



# Methodological Assessment of Quasi-Experimental Designs in District Hospital Systems Across South Africa: A Meta-Analysis

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## Abstract

Quasi-experimental designs are increasingly used to evaluate interventions in district hospital systems across South Africa, despite methodological concerns. A comprehensive review of quasi-experimental research was conducted using systematic search strategies. Studies were screened for eligibility based on predefined criteria, including study design, sample size, and outcome measures. The analysis identified a trend towards overestimation of treatment effects by approximately 15% in studies with small sample sizes (<300 patients), which is considered statistically significant. Despite methodological limitations, the majority of quasi-experimental designs appeared to yield clinically relevant findings. However, further research is needed to validate these results across different settings and outcomes. District hospitals should consider implementing rigorous quality improvement strategies alongside clinical interventions to enhance the reliability of future trials. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, healthcare systems, evaluation studies, quasi-experimental, randomized controlled, impact assessments, public health*

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