



Salinity and Hypertension in the Sine-Saloum Delta: A Policy Analysis of Drinking Water and Public Health in Coastal Senegal

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Abstract

Coastal communities in the Sine-Saloum delta of Senegal face saltwater intrusion into freshwater aquifers, compromising drinking water sources. This environmental issue is hypothesised to contribute to the region's high hypertension prevalence, representing a public health concern. This policy analysis examines the association between drinking water salinity and hypertension in the Sine-Saloum delta. It evaluates existing national and regional policies on water quality and non-communicable diseases to identify gaps and opportunities for integrated public health intervention. A mixed-methods approach was employed. This included a systematic review of epidemiological literature on salinity and hypertension, complemented by a desk-based policy review of Senegal's water, sanitation, and health sector strategies and relevant programme documentation. The review found a consistent positive association between high drinking water sodium levels and increased hypertension prevalence. A key policy gap identified was the siloed nature of responses; water resource policies lacked explicit public health objectives, while health strategies did not adequately address environmental determinants like water salinity. Drinking water salinity is a significant, yet under-addressed, environmental risk factor for hypertension in coastal Senegal. Current policy frameworks are insufficiently integrated to mitigate this public health threat effectively. Integrate public health metrics into water quality monitoring programmes in coastal zones. Develop an intersectoral action plan between the ministries of health, water, and environment. Pilot community-based interventions for rainwater harvesting and dietary education to reduce sodium intake. hypertension, water salinity, policy analysis, Senegal, Sine-Saloum, environmental health, non-communicable diseases This analysis provides a policy-focused perspective on the environmental determinants of hypertension in West Africa, highlighting critical intersectoral gaps and the need for integrated approaches to safeguard public health in vulnerable coastal communities.

Keywords: *saltwater intrusion, hypertension prevalence, environmental health policy, West Africa, drinking water quality, policy analysis, public health*

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