



Time-Series Forecasting Model Evaluation of Urban Primary Care Networks in South Africa: A Methodological Assessment

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Abstract

Urban primary care networks in South Africa are crucial for addressing healthcare disparities and improving patient outcomes. However, there is a need to evaluate these systems efficiently. A time-series forecasting model was developed and applied to data from urban primary care clinics in South Africa. The model considered the number of consultations per month as an indicator of service utilization and patient health status. The time-series analysis revealed a significant positive correlation ($p < 0.05$) between consultation frequency and improvements in patients' blood pressure measurements, suggesting that increased access to care leads to better health outcomes. This study provides evidence for the effectiveness of urban primary care networks in improving clinical indicators such as blood pressure management. Further research should explore longer-term impacts and broader healthcare metrics within these networks. Urban Primary Care, Time-Series Forecasting, Clinical Outcomes, South Africa Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, geospatial, longitudinal, predictive modelling, cohort analysis, data analytics, resource allocation

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