AI-Diagnosis in Rural Ethiopia: Feasibility Study of an AI-Based Diabetes Screening System

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Abstract

Diabetes prevalence is high in rural areas of Ethiopia, where access to healthcare services is limited. Participants were randomly selected from three rural villages. An AI model was trained on a dataset including demographic information, lifestyle habits, and blood glucose levels. The AI model achieved an accuracy rate of 82% in identifying diabetic patients with a standard deviation of ±5%, indicating moderate precision. The system demonstrated promising preliminary efficacy but requires further validation and refinement before implementation. Further studies should explore the long-term reliability, cost-effectiveness, and user-friendliness of the AI model in rural settings. AI-based screening, diabetes detection, rural Ethiopia, precision medicine Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\to}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Mapping, Machine Learning, Predictive Analytics, Telemedicine, Rural Health Services, Diabetes Epidemiology*

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