



Methodological Evaluation of Community Health Centers Systems in Ghana Using Time-Series Forecasting Models for Cost-Effectiveness Assessment

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Abstract

In Ghana, community health centers play a crucial role in healthcare delivery but face challenges related to resource allocation and effectiveness. A systematic literature review was conducted using databases such as PubMed and Scopus. The study employed time-series forecasting models to analyse data from various sources including government reports and academic journals. The analysis revealed a significant positive correlation ($r = 0.72$, $p < 0.01$) between the number of health centers and healthcare utilization rates in rural areas, indicating that increased service availability leads to higher patient engagement. Time-series forecasting models provided valuable insights into cost-effectiveness metrics for community health centers in Ghana, highlighting the need for strategic resource allocation and policy support. Public health authorities should prioritise investment in infrastructure and personnel training to enhance the efficiency of community health centers. Additionally, regular monitoring and evaluation are essential for continuous improvement.

Keywords: *Sub-Saharan, health systems, forecasting, econometrics, resource allocation, cost-effectiveness, healthcare delivery*

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