Methodological Evaluation of Community Health Centres' Systems in Uganda Using Time-Series Forecasting Models for Clinical Outcome Assessment

Tarek Kiggundye[1,2]**, Gabriel Ssemogerere**[1,3]**, Erlai Onyango**[3,4]**, Sefa Nakatunga**[3,4]

[1] National Agricultural Research Organisation (NARO)

[2] Department of Epidemiology, Uganda National Council for Science and Technology (UNCST)

[3] Mbarara University of Science and Technology

[4] Uganda National Council for Science and Technology (UNCST)

Author notes

Tarek Kiggundye is affiliated with National Agricultural Research Organisation (NARO) and focuses on Medicine research in Africa.

Gabriel Ssemogerere is affiliated with Mbarara University of Science and Technology and focuses on Medicine research in Africa.

Erlai Onyango is affiliated with Mbarara University of Science and Technology and focuses on Medicine research in Africa.

Sefa Nakatunga is affiliated with Mbarara University of Science and Technology and focuses on Medicine research in Africa.

Abstract

Community health centers (CHCs) in Uganda are pivotal for providing healthcare services to underserved populations. However, their effectiveness and sustainability require rigorous evaluation. A systematic literature review was conducted, focusing on empirical studies published between and . Studies were selected based on relevance to CHC systems, clinical outcome assessment, and the use of time-series forecasting models. Data synthesis involved thematic analysis and comparison. The findings suggest that while some CHCs employ time-series forecasting models effectively for predicting patient outcomes, there is variability in model selection and data quality across studies. Current methodological approaches lack standardised guidelines, leading to inconsistencies in model application. Future research should focus on harmonizing methodologies and improving data integrity. Developing a comprehensive toolkit for CHCs would enhance the reliability of clinical outcome assessments using time-series forecasting models. Treatment effect was estimated with $text\{logit\}(\pi) = beta\, 0 + \beta^{\rightarrow} p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African healthcare, community health centers, clinical outcomes, forecasting models, systematic review, time-series analysis, evaluation methods*

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