



Time-Series Forecasting Model for Evaluating Community Health Centre Systems in South Africa: A Longitudinal Study

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Abstract

Community health centres in South Africa have faced challenges in service delivery over recent years. A time-series forecasting model was employed to analyse data from across multiple centres. The forecasting model showed an average yield increase of 5% in service delivery over the study period, with significant variance among different regions. This study provides a robust framework for evaluating and improving community health centre systems in South Africa using time-series analysis. Regular updates to the forecasting model are recommended based on ongoing performance data. 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: *Longitudinal analysis, South Africa, community health centres, time-series forecasting, service delivery challenges, public health systems, evaluation methodologies*

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