



Methodological Assessment of Municipal Water Systems in Kenya: A Scoping Review

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Abstract

The assessment of municipal water systems in Kenya is critical for ensuring safe drinking water and sanitation access, especially in urban areas where populations are rapidly increasing. This scoping review will employ a comprehensive literature search strategy combining databases like PubMed and Web of Science with grey literature sources. Methodological rigor will be assessed through thematic analysis based on predefined inclusion criteria. A notable finding is the predominance of randomized field trials (RFTs) in assessing municipal water systems, particularly those implemented by international organizations aiming to improve service delivery. The review underscores the effectiveness of RFTs but highlights a need for standardised methodologies and more longitudinal studies to enhance reliability and validity. Standardization of RFT protocols should be encouraged, alongside the integration of user feedback mechanisms for continuous improvement in municipal water systems. Municipal Water Systems, Scoping Review, Randomized Field Trials, Methodological Rigor, Clinical Outcomes Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: Kenya, municipal water systems, GIS, spatial analysis, stakeholder involvement, data collection methods, qualitative research, quantitative research

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