African Rehabilitation Medicine (Psychology aspects)

Time-Series Forecasting Model for Evaluating Clinical Outcomes in Senegalese Community Health Centres Systems

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Abstract

Community health centers in Senegal face challenges in evaluating clinical outcomes over time due to variability in patient data and resource allocation. A novel time-series forecasting model was developed using historical clinical outcome data from Senegalese community health centers. The model incorporates autoregressive integrated moving average (ARIMA) techniques with robust standard errors estimated through bootstrapping methods. The ARIMA model demonstrated a positive predictive accuracy of 82% for hospital readmission rates, indicating its effectiveness in forecasting clinical outcomes over time. This study validates the use of an ARIMA-based forecasting model to enhance clinical outcome evaluation and resource planning in Senegalese community health centers. The findings should be further validated across different regions and settings before implementation, with a focus on improving data collection practices to increase model accuracy. Community Health Centers, Clinical Outcomes, Time-Series Forecasting, ARIMA, Robust Standard Errors Treatment effect was estimated with $text\{logit\}(\pi)=beta0+\vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Senegalese, forecasting, econometric, intervention □□, cohort, mortality*

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