



Methodological Evaluation of District Hospital Systems in Tanzania: A Randomized Field Trial for System Reliability Assessment

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Abstract

District hospitals in Tanzania play a crucial role in healthcare provision, yet their reliability varies significantly across different regions. A mixed-methods approach combining quantitative data analysis with qualitative interviews was employed to assess system performance over two years. Randomization ensured balanced comparison groups for intervention and control districts. Findings indicate an improvement in average patient wait times by 15% across the tested districts after implementing targeted interventions, although variability remained high between regions. The randomized field trial demonstrated promising improvements in district hospital reliability but highlighted persistent regional disparities requiring further tailored strategies. Future research should focus on developing and testing scalable intervention packages to address identified system weaknesses effectively. District Hospitals, Reliability Assessment, Randomized Field Trial, Healthcare Systems, Tanzania

Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Tanzania, Geographic Variation, System Evaluation, Randomized Control Trial, Data Quality, Health Systems Strengthening, Analytical Framework*

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