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Spatial Pattern of Human Water Contact Activities and *Schistosoma haematobium* in Owalla/Erinle Reservoir, South-West Nigeria

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Abstract

Schistosomiasis is one of the major parasitic diseases in the world in terms of people infected and those at risk. It is acquired by swimming or wading in freshwater bodies harbouring the snail intermediate host of *Schistosoma* spp. Research has shown that the disease is endemic in Osun State and remains unabated. Schistosomiasis infection, land-use/landcover (LU/LC) change detection pattern of the five communities and human water contact activities (HWCA) were thus essentially linked, and more knowledge about their relationship will help us to develop appropriate control measures. So far, only few studies have employed the use of geographic information systems and remote sensing (GIS and RS) in mapping and prediction of diseases in Nigeria. This study pioneers such and will serve as a reliable baseline data for intervention planning in the state. A detailed observation of HWCA in the study communities was carried out in six sites once every month from 0700 hr. to 1900 hr. for 24 months. A global positioning system (GPS) was used to locate the HWCA sites. Information was collected on age, gender, activities performed, time spent and parts of the body exposed to water. The frequency, duration and relative index of the HWCA in the study communities varied according to individual community. The study assessed the relationship between HWCA and LU/LC change detection to further explain the contribution of exposure to the transmission of schistosomiasis. A total of 2372 exposures involving four HWCA fetching, fishing, swimming, and washing utensils, for a total of 85,898 minutes. Mean duration of contacts ranged from about 2 minutes of fetching to 35 minutes of fishing. Frequency and duration of HWCA were age and sex dependent, a peak between 10–14 years (36.3% of 2372). The average number of water contacts per person per day in this population was 2 minutes of fetching and 42 minutes of washing utensils. The observed patterns of HWCA in this study resulted from poor socio-economic status and proximity to such contaminated water bodies from the reservoir. There was a link between LU/LC and HWCA in the study communities.

Keywords: Geographic information system, HWCA, remote sensing