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Development and Field Testing of a New Water Treatment Technology for Smallholder Farmers in South Sudan: Implications for Food Security and Well-being

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Abstract

South Sudan's rural areas face significant challenges in accessing safe drinking water, impacting both food security and well-being. A comprehensive search strategy was employed to identify relevant studies, including grey literature. Studies were screened using predefined inclusion criteria and assessed for quality using the Cochrane Risk of Bias Tool. The review identified several water treatment technologies but highlighted a lack of robust field testing data, particularly in South Sudan's rural context. Despite limited evidence on efficacy, existing studies suggest that improved water treatment can enhance food security and improve well-being among smallholder farmers. Further research should focus on developing and field-testing new water treatment technologies specifically for South Sudan’s climate conditions and socio-economic context. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, smallholder farmers, water treatment technology, rural development, food security, well-being assessment, community engagement*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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