NDR Audit, involving 569 diabetic patients selected through universal sampling. Statistical analysis was performed using simple and multiple logistic regression to determine the independent factors to achieve HbA1c < 6.5%.

Results

The prevalence of HbA1c < 6.5% is 27.9%. The factors positively associated with achieving HbA1c < 6.5% among diabetic patients were older age (adj. OR: 1.019, 95% CI: 1.001–1.038), duration of diabetes less than 5 years (adj. OR: 4.291, 95% CI: 2.527–7.827), 5–10 years (adj. OR: 2.044, 95% CI: 1.178–3.547), and non-smoking status (adj. OR: 2.439, 95% CI: 1.169–5.086). Factors negatively associated with achieving HbA1c < 6.5% were higher body mass index (BMI) (adj. OR: 0.961, 95% CI: 0.926–0.998), elevated triglyceride levels (adj. OR: 0.732, 95% CI: 0.558–0.960), and the use of sulfonylurea medications (adj. OR: 0.394, 95% CI: 0.229–0.533).

Discussions

This study on Type 2 Diabetes Mellitus (T2DM) revealed that poor glycemic control is higher in Sik Kedah compared to national target. This finding indicates need for targeted interventions. Shorter diabetes duration were positively associated with better control, likely due to better pancreatic function and treatment adherence, respectively. There is also a positive association in older age patient and optimal glycemic control suggesting that older patients had a longer engagement with healthcare systems, adherence to established routines and less aggressive disease progression.

Non-smoking status also played a crucial role, as smoking impairs insulin sensitivity. Additionally, higher BMI and elevated triglycerides were negatively associated with good control, emphasizing the importance of weight and lipid management. The negative association between sulfonylurea use and optimal control suggests these patients may have more advanced disease and could benefit from alternative treatments like insulin. Besides, there is an increase rate of non-compliance resulting from the multi-drug usage thus causing the poor control.

Conclusion

Among T2DM, targeted interventions focusing on modifiable clinical and lifestyle factors are necessary to improve the rate of optimal glycaemic control among T2DM patients at both district and national levels.

Keywords: Type 2 diabetes mellitus, National Diabetic Registry, Sik, Malaysia