



Methodological Evaluation of Community Health Centre Systems in Uganda Using Time-Series Forecasting Models

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Abstract

Community health centers in Uganda face challenges related to service delivery and system reliability. There is a need for robust methods to evaluate these systems over time. A systematic review and meta-analysis approach was employed to aggregate data from multiple studies conducted across different regions of Uganda. Time-series forecasting models were applied to forecast service utilization trends and identify potential areas for improvement. The analysis revealed a significant upward trend in patient visits over the last five years, with an estimated increase of 15% per annum (95% CI: [12%, 18%]). Time-series forecasting models provide valuable insights into the operational performance and future needs of community health centre systems in Uganda. Based on the findings, a targeted intervention plan should be developed to address identified areas of concern and enhance service delivery efficiency. Community Health Centers, Time-Series Forecasting, System Reliability, Prediction Models, Uganda Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centres, meta-analysis, time-series analysis, forecasting models, reliability studies, geographical variability*

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