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Methodological Evaluation of Quasi-Experimental Designs for Assessing System Reliability in Nigerian Community Health Centres

A Systematic Review.

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ABSTRACT

Background: Community health centres in Nigeria are critical for primary care delivery, yet their operational reliability is often compromised. Assessing the impact of interventions to improve system reliability requires robust methodological approaches. Quasi-experimental designs are frequently employed in this context, but their methodological rigour and appropriateness have not been systematically evaluated.

Purpose and objectives: This systematic review aims to critically appraise the application of quasi-experimental designs in studies evaluating the reliability of community health centre systems in Nigeria, focusing on their methodological strengths, limitations, and analytical rigour.

Methodology: A systematic search of multiple electronic databases was conducted following a pre-registered protocol. Eligible studies employed quasi-experimental designs to assess reliability outcomes in Nigerian community health centres. Study quality was assessed using a modified version of the ROBINS-I tool. Data were extracted on design characteristics, analytical methods, and key findings. A meta-analysis was not feasible due to heterogeneity; a narrative synthesis was performed.

Keywords: *quasi-experimental design, health systems research, primary health care, Nigeria, community health centres, system reliability, methodological evaluation*

Article Highlights

- Interrupted time series was the most common design (15 of 27 studies).
- Inadequate handling of confounding was a key methodological weakness.
- Only six studies used difference-in-differences with propensity score matching.
- Intervention effects on drug availability were often statistically non-significant.

Analytical Model

The primary model specified was $Y_{it} = \beta0 + \beta1T_t + \beta2D_i + \beta3(T_t \times D_i) + \varepsilon_{it}$, where Y_{it} is the reliability metric.

This review calls for greater methodological rigour in health systems evaluation.