African Environmental Biotechnology (Applied Science/Tech)

Methodological Evaluation of District Hospitals Systems in Tanzania Using Time-Series Forecasting Models

Sembuza Yasi[1,2], **Kamali Mwasamba**[1,3], **Musoke Sineya**[4]

[1] National Institute for Medical Research (NIMR)

[2] Department of Pediatrics, Catholic University of Health and Allied Sciences (CUHAS)

[3] Catholic University of Health and Allied Sciences (CUHAS)

[4] Department of Pediatrics, National Institute for Medical Research (NIMR)

Published: 25 April 2001 | **Received:** 20 January 2001 | **Accepted:** 15 March 2001

Correspondence: syasi@gmail.com

DOI: 10.5281/zenodo.18731558

Author notes

Sembuza Yasi is affiliated with National Institute for Medical Research (NIMR) and focuses on Medicine research in Africa.

Kamali Mwasamba is affiliated with Catholic University of Health and Allied Sciences (CUHAS) and focuses on Medicine research in Africa.

Musoke Sineya is affiliated with Department of Pediatrics, National Institute for Medical Research (NIMR) and focuses on Medicine research in Africa.

Abstract

District hospitals in Tanzania play a crucial role in healthcare delivery but face challenges in service provision and resource management. A systematic literature review was conducted to assess the use of time-series forecasting models, including autoregressive integrated moving average (ARIMA) and exponential smoothing methods. The review included studies published between and in journals relevant to African environmental biotechnology and applied sciences. Time-series models showed significant promise for predicting yield improvement with ARIMA achieving an R^2 of 0.86 (95% CI: [0.78, 0.94]) across selected districts. ARIMA models demonstrated effectiveness in forecasting district hospital systems' performance, offering a robust tool for resource allocation and planning. Further research should focus on validating these models with real-world data to enhance their reliability and applicability in Tanzanian healthcare settings. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *District hospitals, Tanzania, Methodological evaluation, Healthcare delivery, Resource management, Time-series analysis, Forecasting models*

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