



Methodological Evaluation of Water Treatment Facilities in Tanzania: A Randomized Field Trial for Risk Reduction Evaluation

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Abstract

Water treatment facilities in Tanzania are critical for public health but vary significantly in quality. A randomized field trial was conducted across ten villages in Tanzania. Water samples were collected from treated sources and analysed for bacterial content using the Student's t-test. In one village, water treatment significantly reduced E. coli levels by 70% compared to untreated sources (mean *reduction* = -68%, *CI*: -95% to -41%). The study confirms that properly implemented water treatment systems can substantially reduce microbial contamination in drinking water. Public health authorities should prioritise the installation and maintenance of effective water treatment facilities in Tanzanian villages. water treatment, Tanzania, randomized trial, risk reduction, public health

Keywords: African, randomized, trial, intervention, sanitation, methodology, efficacy

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