Methodological Evaluation and Time-Series Forecasting Model Assessment of Community Health Centres in Ethiopia: Implications for System Reliability

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Abstract

Community health centres (CHCs) in Ethiopia face challenges in providing reliable healthcare services due to variability in service delivery and system reliability. A meta-analysis was conducted using data from various studies published between and . The analysis included systematic reviews of methods employed to assess CHC performance and the application of time-series forecasting models for system reliability measurement. The evaluation revealed that while some CHCs utilised robust time-series forecasting models, there was a significant variation in methodological approaches across different regions, indicating a need for standardised procedures to enhance system reliability. This study highlights the importance of adopting consistent methodologies and integrating advanced data analytics tools like time-series forecasting models to improve the reliability of CHC systems in Ethiopia. It is recommended that policymakers and healthcare administrators implement standardised training programmes on methodological approaches and encourage the use of robust statistical models for system performance evaluation and improvement. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow} p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, systematic review, meta-analysis, time-series analysis, healthcare system reliability, community health centers, evidence-based medicine*

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