African Sport Studies (Interdisciplinary - Social/Management/Health)

Reliability Analysis of Community Health Centre Systems in Ethiopia: A Randomized Field Trial Approach

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Abstract

Community health centers (CHCs) play a crucial role in healthcare delivery in Ethiopia's rural and urban areas. However, their reliability varies widely across different regions. A randomized field trial design was employed where CHCs were randomly selected for assessment based on geographical distribution. Data collection included patient feedback surveys, administrative records review, and direct observation. The reliability of CHC systems in this study ranged from 78% to 92%, with a significant variability observed across different regions ($p < 0.05$). CHCs need targeted interventions to improve their reliability, particularly in areas with lower performance. Implementing community-based monitoring programmes and training healthcare workers on standardised protocols could enhance system reliability. Community Health Centers, Reliability Analysis, Randomized Field Trial, Ethiopia 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, Community health centers, Reliability analysis, Randomized trials, Methodological evaluation, Public health systems, Performance measurement*

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