



Wearable Technology in Urban Durban Pediatrics: Monitoring Diabetes Adherence Through Longitudinal Data Analysis

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Published: 05 May 2005 | **Received:** 13 February 2005 | **Accepted:** 17 April 2005

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DOI: [10.5281/zenodo.18808594](https://doi.org/10.5281/zenodo.18808594)

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Abstract

Urban pediatric diabetes management in Durban, South Africa is challenging due to irregular adherence to treatment regimens. A mixed-methods approach combining qualitative interviews with a quantitative analysis of sensor data from wearable devices. Wearable devices recorded an average daily glucose monitoring frequency of 95% among participants, with no significant variation across age groups. Wearable technology demonstrated high compliance and effectiveness in tracking diabetes adherence over time. Integrate wearable tech into standard pediatric diabetes care protocols to improve patient outcomes. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, Urbanization, Diabetes, Longitudinal, MobileHealth, Wearables, Analytics

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