



Evaluating System Reliability in Nigerian Community Health Centres Using Panel Data Analysis: An Assessment of Operational Continuity and Efficiency Systems

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Abstract

Nigerian community health centres (CHCs) play a crucial role in providing healthcare services, yet their operational reliability remains a significant challenge. A mixed-method approach combining qualitative insights with quantitative panel-data estimation was employed. Key variables included service availability, staff performance, and patient flow. Panel data analysis revealed a moderate level of system reliability ($r = 0.65$) among CHCs in the study area, suggesting room for improvement in operational continuity and efficiency. The findings underscore the importance of systematic evaluation to enhance service delivery in Nigerian community health centres. Enhanced training programmes for staff and regular maintenance checks are recommended to improve system reliability.

Keywords: *Nigerian, Community Health Centres, Panel Data, Reliability Analysis, Methodology, Quantitative Research, Healthcare Delivery Systems*

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