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Evaluation Methodology for Wearable Device Implementation in Diabetes Monitoring Across Kenyan Urban Slums 2009

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Abstract

The prevalence of diabetes in Kenyan urban slums is high, necessitating effective monitoring tools to improve patient outcomes. A mixed-methods approach combining quantitative data from wearables (e.g., glucometer readings) and qualitative interviews with patients and healthcare providers was employed. The study used a logistic regression model to analyse the effectiveness of wearable devices, accounting for variability in patient compliance and data accuracy. The analysis revealed that while 70% of participants reported consistent use of their wearables, 25% experienced technical issues leading to data inaccuracies. Wearable device implementation showed promise but required improvements in user-friendliness and robustness to ensure reliable monitoring in challenging urban settings. Developers should focus on enhancing the durability and reliability of devices, while healthcare providers need training in interpreting wearables alongside traditional methods. Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, Urbanization, Sampling, Quantitative, Qualitative, Intervention, Ethnography*

ABSTRACT-ONLY PUBLICATION

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