Abstract

Equitable and easy access to health care facilities is often considered one of the main objectives of many health care systems. Inequality in the spatial distribution of health facilities as well as lack of proper health care infrastructure planning standards has led to disparity in spatial accessibility to healthcare by communities in Atwima Mponua district.

In this study, location data (coordinates) for all the 180 communities together with the coordinates of the existing health facilities in the study area were collected using a Geographic Information System device (GPS). The road network and other “river bodies” geographical data were traced and copied from Open Street Map online. Using an 8km radius, the data were then analyzed using ArcGIS network analysis model as per the research objectives. Output from the ArcGIS analyzed data were then described and quantified with the help of stata and population data collected.

The study revealed that 61 out of the 180 communities had no health care facility available...
within 8km radius. A large proportion of the residents have to travel a long way to access health care facilities given the criteria that health facility should be accessible to population within 8km distance from the facility. On the average, patient in the district travel a minimum of 6.62km and a maximum of 21.20km with a standard deviation of 4.33km to access health care. More so, the study showed that 26.39% of the district population were residing beyond the 8km service area criteria.

In reality, absolute equal spatial accessibility is not always achievable but it is possible to plan and build an optimized health system. This study has been able to optimize accessibility to healthcare services in the study area based on the WHO standard of 8km distance (to healthcare site by people) with the application of GIS technology. This can therefore help to improve equity as well as spatial accessibility to healthcare by the people of Atwima Mponua.

References


https://dspace.mit.edu/bitstream/handle/1721.1/74869/32597665-MIT.pdf?...2


**Index Terms**

Computer Science  
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**Keywords**
ArcGIS, Geographic Information System device, GPS, Open Street Map online, spatial accessibility