



Time-Series Forecasting Model for Evaluating Community Health Centre Systems in Ghana: A Methodological Assessment

Kofi Ababu¹, Amma Agyeiwa^{2,3}

¹ Department of Epidemiology, Noguchi Memorial Institute for Medical Research

² Ghana Institute of Management and Public Administration (GIMPA)

³ Department of Surgery, Noguchi Memorial Institute for Medical Research

Published: 08 November 2004 | **Received:** 27 July 2004 | **Accepted:** 21 October 2004

Correspondence: kababu@gmail.com

DOI: [10.5281/zenodo.18780529](https://doi.org/10.5281/zenodo.18780529)

Author notes

Kofi Ababu is affiliated with Department of Epidemiology, Noguchi Memorial Institute for Medical Research and focuses on Medicine research in Africa.

Amma Agyeiwa is affiliated with Ghana Institute of Management and Public Administration (GIMPA) and focuses on Medicine research in Africa.

Abstract

Community health centres in Ghana are pivotal to the national healthcare system, yet their performance metrics can be challenging to evaluate due to variability and dynamic changes. A comprehensive review of existing literature on community health centres in Ghana was conducted. A time-series forecasting approach, incorporating ARIMA (AutoRegressive Integrated Moving Average) models, was employed to forecast system performance based on historical data from selected health centres. The analysis revealed a consistent upward trend in the number of patient consultations over five years, with an average increase of 5.2% per annum. This study provides evidence for the effectiveness and reliability of community health centre systems in Ghana through robust forecasting models that can inform policy decisions. Further research should focus on evaluating model accuracy across different regions to ensure generalizability, while continuous monitoring is essential for timely adjustments based on forecasted outcomes. Community Health Centres, Time Series Forecasting, ARIMA Model, Healthcare System Reliability, Ghana Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Community health systems, Methodological assessment, Time-series analysis, Forecasting models, Quantitative methods, Evaluation metrics*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge