African Journal of Surgery

Multilevel Regression Analysis for Evaluating Clinical Outcomes in Rural Clinics Systems of Uganda: A Methodological Study

Kaweesi Okwaraji[1,2], **Kabaka Namukonya**[3], **Lutungi Muhanga**[4], **Sempa Nketasika**[5]

[1] Department of Epidemiology, National Agricultural Research Organisation (NARO)

[2] Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

[3] Department of Surgery, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

[4] National Agricultural Research Organisation (NARO)

[5] Department of Pediatrics, Gulu University

Published: 21 July 2011 | **Received:** 22 April 2011 | **Accepted:** 23 May 2011

Correspondence: kokwaraji@gmail.com

DOI: 10.5281/zenodo.18917531

Author notes

Kaweesi Okwaraji is affiliated with Department of Epidemiology, National Agricultural Research Organisation (NARO) and focuses on Medicine research in Africa.

Kabaka Namukonya is affiliated with Department of Surgery, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

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

Sempa Nketasika is affiliated with Department of Pediatrics, Gulu University and focuses on Medicine research in Africa.

Abstract

Rural clinics in Uganda face significant challenges in providing consistent quality care due to resource limitations and geographical isolation. A multilevel regression analysis was conducted using data from two years of clinic records. The model accounts for both within-clinic variability (patient level) and clinic differences (clinic level). The multilevel regression revealed that the presence of a dedicated medical officer significantly improved patient recovery times by an average of 15%. Multilevel regression analysis provides robust evidence for understanding the impact of clinic-level interventions on clinical outcomes in rural Uganda. Clinics should prioritise hiring additional medical officers to improve care delivery and reduce recovery time disparities. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Multilevel Modelling, Rural Health Systems, Geographic Variation, Hierarchical Analysis, Outcome Measurement, Quantitative Research, Methodological Evaluation*

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