



# Methodological Evaluation of District Hospitals Systems in Uganda: A Multilevel Regression Analysis for Yield Improvement

Samuel Okello<sup>1</sup>

<sup>1</sup> National Agricultural Research Organisation (NARO)

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**Correspondence:** [sokello@outlook.com](mailto:sokello@outlook.com)

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## Author notes

*Samuel Okello is affiliated with National Agricultural Research Organisation (NARO) and focuses on Medicine research in Africa.*

## Abstract

District hospitals in Uganda are pivotal healthcare providers serving diverse populations across different regions. A comprehensive review of existing literature was conducted, including quantitative studies analysing district hospital systems in Uganda. Multilevel regression models were employed to assess the impact of various factors such as funding, staff training, and patient demographics on service delivery outcomes. The multilevel analysis revealed that increased investment in infrastructure (direction: positive) and improved health workforce training had significant effects on reducing hospital waiting times by up to 20% (proportion). This study underscores the importance of evidence-based decision-making in healthcare resource allocation, particularly through rigorous statistical modelling techniques. District hospitals should prioritise targeted investments and continuous professional development programmes for staff to enhance service efficacy and patient satisfaction. Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, African, Spatial, Ethnicity, Multilevel, Regression, Yield*

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