



Methodological Evaluation of Community Health Centre Systems in Senegal Using a Difference-in-Differences Approach for Cost-Effectiveness Analysis

Mamadou Diallo¹, Sékou Ndiaye², Mbala Touré^{2,3}

¹ Department of Public Health, Université Gaston Berger (UGB), Saint-Louis

² Université Gaston Berger (UGB), Saint-Louis

³ Cheikh Anta Diop University (UCAD), Dakar

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Correspondence: mdiallo@aol.com

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Author notes

Mamadou Diallo is affiliated with Department of Public Health, Université Gaston Berger (UGB), Saint-Louis and focuses on Medicine research in Africa.

Sékou Ndiaye is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Medicine research in Africa.

Mbala Touré is affiliated with Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.

Abstract

Community health centers in Senegal face challenges in cost-effectiveness due to resource constraints. A Difference-in-Differences (DID) approach was employed to assess changes in resource utilization and service delivery outcomes before and after policy interventions. Data from two comparable communities—one receiving the intervention and one serving as a control—were analysed to estimate cost-effectiveness metrics, including Incremental Cost-Effectiveness Ratios (ICERs). Significant improvements were observed in the proportion of patients served per unit cost between the intervention and control groups. The DID model revealed that community health centers can be optimised for better resource allocation without compromising service quality, indicating a more efficient use of funds. Further research should explore scalability and sustainability of these findings across other regions in Senegal. Community Health Centers, Cost-Effectiveness Analysis, Difference-in-Differences (DID), Resource Allocation Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Senegalese, DID, econometrics, health economics, resource allocation, cost-benefit analysis*

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