



Time-Series Forecasting Model Evaluation in Rural Senegalese Clinics Systems,

Diop Guèye^{1,2}, Ndoyé Niang^{3,4}, Alassane Sène⁵, Niang Diarfé⁴

¹ Department of Clinical Research, Cheikh Anta Diop University (UCAD), Dakar

² Department of Pediatrics, Institut Sénégalais de Recherches Agricoles (ISRA)

³ Université Gaston Berger (UGB), Saint-Louis

⁴ Institut Sénégalais de Recherches Agricoles (ISRA)

⁵ Department of Epidemiology, Université Gaston Berger (UGB), Saint-Louis

Published: 26 February 2013 | **Received:** 21 November 2012 | **Accepted:** 23 January 2013

Correspondence: dguye@aol.com

DOI: [10.5281/zenodo.18979966](https://doi.org/10.5281/zenodo.18979966)

Author notes

Diop Guèye is affiliated with Department of Clinical Research, Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.

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

Alassane Sène is affiliated with Department of Epidemiology, Université Gaston Berger (UGB), Saint-Louis and focuses on Medicine research in Africa.

Niang Diarfé is affiliated with Institut Sénégalais de Recherches Agricoles (ISRA) and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of rural clinics systems in Senegal: time-series forecasting model for measuring clinical outcomes in Senegal. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of rural clinics systems in Senegal: time-series forecasting model for measuring clinical outcomes, Senegal, Africa, Medicine, intervention study This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Rural Health, Time-Series Analysis, Forecasting Models, Evaluation Metrics, Clinical Outcomes, Geographic Information Systems*

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