African Hydrology Research (Earth Science focus)

Methodological Assessment of Community Health Centre Systems in South Africa: Estimating Yield Improvements Using Panel Data Techniques

Tsholofelo Gqoba[1], **Mpho Lehlekoa**[2,3], **Sipho Motshega**[4]

[1] University of Zululand

[2] Department of Surgery, Graduate School of Business, UCT

[3] Department of Clinical Research, University of Zululand

[4] Department of Pediatrics, University of Zululand

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Correspondence: tgqoba@yahoo.com

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Author notes

Tsholofelo Gqoba is affiliated with University of Zululand and focuses on Medicine research in Africa.
Mpho Lehlekoa is affiliated with Department of Surgery, Graduate School of Business, UCT and focuses on Medicine research in Africa.
Sipho Motshega is affiliated with Department of Pediatrics, University of Zululand and focuses on Medicine research in Africa.

Abstract

Community health centres (CHCs) in South Africa play a crucial role in healthcare delivery, particularly in underserved areas. The effectiveness of these services is influenced by various factors including resource allocation and patient management practices. The study employs rigorous statistical methods such as fixed effects models (FE) and random effects models (RE), considering potential sources of heterogeneity across regions. Panel data analysis is utilised to account for both time-invariant and time-varying variables affecting health outcomes. One specific finding highlights a significant improvement in patient recovery rates by 15% when CHCs implement structured follow-up protocols, as evidenced by robust standard errors of the estimated coefficients. The findings underscore the importance of adopting systematic approaches for resource allocation and management within CHC settings to enhance service efficacy. Health policymakers should prioritise investment in data collection systems and training programmes aimed at improving patient adherence to treatment protocols. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

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