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Impact of Water Filtration Technologies on Drinking Water Quality Among Urban Poor in Accra, Ghana: A Year-long Study

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Abstract

Water filtration technologies are critical for improving drinking water quality in urban poor areas of Accra, Ghana, where access to safe drinking water is often compromised by contaminated sources. A mixed-methods approach combining surveys, focus groups, and microbiological analysis was employed. Data were collected from 200 randomly selected households across Accra's low-income neighborhoods. Microbiological testing revealed that the use of ceramic water filters significantly reduced Escherichia coli levels by an average of 95% compared to unfiltered water samples, indicating their effectiveness in improving drinking water quality. Water filtration technologies play a pivotal role in enhancing the safety and accessibility of drinking water for urban poor residents in Accra. Further research is recommended to evaluate long-term efficacy and cost-effectiveness. Public health initiatives should promote the use of affordable, effective water filters among urban poor communities, alongside ongoing efforts to improve infrastructure and access to clean water sources. Water Filtration, Urban Poor, Drinking Water Quality, Accra, Ghana The empirical specification follows $Y = \vec{\beta_{0+\beta}} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Geography, Africa, Cross-sectional study, Water quality assessment, Filtration systems, Public health, Hygiene education*

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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