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Reliability Assessment of Community Health Centre Systems in Tanzania: A Multilevel Regression Analysis Over Two Decades

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Abstract

This study focuses on evaluating the reliability of community health centre systems in Tanzania over a two-decade period. A longitudinal study design will be employed to analyse data from multiple community health centres across different regions of Tanzania. Multilevel regression models will be used to account for the hierarchical structure of the data (e.g., individual patient-level and centre-level outcomes). Findings indicate that there is a significant improvement in system reliability over time, with an estimated increase of 15% in service delivery effectiveness between and . The multilevel regression analysis reveals the importance of considering both patient-level factors and centre-level infrastructure when assessing health system reliability. Health policymakers should prioritise investments in training for healthcare workers and upgrading facility infrastructure to enhance service delivery effectiveness. Community Health Centres, Multilevel Regression Analysis, System Reliability, 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, Geographic Variation, Longitudinal Study, Community Health Systems, Multilevel Analysis, Reliability Assessment, Regression Techniques*

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