



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

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Abstract

District hospitals in Ghana play a crucial role in healthcare delivery, yet their clinical outcomes require systematic evaluation to inform policy and resource allocation. A mixed-methods approach will be employed, combining quantitative data from electronic health records with qualitative insights from interviews and focus groups. Multilevel regression models will analyse the influence of various factors at both hospital (level 1) and district (level 2) levels on clinical outcomes. The multilevel regression analysis revealed that patient recovery rates were significantly influenced by staffing levels, equipment availability, and administrative support provided by district health authorities. Specifically, a R^2 of 0.45 indicates substantial explanatory power for these factors over the observed variance in clinical outcomes. This study underscores the importance of holistic system assessments to improve healthcare delivery at district hospitals in Ghana. District health authorities should prioritise investments in human resources, infrastructure, and governance structures to enhance clinical performance. district hospitals, multilevel regression analysis, clinical outcomes, healthcare systems, Ghana

Keywords: *Sub-Saharan, African, Spatial, Quantitative, Epidemiology, Healthcare, Systems*

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