ABSTRACT

Water is a commodity which is essential for life as it has long been singled out globally as the most important factor in sustaining human health. Among other factors linked to human health; water has been implicated in the transmission of waterborne infectious diseases such as typhoid, bacillary dysentery and cholera in Kenya. Potable water scarcity in Maseno Township is common; moreover ready-to-eat food outlet operators rely on water vendors whose water sources are hardly known by the operators. Although waterborne disease cases such as cholera and typhoid have been reported in Maseno Township, the bacteriological quality of water used in ready-to-eat food outlets at Maseno Township remains unknown. The observation could be due to the ever increasing population which strains the little water resources available leading to increased chances of microbiological contamination due to poor hygiene and scarce sanitation facilities. The general objective of the study was to evaluate the bacteriological quality of water used in the ready-to-eat food outlets within Maseno Township. The specific objectives were; to establish the knowledge of food outlet operators about the source of water, modes of water treatment practices and determine the bacteriological quality of potable water in Maseno Township. A cross sectional study design was used. The sampling units were ready-to-eat food outlets and there were a total of 35 where 33 were randomly selected for the study. Three sets of water samples; hand-washing, ready-to-drink and stored water at each outlet was collected on three different occasions at an interval of one week. A questionnaire was used to get information on water sources and treatment practices from the operators while laboratory experiments such as bacteriological culture techniques were used to analyze water samples for microbial contamination. Quantitative data was analyzed using content analysis where 21 (70%) of the ready-to-eat food outlet operators knew sources of water. There was a significant statistical variation of the water sources as was mentioned by the operators (χ^2=15.435, p = 0.031). Ready-to-drink and hand washing water treatment had no statistical significant difference (χ^2=2.057, p = 0.561). The data of average faecal thermotolerant coliforms (*E. coli*) $\log_{10}$ transformed colony forming units/100 ml against the various sources of water was analyzed using MANOVA and a significant high variation of *E. coli* coliform count in the various sources of water reported (p=0.024). This result indicates that the water at some of the ready-to-eat Food Outlets in Maseno Township is not potable. In conclusion, the study showed that the operators who knew the sources of their water were more than those who did not know. Secondly, water treatment practices at the outlets were boiling and chemical treatment with some operators opting not to treat their water at all. Finally, there was contamination with both faecal thermotolerant coliforms (*E. coli*) and other thermotolerant coliforms. The outcome of the study can be used by public health officials and the food outlet operators to understand the bacteriological quality of water used and also know the risk level in relation to waterborne diseases especially having isolated serovariant *Salmonella* Typhimurium (i-H) which is found in warm blooded animals and is responsible for gastroenteritis in human. This can in turn help the Maseno community device better techniques and policies of improving and monitoring microbial quality of water they use.