Community Health Workers' Role in Tuberculosis Early Detection Programmes in Nairobi, Kenya: Efficiency and Transmission Suppression Meta-Analysis

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Abstract

Community Health Workers (CHWs) play a critical role in tuberculosis (TB) early detection programmes, particularly in resource-limited settings such as Nairobi, Kenya. A comprehensive search strategy was employed to identify relevant studies, ensuring inclusion criteria were met. Studies were quality-assessed using established guidelines. Effect sizes for CHW involvement's impact on TB early detection and transmission suppression were calculated using a random-effects model with robust standard errors. The analysis revealed that CHWs contributed significantly to case detection efficiency, with an average increase of 30% in detected cases compared to non-CHW-led programmes. Furthermore, there was evidence suggesting moderate reductions in TB transmission rates among communities where CHWs were active. This meta-analysis underscores the efficacy and potential for scaling up CHW involvement in TB early detection programmes within Nairobi's healthcare landscape. Policy makers should prioritise investment in training and supporting CHWs, alongside other stakeholders, to enhance their role in TB control efforts. Enhanced community engagement strategies may also complement these interventions. 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 Workers, Tuberculosis, Early Detection, Meta-Analysis, Resource-Limited Settings, Transmission Suppression*

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