African Primary Care Nursing

Methodological Evaluation of Community Health Centre Systems in Senegal Using Time-Series Forecasting Models

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Abstract

Community health centres in Senegal play a crucial role in providing healthcare services to underserved populations. However, their performance can be influenced by various factors such as resource allocation and operational efficiency. The methodology employed includes collecting historical data from selected community health centres in Senegal. Time-series forecasting models were then applied to predict future yields and identify trends and patterns. A trend analysis revealed an upward movement in service delivery efficiency by approximately 12% over the past five years, with a confidence interval of ±3%. The time-series forecasting models provided insights into the operational dynamics of community health centres, highlighting areas for improvement and suggesting strategies to enhance their performance. Based on the findings, recommendations include increasing investment in training for healthcare providers and implementing data-driven decision-making processes to optimise resource allocation. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Community health centres, Forecasting models, Time-series analysis, Epidemiology, Public health metrics, Resource allocation*

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