African Trauma and Mental Health (Psychology)

# Bayesian Hierarchical Model for Measuring Clinical Outcomes in Urban Primary Care Networks in Tanzania: An Evaluation

**Mugyenyi Ngowi**[1,2], **Simba Nsanzimana**[3], **Kamasi Mwakabuya**[4]

[1] Department of Surgery, State University of Zanzibar (SUZA)

[2] Department of Internal Medicine, Tanzania Commission for Science and Technology (COSTECH)

[3] Department of Public Health, Sokoine University of Agriculture (SUA), Morogoro

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

**Published:** 09 June 2005 | **Received:** 10 March 2005 | **Accepted:** 20 May 2005

**Correspondence:** mngowi@yahoo.com

**DOI:** 10.5281/zenodo.18808472

**Author notes**

*Mugyenyi Ngowi is affiliated with Department of Surgery, State University of Zanzibar (SUZA) and focuses on Medicine research in Africa.*

*Simba Nsanzimana is affiliated with Department of Public Health, Sokoine University of Agriculture (SUA), Morogoro and focuses on Medicine research in Africa.*

*Kamasi Mwakabuya is affiliated with Department of Clinical Research, State University of Zanzibar (SUZA) and focuses on Medicine research in Africa.*

## Abstract

Urban primary care networks in Tanzania are essential for addressing healthcare needs efficiently. However, evaluating their effectiveness requires robust methods to measure clinical outcomes accurately. A Bayesian hierarchical model was employed to analyse data from multiple clinics across different areas of Tanzania. The model accounts for variability within and between clinics, using prior knowledge about treatment efficacy and patient characteristics. The analysis revealed significant heterogeneity in clinical outcomes among the clinics, with some showing substantial improvement over others. This study demonstrates the utility of Bayesian hierarchical models in assessing urban primary care networks' performance in Tanzania. The findings highlight areas needing further attention to enhance service quality and patient satisfaction. Future research should consider expanding the model to include more clinics or different clinical outcomes, ensuring broader applicability and reliability of results. Bayesian hierarchical models, urban primary care networks, clinical outcomes, Tanzania, system evaluation Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, Bayesian hierarchical models, Clinical outcomes measurement, Primary care networks, Tanzania, Quantitative methods, Spatial analysis*

# 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