African Rehabilitation Medicine (Psychology aspects)

Methodological Assessment of Public Health Surveillance Systems in Ethiopia: A Multilevel Regression Analysis for Cost-Effectiveness Evaluation

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Ethiopia, where such systems have evolved over time with varying levels of effectiveness. A multilevel regression model was employed to analyse the impact of various factors on surveillance system performance, including geographical distribution and funding levels. Uncertainty in estimates is accounted for through robust standard errors. The analysis revealed that a significant proportion (25%) of surveillance systems were underperforming due to inadequate funding, which had implications for timely disease detection and control efforts. Multilevel regression analysis provided insights into the effectiveness of public health surveillance systems in Ethiopia, highlighting areas needing improvement. Investment strategies should be prioritised based on system performance data to enhance efficiency and cost-effectiveness. Ethiopia, Public Health Surveillance, Multilevel Regression Analysis, Cost-Effectiveness Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Information Systems (GIS), Spatial Analysis, Regression Modelling, Public Health Economics, Cluster Sampling, Sentinel Surveillance*

ABSTRACT-ONLY PUBLICATION

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