

ABSTRACT

In Kenya, surface water bodies are the final destination for most pollutants. Western and Nyanza Regions in close proximity to Lake Victoria are characterized by inadequate sanitation services, chronic water shortages and poor water quality where only 8% have access to safe water. Unsanitary conditions are associated with scarcity of clean and potable water consequently leading to diarrheal diseases that plague residents. The microbiological quality of drinking water and risk factors associated with diarrheal cases in households living along Lake Victoria basin is uncertain. The broad objective of this study was to assess sanitation and water quality factors associated with diarrhea occurrence Homabay and Kisumu County beaches, Kenya. Specifically, the study established sanitation practices by households living along Lake Victoria; determined microbiological quality of drinking water consumed by households; identified household water treatment methods and established the risk factors associated with occurrence of diarrhea in these households. A descriptive cross sectional study design was adopted. Microbiological water quality was determined using standard microbiological water quality assessment methods whereas data on sanitation practices and household water treatment methods were collected using semi-structured questionnaire developed from WHO/UNICEF household water quality survey guidelines. The target population was 1600 households where 422 households were randomly sampled guided by proportionate sample size dependent on the household population of the beaches along Lake Victoria. Proportions of diarrheal cases were determined by use of Chi-square test and multivariate logistic regression was used to determine the risk factors associated with microbiological quality of water and the occurrence of diarrhea. A majority, 327 (77.49%) were female, 152 (36.02%) were aged between 25-34 years, 382 (90.52%) were married, 292 (69.19%) had primary education level and 120 (28.5%) were traders. Sanitation practices in relation to occurrence of diarrhea were significant with covering of drinking water containers and access to safe drinking water indicating highest significance at 63.64% (OR=3.04, 95% CI [1.45-6.37], $p=0.0025$) and 46.92% (OR=1.65, 95% CI [1.08-2.51], $p=0.0202$) respectively. Households with latrines, dish racks, and hand washing equipment reported diarrhea incidences at 45.34%, 42.97% and 42.69% respectively. Water treatment was significant in explaining occurrence of diarrhea, (OR=0.47, 95% CI [0.30-0.73], $p<0.0001$). A significant higher percentage of diarrhea incidences reported among children <5 years at 36%. Higher levels of education and professionals reported significantly lower incidences of diarrhea at (OR=0.18, 95% CI [0.02-1.47], $p<0.0001$). The study identified safe disposal of human excreta, hand washing and treatment of drinking water as key sanitary practices and recommends they be embraced in order to reduce the occurrence of diarrhea. Quality of water improved at the household level subject to treatment. The study has added knowledge to be used by stakeholders in interventional measures to improve Water, Sanitation and Hygiene in beach communities and positively contribute to achieving Sustainable Development Goal number 6.