



Multilevel Regression Analysis of District Hospital Systems in Rwanda: Measuring Yield Improvement through Comprehensive Evaluation

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Abstract

Rwanda's district hospitals play a critical role in healthcare delivery, yet their performance varies significantly across different districts. A multilevel regression model was employed to analyse data from Rwanda's district hospitals, accounting for both district-level and hospital-level factors. The analysis revealed a significant positive correlation between investment in infrastructure and improved patient outcomes (coefficient = 0.75, $p < 0.01$). Multilevel regression analysis successfully identified key drivers of system yield improvement within the Rwandan healthcare sector. Investment in hospital infrastructure should be prioritised to enhance overall patient care and outcomes across all districts. Rwanda, district hospitals, multilevel regression, healthcare systems, yield improvement

Keywords: *Sub-Saharan, African, Healthcare, Systems, Evaluation, Multilevel regression, Mixed effects modelling*

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