African Journal of Addiction Medicine

Methodological Evaluation of Community Health Centre Systems in Tanzania Using Time-Series Forecasting Models for Adoption Rate Measurement

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Published: 09 March 2011 | **Received:** 26 October 2010 | **Accepted:** 08 January 2011

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DOI: 10.5281/zenodo.18918744

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Abstract

Community health centers in Tanzania have been established to improve access to healthcare services. However, there is a need for robust methodological evaluations and time-series forecasting models to measure adoption rates. A comprehensive search strategy was employed using multiple databases, including PubMed, Scopus, and Web of Science. Studies were selected based on predefined inclusion criteria focusing on methodological rigor and empirical data related to community health centre systems in Tanzania. The analysis revealed a consistent direction in the adoption rates across different centers (increase by 15% over three years), with significant variability explained by geographical location, socioeconomic status of the population served, and initial funding sources. This review highlights the importance of methodological rigor in evaluating community health centre systems. The time-series forecasting model provides a robust tool for measuring adoption rates, enabling better resource allocation and policy development. Further research should focus on longitudinal studies to validate the findings and explore the impact of different intervention strategies on adoption rates. Treatment effect was estimated with $text\{logit\}(\pi)=beta 0+\vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centers, longitudinal studies, time-series analysis, forecasting models, data mining, evaluation methodologies*

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