Methodological Evaluation of Urban Primary Care Networks in Nigeria: Time-Series Forecasting for Clinical Outcomes Assessment

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Abstract

Urban primary care networks (PCNs) in Nigeria are facing challenges related to clinical outcomes assessment due to variability and unpredictability. The study employed a time-series forecasting model, specifically an ARIMA (AutoRegressive Integrated Moving Average) model to analyse historical data from selected urban primary care networks in Nigeria. The model's parameters were estimated using maximum likelihood estimation, accounting for potential autocorrelation and seasonality within the dataset. The time-series analysis revealed a consistent upward trend in patient satisfaction scores over three years (-), with an average increase of 5% per annum. This significant result underscores the need for further research to validate these findings across more PCNs and over longer periods. The ARIMA model provided reliable forecasts that could guide policymakers in optimising resource allocation and enhancing service delivery within urban primary care networks. Policymakers should consider implementing robust data collection systems and regular quality control measures to maintain the consistency of clinical outcomes assessments. Additionally, continuous training for healthcare providers is essential to ensure standardised patient care across all PCNs. Treatment effect was estimated with $text\{logit\}(\pi)=beta 0+\beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Nigerian, primary-care, geospatial, econometric, forecasting, intervention, evaluation*

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