



Methodological Evaluation of District Hospitals Systems in Uganda Using Time-Series Forecasting Models for Adoption Rate Measurement

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Abstract

District hospitals in Uganda play a crucial role in healthcare delivery but face challenges related to resource allocation, staff training, and patient management. A systematic literature review was conducted on studies published between and , focusing on methods such as ARIMA and SARIMA models to forecast adoption rates based on historical data from district hospitals in Uganda. The analysis revealed that while time-series forecasting models can effectively predict adoption rates, there is significant variability in the application of these models across different studies, with some using more sophisticated models like SARIMA than ARIMA. This review highlights the importance of model selection and validation for accurate adoption rate predictions in district hospitals. Future research should focus on standardising methods to enhance comparability and reliability. District hospital administrators and policymakers should consider implementing robust time-series forecasting models with adequate data validation procedures to facilitate better resource allocation and planning. 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: *Sub-Saharan, resource allocation, forecasting, evaluation, healthcare delivery, time-series analysis, stakeholder engagement*

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