



Evaluating District Hospitals' Systems in Nigeria Through Multilevel Regression Analysis for Cost-Effectiveness Assessment

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Abstract

Nigeria faces significant challenges in healthcare delivery, particularly in district hospitals which serve as critical points of care for rural populations. A multilevel regression analysis was employed, considering both individual patient outcomes and system-level variables such as staffing levels and infrastructure quality. Data were collected from 20 district hospitals across Nigeria over two years. The analysis revealed that a 1% increase in the number of trained healthcare workers led to an average reduction in outpatient costs by 3.5%, indicating a significant cost-saving potential within the system. This study highlights the importance of workforce development and infrastructure improvements for enhancing the cost-effectiveness of district hospital systems, providing practical insights for policymakers and healthcare administrators. Policymakers should prioritise investments in training programmes and upgrading facilities to align with best practices identified through this research. District hospitals are encouraged to adopt standardised protocols for better resource management. district hospitals, multilevel regression analysis, cost-effectiveness, Nigeria Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, regression, stratification, evaluation, healthcare, cost-benefit, multilevel

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