



# Methodological Evaluation of Community Health Centre Systems in Senegal Using Difference-in-Differences for System Reliability Assessment

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## Abstract

Community health centers in Senegal are integral to healthcare delivery but face challenges in reliability and effectiveness. A difference-in-differences approach was employed to assess the impact of interventions at community health centers in Senegal. The study utilised pre- and post-intervention data from randomly selected sites to evaluate treatment effects. The DiD model revealed a significant improvement ( $p < .05$ ) in service delivery efficiency, with a 15% increase in patient consultations per month compared to baseline levels. The DiD method provided robust evidence of system reliability improvements at community health centers, indicating effective interventions and positive outcomes for patients. Further evaluations should be conducted across diverse settings to validate these findings and inform broader policy recommendations. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, community health systems, difference-in-differences, intervention studies, randomized controlled trials, public health, quasi-experimental design*

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