

Methodological Evaluation of District Hospital Systems in Senegal

A Systematic Review of Quasi-Experimental Designs for Measuring Efficiency Gains

Mamadou Ndiaye¹, Aminata Diop^{2,3}, Fatou Sarr⁴
Abdoulaye Diallo^{5,6}

Department of Pediatrics, Institut Pasteur de Dakar | Cheikh Anta Diop University (UCAD), Dakar | Department of Epidemiology, Université Alioune Diop de Bambey (UADB) | Université Alioune Diop de Bambey (UADB) | Institut Pasteur de Dakar | Department of Epidemiology, Cheikh Anta Diop University (UCAD), Dakar

Correspondence: mndiaye@aol.com

Received: 06 January 2026 | Accepted: 03 March 2026 | Published: 24 March 2026 | DOI:

[10.5281/zenodo.18950981](https://doi.org/10.5281/zenodo.18950981)

ABSTRACT

Background: District hospitals are critical nodes in Senegal's healthcare system, yet their operational efficiency remains a persistent challenge. While quasi-experimental designs (QEDs) are increasingly employed to evaluate interventions aimed at improving efficiency, the methodological rigour and comparability of these studies require systematic assessment.

Purpose and objectives: This systematic review aims to critically appraise the application of quasi-experimental methodologies in studies measuring efficiency gains within Senegalese district hospital systems, identifying common designs, analytical strengths, and limitations.

Methodology: A systematic search of multiple electronic databases was conducted following PRISMA guidelines. Peer-reviewed studies employing QEDs (e.g., difference-in-differences, regression discontinuity, instrumental variables) to assess hospital efficiency outcomes were included. Studies were critically evaluated for design quality, confounding control, and statistical validity. A meta-analysis was precluded due to heterogeneity; findings were synthesised narratively.

Keywords: *district hospitals, quasi-experimental design, health systems efficiency, Sub-Saharan Africa, Senegal, operational research, healthcare evaluation*

Article Highlights

- Difference-in-differences was the predominant design (9 of 14 studies).
- A key methodological weakness was the frequent omission of necessary parallel trends testing.
- One analysis reported 18% efficiency gains from management training, but with concerns over unobserved confounders.
- Studies often provided inadequate discussion of selection bias and identifying assumptions.

Methodological Note

A meta-analysis was precluded due to study heterogeneity; findings were synthesised narratively.

This review critically appraises the methodological rigour of quasi-experimental designs in a key operational research context.

ABSTRACT-ONLY PUBLICATION

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

REQUEST FULL PAPER

 **Email:** info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

 **Submit at:** app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge