

Abstract

BACKGROUND:

Although schistosomiasis is generally considered a rural phenomenon, infections have been reported within urban settings. Based on observations of high prevalence of *Schistosoma mansoni* infection in schools within the informal settlements of Kisumu City, a follow-up malacological survey incorporating 81 sites within 6 informal settlements of the City was conducted to determine the presence of intermediate host snails and ascertain whether active transmission was occurring within these areas.

METHODS:

Surveyed sites were mapped using a geographical information system. Cercaria shedding was determined from snails and species of snails identified based on shell morphology. Vegetation cover and presence of algal mass at the sites was recorded, and the physico-chemical characteristics of the water including pH and temperature were determined using a pH meter with a glass electrode and a temperature probe.

RESULTS:

Out of 1,059 snails collected, 407 (38.4%) were putatively identified as *Biomphalaria sudanica*, 425 (40.1%) as *Biomphalaria pfeifferi* and 227 (21.5%) as *Bulinus globosus*. The spatial distribution of snails was clustered, with few sites accounting for most of the snails. The highest snail abundance was recorded in Nyamasaria (543 snails) followed by Nyalenda B (313 snails). As expected, the mean snail abundance was higher along the lakeshore (18 ± 12 snails) compared to inland sites (dams, rivers and springs) (11 ± 32 snails) ($F(1, 79) = 38.8, P < 0.0001$). Overall, 19 (1.8%) of the snails collected shed schistosome cercariae. Interestingly, the proportion of infected *Biomphalaria* snails was higher in the inland (2.7%) compared to the lakeshore sites (0.3%) ($P = 0.0109$). *B. sudanica* was more abundant in sites along the lakeshore whereas *B. pfeifferi* and *B. globosus* were more abundant in the inland sites. *Biomphalaria* and *Bulinus* snails were found at 16 and 11 out of the 56 inland sites, respectively.

CONCLUSIONS:

The high abundance of *Biomphalaria* and *Bulinus* spp. as well as observation of field-caught snails shedding cercariae confirmed that besides Lake Victoria, the local risk for schistosomiasis transmission exists within the informal settlements of Kisumu City. Prospective control interventions in these areas need to incorporate focal snail control to complement chemotherapy in reducing transmission.