



A Qualitative Comparative Analysis of sustainable household water treatment interventions in developing countries

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One of the sub-goals of United Nations Sustainable Development Goal 6 is to achieve universal and equitable access to safe and affordable drinking water for all by 2030. Household water treatment (HWT; such as boiling, chlorination, solar or UV disinfection with lamps, etc.) is one of the technologies that can be used to reach this target. However, there is a big challenge to scale up the widespread implementation of this technology. Even though there are many HWT products on the market, sustainable uptake of this method (compliance) is unsatisfying. Researchers have shown that its compliance rate has often declined over time. Since there are many factors that influence the compliance rate, it is desirable to know the best combination of causal factors (pathway) that give the highest compliance based on the success stories reported in the literature.

The motivation of this research is to find the pathways characteristic of local people that influence the compliance rate of HWT, using QCA (Qualitative Comparative Analysis). The comparative analysis is essentially a meta-analysis of HWT interventions and factors, possibly, behind successful or unsuccessful HWT uptake reported in literature. This thus helps to identify the characteristics of target communities that are willing to adopt HWT intervention, irrespective of the type of HWT. Out of 102 case studies reported in literature, 36 are selected from developing countries where an HWT intervention lasted for at least 12 months were selected and analyzed. Factors such as education level, perception about water quality, local beliefs, sanitation coverage, existing water treatment, type of water source, ability to pay, willingness to pay, existing local supply chain, and accessibility to water treatment were examined.

Preliminary results show that 1) a combination of no prior HWT intervention in the community with a general perception of water quality being poor often leads to uptake of HWT technology, 2) education level can compensate beliefs that stand against HWT uptake, and 3) drawing water from improved source can hinder the adoption of HWT. Such critical messages help us understand the status quo and enable us to implement changes that could increase the chances of HWT uptake and improve livelihoods of people in developing countries.

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