Assessing System Reliability in Community Health Centres within Tanzania's Health System Framework: A Multilevel Regression Analysis

Simba Ssemakula[1,2]**, Kasanga Masika**[2,3]**, Mwafongo Mponda**[1]

[1] National Institute for Medical Research (NIMR)

[2] Tanzania Wildlife Research Institute (TAWIRI)

[3] Department of Clinical Research, National Institute for Medical Research (NIMR)

Correspondence: sssemakula@aol.com

Author notes

Simba Ssemakula is affiliated with National Institute for Medical Research (NIMR) and focuses on Medicine research in Africa.

Kasanga Masika is affiliated with Tanzania Wildlife Research Institute (TAWIRI) and focuses on Medicine research in Africa.

Mwafongo Mponda is affiliated with National Institute for Medical Research (NIMR) and focuses on Medicine research in Africa.

Abstract

Community health centers (CHCs) play a crucial role in Tanzania's fragmented healthcare system. A multilevel regression model was employed to analyse data from Tanzanian CHCs, incorporating both individual-level (e.g., staff competence) and organisational-level (e.g., funding availability) variables. CHCs in rural areas demonstrated significantly lower reliability scores compared to urban CHCs, with a median score of 75% across all levels analysed. The multilevel model identified key factors contributing to system reliability within Tanzanian CHCs, including adequate staffing and consistent funding. Enhanced training programmes for staff and increased government support are recommended to improve CHC performance in rural regions. Community health centers, reliability, multilevel regression, Tanzania Treatment effect was estimated with $text\{logit\}(\pi) = beta\, 0 + \beta^{-}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

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