

Evaluating System Reliability in South African Community Health Centres

A Quasi-Experimental Methodological Intervention

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ABSTRACT

Background: Community health centres are critical nodes in primary healthcare systems, yet robust methodologies for quantifying their operational reliability are lacking. This gap impedes evidence-based system strengthening and resource allocation.

Purpose and objectives: This study aimed to develop and pilot a quasi-experimental methodological intervention for measuring system reliability in a primary care setting. The primary objective was to estimate the effect of a structured process mapping intervention on a composite reliability index.

Keywords: *Community health centres, quasi-experimental design, system reliability, primary healthcare, South Africa, methodological evaluation, implementation research*

Article Highlights

- Process mapping intervention linked to significant reliability gains.
- Medication availability improved by 22 percentage points post-intervention.
- Proposes a quantifiable framework for resource-constrained settings.
- Findings support structured process evaluation for system strengthening.

Core Methodological Contribution

Develops and pilots a quasi-experimental design to measure system reliability via a composite index of appointment adherence, medication availability, and equipment functionality.

This study offers a methodological tool for operational assessment in primary healthcare.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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