Methodological Evaluation of Public Health Surveillance Systems in Tanzania: A Randomized Field Trial for Measuring Clinical Outcomes

Kabiga Musafiri[1], **Mvuninjika Mpongo**[2,3]

[1] Department of Surgery, Ardhi University, Dar es Salaam

[2] Department of Clinical Research, Ardhi University, Dar es Salaam

[3] Tanzania Commission for Science and Technology (COSTECH)

Correspondence: kmusafiri@outlook.com

Author notes

Kabiga Musafiri is affiliated with Department of Surgery, Ardhi University, Dar es Salaam and focuses on Medicine research in Africa.
Mvuninjika Mpongo is affiliated with Department of Clinical Research, Ardhi University, Dar es Salaam and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and guiding interventions in resource-limited settings such as Tanzania. However, their effectiveness varies significantly across different regions. A stratified random sampling approach was employed to select participants from urban and rural areas. A mixed-method design included both quantitative (surveillance data collection) and qualitative (interviews with healthcare providers) methods for triangulation of findings. In the randomized field trial, a significant proportion (35%) of surveyed patients reported delays in receiving appropriate medical care due to system inefficiencies, indicating room for improvement in surveillance systems' responsiveness. The evaluation revealed challenges such as inadequate training for healthcare workers and inconsistent data reporting practices. These findings underscore the need for systematic enhancements to improve patient outcomes. Immediate capacity building programmes should be implemented to enhance surveillance system performance, while continuous monitoring of system effectiveness is recommended to ensure timely interventions. Public health surveillance, Tanzania, clinical outcomes, randomized field trial, methodological evaluation Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow} p\,X_i$, and uncertainty reported using confidence-interval based inference.

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