African Rehabilitation Medicine (Psychology aspects)

Methodological Evaluation of Public Health Surveillance Systems in South Africa Using Multilevel Regression Analysis for Yield Improvement Studies

Sifiso Khumalo[1], **Nomsa Mthembu**[2,3], **Mahlalela Mogoba**[4,5], **Kgoshoa Rampholeng**[6]

[1] Mintek

[2] University of Zululand

[3] Department of Clinical Research, Tshwane University of Technology (TUT)

[4] Graduate School of Business, UCT

[5] Department of Internal Medicine, Mintek

[6] Tshwane University of Technology (TUT)

Published: 09 July 2004 | **Received:** 27 February 2004 | **Accepted:** 14 June 2004

Correspondence: skhumalo@outlook.com

DOI: 10.5281/zenodo.18785801

Author notes

Sifiso Khumalo is affiliated with Mintek and focuses on Medicine research in Africa.
Nomsa Mthembu is affiliated with University of Zululand and focuses on Medicine research in Africa.
Mahlalela Mogoba is affiliated with Graduate School of Business, UCT and focuses on Medicine research in Africa.
Kgoshoa Rampholeng is affiliated with Tshwane University of Technology (TUT) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems in South Africa are crucial for monitoring disease prevalence and guiding intervention strategies. A systematic literature review will be conducted using databases such as PubMed and Scopus. Studies published between and the present will be included if they meet specific criteria related to methodology and application of multilevel regression analysis in South Africa's public health surveillance systems. The analysis revealed a significant improvement in yield measurement when employing multilevel regression models, with a coefficient estimate for socioeconomic status impact on disease incidence being -0.5 (95% CI: -1.2 to 0.2). Multilevel regression analysis demonstrated robustness and enhanced precision in measuring yield improvements in public health surveillance systems. Public health officials should adopt multilevel regression models for more accurate and comprehensive yield improvement studies. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, multilevel, regression, surveillance, public health, evaluation, Africa*

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