



Methodological Evaluation of Public Health Surveillance Systems in Kenya: Quasi-Experimental Design for Risk Reduction Measurement

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Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and implementing targeted interventions in Kenya. A mixed-methods approach combining quantitative data from surveys with qualitative insights from interviews was employed to assess system performance and impact on risk reduction. The prevalence of common adolescent health issues, such as obesity and mental health disorders, decreased by 15% in areas where surveillance systems were operational compared to control regions (95% confidence interval: -12.3%, -17.8%). Quasi-experimental design proved effective for measuring risk reduction metrics in public health surveillance systems. Continued investment and refinement of surveillance systems are recommended based on the observed impact. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, Quasi-experimental, Surveillance, Evaluation, Public health, Methodology, Metrics*

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