



Digital Radiography Adoption in Rural Ethiopian Healthcare Facilities: Quality Improvement Studies

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Abstract

Digital radiography (DR) technology has improved diagnostic accuracy in urban settings but its adoption in rural healthcare facilities remains limited. A mixed-methods approach was employed, including a pre-post design with quantitative data collected from DR images and qualitative interviews to gather insights into user experiences and challenges. DR adoption led to an increase of 25% in the accuracy rate of radiological diagnoses across participating facilities compared to baseline levels. Qualitative analysis indicated that staff reported increased confidence and efficiency using DR technology. The implementation of DR technology in rural Ethiopian healthcare settings has shown promise in enhancing diagnostic quality, though challenges such as initial training and equipment maintenance need further attention. Rural healthcare facilities should consider investing in DR technology after addressing initial infrastructure and human resource needs. Training programmes tailored to local contexts are recommended. Digital Radiography, Rural Healthcare, Diagnostic Quality Improvement, Ethiopia Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, Digital Radiography, Quality Improvement, Rural Health, Technological Adoption, Mixed-Methods Approach, Diagnostic Accuracy, Healthcare Access

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