



An Action Research Study on the Adoption and Maintenance of Handwashing Infrastructure in Freetown's Public Schools Following a Nudge-Based Intervention

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Abstract

Inadequate handwashing infrastructure in public schools remains a public health challenge in low-resource settings, facilitating disease transmission. While installing infrastructure is common, the sustained adoption and maintenance of such facilities are poorly understood. This action research study aimed to analyse the adoption and maintenance of handwashing stations in Freetown's public schools following an intervention combining infrastructure with behavioural nudges. The objectives were to identify factors influencing sustained use and to develop context-specific strategies for improvement alongside school communities. A participatory action research approach was employed across multiple cycles in a purposive sample of public schools. The intervention provided basic handwashing stations alongside environmental nudges, such as painted footpaths and signage. Data were collected through focus group discussions with pupils and staff, observational checklists, and field notes from collaborative maintenance planning sessions. Initial high usage declined markedly over time, with observational data showing a drop in functional stations. Key factors influencing maintenance were the burden of water provision, the absence of a clear accountability system for repairs, and the gradual fading of nudges' salience. Collaborative problem-solving with school staff led to the successful trialling of pupil 'water monitor' roles. Installing infrastructure alongside nudges is insufficient for sustained handwashing in schools without embedded maintenance and ownership structures. The action research process facilitated the development of practical, co-created solutions. Future public health interventions combining hardware and behavioural elements must integrate

clear, locally-owned maintenance protocols from the outset. Programmes should allocate resources for recurring costs like soap and minor repairs, and formally involve pupils in upkeep roles. hand hygiene, action research, public schools, nudge theory, maintenance, Sierra Leone, WASH This study contributes a practical, co-produced framework for enhancing the sustainability of water, sanitation and hygiene (WASH) interventions in resource-constrained educational settings, highlighting the critical role of operational maintenance structures.

Keywords: *Action Research, Hand Hygiene, Behavioural Nudges, Public Health Interventions, Sub-Saharan Africa, School Health, Implementation Science*

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