



Methodological Evaluation of Municipal Water Systems in Tanzania: A Systematic Review of Randomized Field Trials Influencing Clinical Outcomes

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Abstract

Municipal water systems in Tanzania are crucial for public health, yet their effectiveness varies widely. A systematic review was conducted using PRISMA guidelines. Studies were screened through databases like PubMed and Cochrane Library, focusing on randomized controlled trials (RCTs) published within the review window in Tanzania. Among 45 studies identified, most used intention-to-treat analysis with a mean follow-up period of 6 months. Few studies reported robust standard errors and confidence intervals for their primary outcomes. Methodological inconsistencies hinder the interpretation of clinical outcomes from municipal water systems in Tanzania. Stakeholders should advocate for improved methodological standards to ensure reliable evaluation of interventions. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, African, Metrology, RandomizedControlledTrial, PublicHealth, SystematicReview, WaterQualityAssessment*

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