



Methodological Evaluation of District Hospitals Systems in Ghana: Multilevel Regression Analysis for Clinical Outcomes Assessment

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Abstract

District hospitals in Ghana play a crucial role in healthcare delivery, yet their operational efficiency remains underexplored. A multilevel regression model will be applied to analyse data from district hospitals, with hierarchical clustering for hospital-level variables and patient-level health indicators. The multilevel regression analysis reveals significant variations in clinical outcomes across different districts, indicating the need for targeted interventions. This study highlights the importance of considering both hospital-specific factors and patient characteristics when assessing district hospitals' performance. Policy recommendations will focus on improving resource allocation and training programmes to enhance clinical outcomes in Ghana's district hospitals. District Hospitals, Multilevel Regression Analysis, Clinical Outcomes, Ghana 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, Multilevel, Regression, Outcome, Epidemiology*

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