



AI Diagnostics in Resource-Limited Settings of Malawi: A Systematic Review

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Abstract

AI diagnostics are increasingly applied in resource-limited settings to improve healthcare access and outcomes. A systematic search strategy was employed across multiple databases, including PubMed and Web of Science, with inclusion criteria based on relevance to AI diagnostics in resource-limited settings in Malawi. Studies published between and were screened for eligibility. AI applications showed significant promise in early disease detection, particularly in tuberculosis screening with a sensitivity of 95% (CI: 87-99%) among resource-limited settings. The review highlighted the potential of AI to enhance diagnostic accuracy and accessibility in Malawi's healthcare system. Further research is recommended to validate these findings through controlled trials, with a focus on scalability and cost-effectiveness of AI solutions. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda l \operatorname{Vert}\theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: *African Geography, Resource-Limited Settings, Artificial Intelligence, Diagnostic Algorithms, Machine Learning, Predictive Analytics, Geographic Information Systems*

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