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Assessing the Impact of Borehole Rehabilitation and Community Management on Diarrhoeal Disease Burden in Cameroon's Far North Region

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Abstract

Diarrhoeal diseases are a leading cause of morbidity, especially among children under five, in the Far North Region of Cameroon. Limited access to safe water is exacerbated by a high rate of non-functional boreholes. While community-based management is a common sustainability strategy, its specific effect on health outcomes requires more empirical evidence. This study evaluated the impact of rehabilitating boreholes and establishing community water management committees on the prevalence of diarrhoeal diseases in rural communities. A quasi-experimental, longitudinal design was used. Household surveys were conducted in intervention villages (with rehabilitated boreholes and trained committees) and matched control villages. Data on diarrhoea prevalence in children under five and water source usage were collected at baseline and two follow-up points. Borehole water quality was tested. Households using rehabilitated, committee-managed boreholes showed a significant reduction in reported childhood diarrhoea. The adjusted odds ratio for diarrhoea in intervention households was 0.45 (95% CI 0.32–0.64) compared to controls at final follow-up. Water quality from managed boreholes consistently met safety standards. Borehole rehabilitation supported by formalised community management committees effectively reduces the diarrhoeal disease burden in this arid region. Sustaining a functional water source is crucial for health gains. Water, sanitation, and hygiene programmes in similar contexts should integrate hardware rehabilitation with robust community management frameworks. Committees require ongoing technical and administrative support for long-term functionality and health impact. Water, sanitation, and hygiene (WASH), diarrhoeal diseases, borehole rehabilitation, community management, Cameroon, water quality. This study provides empirical evidence on the health impact of linking borehole rehabilitation with structured community management, informing WASH strategy in arid, resource-limited settings.

Keywords: *diarrhoeal diseases, water supply, community management, borehole rehabilitation, Sahel, Cameroon, child health*

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