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Impact of a Clean Water Kiosk and Monitoring Intervention on Childhood Diarrhoeal Disease Incidence in a Peri-Urban Moroccan Community

Fatima Zahra Alaoui[1,2], **Karim Benjelloun**[2], **Youssef Chraibi**[2], **Amina El Idrissi**[2,3]

[1] Hassan II University of Casablanca

[2] Sidi Mohamed Ben Abdellah University, Fez

[3] Mohammed V University of Rabat

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Correspondence: falaoui@aol.com

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Author notes

Fatima Zahra Alaoui is affiliated with Hassan II University of Casablanca and focuses on Medicine research in Africa.
Karim Benjelloun is affiliated with Sidi Mohamed Ben Abdellah University, Fez and focuses on Medicine research in Africa.
Youssef Chraibi is affiliated with Sidi Mohamed Ben Abdellah University, Fez and focuses on Medicine research in Africa.
Amina El Idrissi is affiliated with Mohammed V University of Rabat and focuses on Medicine research in Africa.

Abstract

Diarrhoeal diseases are a leading cause of childhood morbidity in low-resource settings, frequently associated with contaminated water. Peri-urban communities in Morocco often experience challenges in securing safe and reliable water supplies, elevating health risks for young children. This study evaluated the impact of an integrated intervention—a community clean water kiosk with regular water quality monitoring—on the incidence of diarrhoeal disease among children under five years in a peri-urban Moroccan community. A quasi-experimental, longitudinal design was used. Households with at least one child under five were recruited from an intervention area (n=150) and a comparable control area (n=150). Baseline data on diarrhoea incidence and water sources were collected. The intervention area received a central water kiosk providing treated water, supported by weekly microbial water quality testing. Diarrhoea episodes were monitored fortnightly via caregiver reports for several months. Data were analysed using generalised linear mixed models. The intervention was associated with a significant reduction in diarrhoea incidence. Children in the intervention area experienced 42% fewer episodes of diarrhoea per child-month compared to the control area (Incidence Rate Ratio 0.58, 95% CI 0.49–0.69). Adherence to using kiosk water as a primary source was high, reported by 89% of intervention households at follow-up. The installation of a clean water kiosk, supported by routine water quality monitoring, substantially reduced the burden of childhood diarrhoeal disease in this peri-urban setting. This highlights the value of accessible, verified safe water points for child health. Public health strategies in similar peri-urban contexts should consider scaling up proven, point-of-source water interventions with embedded quality assurance. Further research should investigate long-term sustainability and cost-effectiveness. diarrhoea, child health, water quality, water kiosk, peri-urban, Morocco, intervention study. This study provides empirical evidence on the effectiveness of a

combined hardware and monitoring intervention for reducing childhood diarrhoea in a peri-urban African setting, informing public health policy and practice.

Keywords: *diarrhoeal diseases, water quality, intervention study, peri-urban, North Africa, child health, public health*

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