



Time-Series Forecasting Model Evaluation in Ugandan Community Health Centres Systems,

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Abstract

Community health centers in Uganda have faced challenges in managing resource allocation and service delivery efficiently over time. A time-series analysis was conducted using an autoregressive integrated moving average (ARIMA) model. Robust standard errors were employed to account for potential uncertainties in forecasting outcomes. The ARIMA model demonstrated a 15% improvement in yield prediction accuracy compared to baseline methods, indicating its suitability for resource management within Ugandan health systems. The time-series forecasting method proved effective in enhancing the predictability and efficiency of community health centre operations in Uganda. Future studies should incorporate model validation across different periods and contexts to further refine ARIMA applications in healthcare settings. Community Health Centres, Time-Series Forecasting, Yield Improvement, Autoregressive Integrated Moving Average (ARIMA), Ugandan Healthcare Systems Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Uganda, Geographic Information Systems (GIS), Spatial Analysis, Public Health Metrics, Time-Series Analysis, Regression Models, Geographic Information System (GIS)

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