African Child and Adolescent Psychiatry (Medical)

Bayesian Hierarchical Model Assessment of Public Health Surveillance System Adoption in Tanzania

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Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and implementing timely interventions in developing countries like Tanzania. A Bayesian hierarchical model was employed to assess the adoption rates of public health surveillance systems in Tanzania. The model accounts for variability at both regional (district) and national levels, incorporating data from multiple sources. The findings indicate a significant variation in adoption rates across districts, with some regions showing adoption rates as high as 85%. This study highlights the need for targeted interventions to increase the adoption of public health surveillance systems in underperforming areas. Public health officials should prioritise engagement and capacity-building activities in low-adoption districts, leveraging the model's insights on regional variability. Bayesian hierarchical models, Public health surveillance, Adoption rates, Tanzania Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Tanzania, Bayesian, Hierarchical, Model, Adoption, Evaluation, Surveillance*

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