



Implementation and Analysis of a Mobile Health Management System for Type 1 Diabetes in Mali: An Intervention Study

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Abstract

Type 1 diabetes is a chronic condition affecting children and adults in sub-Saharan Africa, including Mali. Effective management requires continuous monitoring and adherence to a strict meal plan and insulin regimen. A mixed-methods approach combining quantitative data from app usage logs ($n=200$) \wedge qualitative interviews with participants ($n=30$). App performance was evaluated using a logistic regression model for predictive analysis of adherence to meal plans and insulin administration. Users showed an average engagement rate of 95% in the mobile health management system, with significant improvement in self-reported diabetes control scores compared to baseline data ($p < 0.001$). The mobile health management system significantly improved adherence and glycemic control among Type 1 diabetes patients in urban Mali. Further studies should explore the scalability of this intervention across other sub-Saharan African cities with similar healthcare contexts.

Keywords: Sub-Saharan, African, Country, Socioeconomic, Qualitative, Diabetes, Intervention

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