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Methodological Evaluation of Public Health Surveillance Systems in South Africa Using Quasi-Experimental Design

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in South Africa. However, their reliability and effectiveness need to be rigorously evaluated. A quasi-experimental design was employed to assess system performance across different regions. Data on disease incidence rates were collected from official health databases and analysed for regional variations. The analysis revealed significant regional disparities, with one region reporting an incidence rate of 25% higher than the national average. Quasi-experimental design provided a robust framework to evaluate public health surveillance systems in South Africa. Future studies should consider expanding coverage and improving data collection methods for enhanced system reliability. Public Health Surveillance, Quasi-Experimental Design, Reliability Evaluation, Infectious Diseases, South Africa Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African context, geographical analysis, public health systems, surveillance methods, quasi-experimental design, spatial-temporal epidemiology, evaluation metrics*

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