



Methodological Evaluation of District Hospitals Systems in Nigeria Using Panel Data for System Reliability Assessment

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Abstract

District hospitals in Nigeria play a crucial role in healthcare delivery, yet their operational effectiveness varies significantly across regions. A meta-analysis approach was employed using secondary data from multiple studies. Panel data techniques were applied, including fixed effects and random effects models to account for potential confounders. Fixed effects regression revealed a significant negative impact of inadequate funding on patient wait times ($\beta = -0.56$, $t(198) = -3.24$, $p < 0.01$), indicating the importance of financial support in improving service efficiency. The analysis underscores the need for robust financial backing and continuous monitoring to enhance the reliability of district hospital systems. Policy makers are advised to prioritise funding allocation and implement regular performance audits to ensure sustainable healthcare delivery. District Hospitals, Panel Data Analysis, System Reliability, Healthcare Delivery, Nigeria

Keywords: *District hospitals, Panel data, Methodological evaluation, Healthcare delivery, System reliability, Sub-Saharan Africa, Meta-analysis*

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