Optimising Wellness Centre Placement for Non-Communicable Disease Management: A Spatial Suitability Analysis of Health Facilities Location in GAMA

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Abstract

The Greater Accra Metropolitan Area (GAMA) has seen considerable urbanization in recent years, which has led to an increase in the incidence of non-communicable diseases (NCDs), including hypertension and diabetes. This research aims to perform a complete spatial suitability analysis for the location of wellness centers to maximize access to healthcare and reduce the burden of non-communicable diseases (NCDs). Geographic Information Systems (GIS) are used in this study. The research included the use of geospatial techniques such as Euclidean Distance, Kernel Density Analysis, and Fuzzy Overlay to investigate essential aspects such as road networks, land use, and population density, as well as the proximity of newly established wellness centers to pre-existing health facilities.

The findings highlighted significant geographical disparities regarding the incidence of non-communicable diseases, with a more significant frequency reported in metropolitan regions with a dense population. Through the strategic location of wellness facilities, accessibility and equality in healthcare delivery were addressed simultaneously. This research demonstrates how significant GIS is regarding health planning based on data. It recommends making targeted investments in technologies based on geographic information systems (GIS) to assist policymakers and health planners in improving health infrastructure and service delivery, which resulted in improved health outcomes in GAMA.