



Time-Series Forecasting Model for Measuring Adoption Rates in Community Health Centres Systems in South Africa,<tool_call>

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Abstract

Community health centres in South Africa have undergone significant changes over recent years, necessitating a method to measure their adoption rates effectively. A mixed-methods approach was employed, combining qualitative interviews with quantitative data analysis using an ARIMA (AutoRegressive Integrated Moving Average) model to forecast future adoption rates. The ARIMA model predicted a steady increase in the percentage of population served by community health centres from onwards, with projections indicating an overall growth rate of 5% per annum. This study provided insights into the long-term trends and potential future developments of South Africa's community health centre system adoption rates. The findings suggest that ongoing investment in infrastructure and staff training is essential to maintain and enhance service delivery over time. 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: *Geographic, South African, Community Health Centres, Adoption Rates, Time-Series Analysis, Forecasting Model, Evaluation Methodology*

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