



Risk Reduction in District Hospitals Systems: A Multilevel Regression Analysis of Rwanda's Healthcare Governance

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Abstract

District hospitals in Rwanda are pivotal to healthcare delivery but face challenges related to resource allocation and governance. A multilevel regression model was employed to analyse data from district hospitals across Rwanda. The model included variables such as financial support, staff training, and patient flow. The multilevel regression revealed that a 10% increase in financial support per hospital led to a 5-7% reduction in operational risks (95% CI: 3.2%, 8.6%). Risk reduction strategies, particularly increased financial resources, significantly improved the operational efficiency of district hospitals. District health authorities should prioritise investment in financial support and staff training to mitigate operational risks. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Hierarchical, Models, Medicine, PopulationHealth, QualitativeDataAnalysis*

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