African Traditional Medicine (Pharmaceutical aspects)

Methodological Evaluation of District Hospitals Systems in Rwanda Using Multilevel Regression Analysis for Efficiency Measurement

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Abstract

This study aims to evaluate the efficiency of district hospitals in Rwanda through a methodological analysis. A multilevel regression model will be employed to assess district hospitals' performance at both hospital-level (individual unit) and regional-level (cluster). The model accounts for variations in efficiencies across different districts. The analysis revealed a significant proportion of efficiency gains, particularly in resource allocation strategies that improved patient outcomes without increasing costs. The multilevel regression approach successfully highlighted the key drivers of efficiency within district hospitals, offering insights for policy improvements and resource management. Policy recommendations include optimising resource distribution, enhancing training programmes for healthcare staff, and implementing standardised clinical guidelines to enhance overall system performance. Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\vec{\beta}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Rwanda, District Hospitals, Multilevel Analysis, Regression Modelling, Efficiency Measurement, Hierarchical Models, Quantitative Methods*

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