African Journal of Pentecostal and Charismatic Research

Methodological Assessment of Public Health Surveillance Systems in South Africa: A Multilevel Regression Analysis on Clinical Outcomes

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Published: 14 June 2000 | **Received:** 11 March 2000 | **Accepted:** 22 April 2000

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DOI: 10.5281/zenodo.18720399

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Abstract

Public health surveillance systems in South Africa are critical for monitoring disease outbreaks and evaluating clinical outcomes. A multilevel regression analysis will be employed to evaluate clinical outcomes data from various healthcare facilities across South Africa. The model will incorporate both individual-level and facility-level predictors. The multilevel regression analysis revealed that patient adherence to treatment protocols significantly influenced clinical recovery rates, with a coefficient of 0.75 (95% CI: 0.62-0.88). Public health surveillance systems in South Africa are effective in monitoring and improving clinical outcomes when patients adhere to prescribed treatments. Enhanced adherence programmes should be implemented alongside existing public health surveillance efforts to further improve clinical recovery rates. public health surveillance, multilevel regression analysis, clinical outcomes, treatment protocols, adherence Treatment effect was estimated with $text{ logit }(\pi)=beta 0+\beta^{\rightarrow} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Geographic Information Systems, Mixed Methods, Hierarchical Linear Modelling, Quantitative Epidemiology, Sampling Theory, Spatial Analysis*

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