



Automated Blood Glucose Monitoring Adoption Among Type 2 Diabetic Patients in Accra, Ghana: Longitudinal Impact Study

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Abstract

In Accra, Ghana, type 2 diabetic patients are increasingly adopting automated blood glucose monitoring devices (ABGMDs). However, the long-term impact of ABGMDs on patient management and health outcomes is not well understood. A mixed-methods approach was employed, combining cross-sectional surveys with follow-up interviews over a two-year period. Data were collected from 300 participants who self-reported their ABGMD usage frequency and completed health assessments. Among the study participants, 75% reported using an ABGMD at least once weekly, indicating high adoption rates. Analysis of variance (ANOVA) revealed a significant reduction in mean HbA1c levels by 2.0% after one year of ABGMD use compared to baseline. The study underscores the effectiveness of ABGMDs in improving glycemic control among type 2 diabetic patients, providing evidence for their integration into routine care protocols. Given the significant health benefits observed, healthcare providers should encourage wider adoption of ABGMDs and integrate them into standard diabetes management guidelines. Type 2 Diabetes, Automated Blood Glucose Monitoring Devices, Longitudinal Impact Study, Quality-of-Life, HbA1c Levels Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, African, Socioeconomic, Healthcare, Systems, Epidemiology

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