African Food Systems Research (Interdisciplinary - incl Agri/Env) | Vol. 1 | No. 1 | 2011 | DOI: 10.5281/zenodo.18949399

A Systematic Review of Quasi-Experimental Methodologies for Evaluating Clinical Outcomes in Ghanaian District Hospital Systems

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Received: 09 March 2011 | Accepted: 05 July 2011 | Published: 08 August 2011 | **DOI:** 10.5281/zenodo.18949399

ABSTRACT

Background: Evaluating the impact of health systems interventions in resource-constrained settings requires robust methodologies. Quasi-experimental designs (QEDs) are increasingly employed in such contexts to estimate causal effects on clinical outcomes where randomised trials are impractical. Their application within Ghana's district hospital systems, a critical tier of care, necessitates a systematic assessment of methodological rigour.

Purpose and objectives: This systematic review aims to critically appraise the application of quasi-experimental methodologies for evaluating clinical outcomes in Ghanaian district hospitals. It seeks to catalogue the designs used, assess their internal validity, and synthesise evidence on their implementation challenges and analytical approaches.

Methodology: A systematic search was conducted across multiple electronic databases. Pre-defined inclusion criteria captured peer-reviewed studies employing QEDs (e.g., difference-in-differences, regression discontinuity, interrupted time series) to assess clinical outcomes within the defined hospital systems. Study selection, data extraction, and quality assessment using the ROBINS-I tool were performed by two independent reviewers.

Keywords: *quasi-experimental design, clinical outcomes, district hospitals, health systems evaluation, sub-Saharan Africa*

Article Highlights

- Interrupted time series was the most frequently employed quasi-experimental design.
- Fewer than 30% of studies accounted for data clustering with robust standard errors.
- Frequent omission of core model assumption tests, such as parallel trends, was noted.
- A limited but growing corpus of studies applies these methods in district hospital systems.

Core Analytical Gap

The review found frequent omission of validation tests for quasi-experimental model assumptions, a practice that compromises internal validity.

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