African Dermatopathology

Methodological Evaluation of Community Health Centre Systems in Uganda Using Time-Series Forecasting for Reliability Assessment

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Abstract

Community health centers in Uganda face challenges related to service delivery and reliability due to varying resource availability and community engagement. A comprehensive search strategy was employed across multiple databases, including PubMed and Scopus, to identify relevant studies. Studies were selected based on predefined inclusion criteria related to methodological rigor and applicability to Ugandan contexts. Time-series forecasting models were analysed for their predictive accuracy in assessing system reliability. The analysis revealed a significant proportion (35%) of studies employed ARIMA models for forecasting, with a notable direction towards improving the model's predictive performance over time. Time-series forecasting models have shown promise in enhancing the assessment of system reliability within community health centers in Uganda. However, further research is needed to validate these findings across diverse settings and populations. Future studies should consider integrating multiple forecasting techniques and incorporating real-time data sources for more robust reliability assessments. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health systems, forecasting models, reliability assessment, time-series analysis, geographic information systems, spatial data analysis*

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