



Biometric Identification Systems in Rural Healthcare Records Management: Adoption and Outcomes in Tanzania

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Abstract

The integration of biometric identification systems into healthcare records management is increasingly being explored as a means to improve accuracy and efficiency in rural settings where traditional methods are often fraught with errors and inefficiencies. A mixed-method approach was employed, including a quantitative survey of healthcare providers followed by qualitative interviews with patients and staff to gather comprehensive data on the implementation process and its effects. Biometric systems were adopted in 75% of surveyed facilities, significantly reducing transcription errors ($p < 0.01$) and improving patient identification accuracy. The findings suggest that biometric identification systems can be effectively implemented to enhance healthcare record management in rural settings, with substantial benefits for both staff and patients. Healthcare authorities should prioritise the development of standardised guidelines for BIS implementation and ongoing maintenance to ensure consistent quality and reliability. Treatment effect was estimated with $\text{text}\{ \text{logit} \}(\pi) = \text{beta } 0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Spatial-Data-Analysis, Biometric-Matching, System-Integration, Privacy-Protection*

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