African Occupational Therapy Research (Clinical)

Methodological Evaluation of Community Health Centres Systems in South Africa Using Multilevel Regression Analysis for Risk Reduction Assessment

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Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of community health centres systems in South Africa: multilevel regression analysis for measuring risk reduction in South Africa. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. 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 community health centres systems in South Africa: multilevel regression analysis for measuring risk reduction, South Africa, Africa, Medicine, case study This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, multilevel models, regression analysis, community health centers, public health, data triangulation, evidence-based medicine*

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