African Diving and Hyperbaric Medicine

AI-Powered Diabetes Risk Assessment Tool for Adolescents in Nairobi Slums: A Health Literacy Impact Analysis

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Abstract

Diabetes prevalence among adolescents in Nairobi slums is alarming, highlighting a need for effective risk assessment tools. A systematic review of literature was conducted to identify studies evaluating the effectiveness of such tools, focusing on their accuracy, usability, and impact on health literacy among this population. The AI-based tool exhibited a sensitivity of 85% (95% CI: 78-92) in detecting high-risk adolescents, with a positive predictive value of 60%. Health literacy scores improved by an average of 15 points post-intervention. The AI-powered diabetes risk assessment tool showed promise in improving health literacy and identifying high-risk adolescents but requires further validation and refinement. Further research should focus on validating the tool across diverse populations and exploring its scalability and cost-effectiveness. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, adolescent diabetes, health literacy, machine learning, systematic review, risk assessment, AI applications*

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