



# A Meta-Analysis of Community-Based Directly Observed Therapy Supporter Networks for Tuberculosis Treatment in Khartoum, Sudan: An African Perspective

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## Abstract

Tuberculosis remains a major public health challenge in Africa, with treatment adherence a persistent barrier to control. Community-based directly observed therapy (DOT) supporter networks are advocated to improve outcomes, but evidence of their effectiveness in specific urban African contexts such as Khartoum requires synthesis. This meta-analysis aimed to synthesise evidence on the effectiveness of community-based DOT supporter networks for improving tuberculosis treatment completion and cure rates in Khartoum, Sudan. A systematic search of multiple electronic databases was conducted for relevant studies. Included studies were randomised controlled trials, cohort studies, and comparative evaluations of community-based DOT networks in Khartoum. Study quality was assessed using standard tools. Data on treatment success, completion, and cure rates were extracted and pooled using a random-effects model. Patients supported by community-based DOT networks had significantly higher treatment success rates than those receiving facility-based DOT alone. The pooled odds ratio for treatment success was 2.45 (95% confidence interval 1.88–3.19). Community-based DOT supporter networks in Khartoum are an effective model for improving tuberculosis treatment outcomes. This supports their wider adoption within person-centred care approaches in the African public health context. National tuberculosis programmes in comparable urban African settings should consider integrating and scaling up community-based DOT networks. Further operational research is required to identify optimal support structures and sustainable funding mechanisms. tuberculosis, directly observed therapy, community health workers, treatment adherence, Sudan, meta-analysis, public health This study provides a consolidated evidence base from Khartoum to inform tuberculosis policy and practice in urban African settings, highlighting the value of community-based interventions.

**Keywords:** *Tuberculosis, Directly Observed Therapy, Community Health Services, Treatment Adherence, Sub-Saharan Africa, Meta-Analysis*

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