



Methodological Evaluation of South African Community Health Centre Systems Using Difference-in-Differences Models for System Reliability Assessment

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Abstract

Community health centres (CHCs) in South Africa play a critical role in primary healthcare delivery. However, their effectiveness and reliability need evaluation. A systematic literature review was conducted with a focus on quantitative studies evaluating CHCs' performance metrics across different regions in South Africa. Studies were screened based on predefined inclusion criteria, and data extraction focused on methodological approaches employed for assessing reliability. The analysis identified several common methodologies used to evaluate CHC systems, including difference-in-differences models with varying degrees of complexity and robustness. This review highlights the variability in methodological approaches among studies evaluating CHCs' reliability. The use of difference-in-differences models was found to be a popular yet flexible approach for assessing these systems. Future research should explore the implications of different model complexities on system assessment outcomes and consider integrating more diverse methodologies to ensure comprehensive evaluation. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centers, difference-in-differences, evaluation methodology, health system reliability, intervention studies, randomized controlled trials*

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