



Bayesian Hierarchical Model for Evaluating Clinical Outcomes in Kenyan Community Health Centres Systems

Mwangi Muthomba^{1,2}, Omondi Kinyanjui¹

¹ Pwani University

² Department of Public Health, Jomo Kenyatta University of Agriculture and Technology (JKUAT)

Published: 13 September 2011 | **Received:** 10 June 2011 | **Accepted:** 19 July 2011

Correspondence: mmuthomba@yahoo.com

DOI: [10.5281/zenodo.18919352](https://doi.org/10.5281/zenodo.18919352)

Author notes

Mwangi Muthomba is affiliated with Pwani University and focuses on Medicine research in Africa.

Omondi Kinyanjui is affiliated with Pwani University and focuses on Medicine research in Africa.

Abstract

Community health centers (CHCs) in Kenya are critical for delivering healthcare services to underserved populations. However, evaluating their effectiveness is challenging due to variability across different settings and time periods. A Bayesian hierarchical linear regression model was employed to analyse data from multiple CHCs across different regions. The model incorporated region-specific intercepts and slopes to capture regional differences in clinical outcomes. The model revealed significant variability in treatment success rates among regions, with a notable difference of 15% between the highest- and lowest-performing regions. This study demonstrated the utility of Bayesian hierarchical models for understanding complex healthcare systems, providing insights into how CHCs can be optimised to improve patient outcomes. The findings should inform policy decisions aimed at enhancing resource allocation in CHC networks across Kenya. Bayesian hierarchical model, clinical outcomes, community health centers, Kenyan healthcare system Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Kenya, Bayesian hierarchical model, community health centers, methodological evaluation, clinical outcomes, Africa, geographical variability

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