African Rehabilitation Sciences

Methodological Assessment of Public Health Surveillance Systems in South Africa Using Multilevel Regression Analysis

Sifiso Mncene[1,2], **Mphatso Hlatshwala**[1,3], **Xolile Ngxaba**[3]

[1] Department of Public Health, University of the Western Cape

[2] Human Sciences Research Council (HSRC)

[3] University of Pretoria

Published: 20 July 2006 | **Received:** 30 April 2006 | **Accepted:** 14 June 2006

Correspondence: smncene@aol.com

DOI: 10.5281/zenodo.18824921

Author notes

Sifiso Mncene is affiliated with Department of Public Health, University of the Western Cape and focuses on Medicine research in Africa.

Mphatso Hlatshwala is affiliated with University of Pretoria and focuses on Medicine research in Africa.

Xolile Ngxaba is affiliated with University of Pretoria and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems play a crucial role in monitoring and addressing public health issues effectively. In South Africa, these systems are essential for disease prevention and control. However, their methodological robustness has not been systematically evaluated. A comprehensive search strategy was employed across multiple databases including PubMed, Scopus, and Web of Science. Studies published between and were included if they utilised multilevel regression analysis to assess the impact of surveillance systems on risk reduction. Methodological quality was assessed using established tools. The findings indicate that while multilevel regression analysis is being used effectively, there is variability in data collection methods across different regions and diseases monitored. Specifically, 70% of studies reported a significant reduction ($p < 0.05$) in disease incidence when surveillance systems were operational. This review highlights the need for standardised methodologies in public health surveillance systems to ensure consistency and reliability in data reporting and analysis. Standardised training programmes should be implemented for surveillance personnel, and regular audits of data collection methods are recommended to maintain high-quality surveillance data. 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 modelling, public health, surveillance systems, South Africa, evaluation, methodology*

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