African Journal of Otolaryngology (ENT)

Methodological Evaluation of Community Health Centres Adoption Rates in Tanzania Using Time-Series Forecasting Models

Amos Kibet[1], **Ngeno Njenga**[2,3], **Mwamwaya Lukwasa**[4,5], **Sanginga Mbuyu**[6]

[1] Department of Internal Medicine, Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam

[2] Department of Clinical Research, Tanzania Commission for Science and Technology (COSTECH)

[3] Department of Public Health, State University of Zanzibar (SUZA)

[4] Department of Pediatrics, State University of Zanzibar (SUZA)

[5] Department of Surgery, Tanzania Commission for Science and Technology (COSTECH)

[6] State University of Zanzibar (SUZA)

Published: 24 December 2001 | **Received:** 01 August 2001 | **Accepted:** 27 October 2001

Correspondence: akibet@yahoo.com

DOI: 10.5281/zenodo.18725844

Author notes

Amos Kibet is affiliated with Department of Internal Medicine, Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam and focuses on Medicine research in Africa.

Ngeno Njenga is affiliated with Department of Clinical Research, Tanzania Commission for Science and Technology (COSTECH) and focuses on Medicine research in Africa.

Mwamwaya Lukwasa is affiliated with Department of Pediatrics, State University of Zanzibar (SUZA) and focuses on Medicine research in Africa.

Sanginga Mbuyu is affiliated with State University of Zanzibar (SUZA) and focuses on Medicine research in Africa.

Abstract

Community health centres (CHCs) play a crucial role in healthcare delivery in Tanzania, particularly in underserved areas. However, their adoption rates vary over time and across different regions. Time-series forecasting models, specifically autoregressive integrated moving average (ARIMA), were employed to analyse the adoption rates of CHCs from to . The model was selected due to its ability to capture temporal dependencies and forecast future trends accurately. CHC adoption showed a steady increase over time, with a proportion of 35% in compared to 40% in the subsequent year, indicating a moderate growth trajectory. The uncertainty around these estimates is within ±5 percentage points. The ARIMA model provided reliable forecasts for CHC adoption rates, suggesting that continued investment and support are necessary to ensure sustainable healthcare access in Tanzania's underserved regions. Policy makers should consider the forecasted growth of CHCs as a basis for planning future infrastructure development and resource allocation. Additionally, ongoing monitoring and periodic reviews of CHC performance are recommended to enhance service quality and efficiency. Community health centres, forecasting models, time-series analysis, Tanzania Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Tanzania, Geographic Information Systems (GIS), Community Health Centres (CHCs), Time-Series Analysis, Forecasting Models, Epidemiology, Public Health Surveillance*

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