

## ABSTRACT

### Background:

Accessibility to potable water is a fundamental right for dignity and well-being. Despite this observation, more than 1.1 billion people lack access to safe drinking water. This is particularly true in the Sub-Saharan Africa and South East Asia regions.

### Objective:

The main aim of this study was to assess microbial quality of drinking water and prevalence of water-related diseases in Marigat town, Baringo County, Kenya.

### Methods:

Samples of drinking water were collected from water sources (boreholes, rivers, and wells) and at the point of use (households) and analyzed for *Escherichia coli* and total coliform (TC) bacteria using the most probable number method. In situ measurements of pH and temperature were performed using a Wagtech International portable meter. Clinical health records from the local health centers were also reviewed to assess the prevalence rates of some of the water-related diseases.

### Results:

There were significant differences among water sources during dry season for *E coli* ( $F_{2,21} = 3.629, P < .05$ ) and TC ( $F_{2,21} = 4.041, P < .05$ ). Similar observations were made during wet season for *E coli* ( $F_{2,21} = 4.090, P < .05$ ) and TC ( $F_{2,21} = 1.893, P < .05$ ). Furthermore, there were significant interactions between the water sources and season for *E coli* ( $F_{2,42} = 7.66, P < .01$ ) and TC ( $F_{2,42} = 5.494, P < .05$ ). Drinking water in large plastic storage containers (herein referred to as sky-plast) had the highest *E coli* and TC concentrations. Typhoid was the most prevalent water-related disease during the dry season (10%), whereas diarrhea (3%) was the most prevalent during the wet season.

### Conclusions and recommendations:

All drinking water at abstraction and point of use for Marigat residents are microbiologically contaminated and therefore pose serious health risks to consumers of such water. Thus, there is need for public health awareness campaigns on household water management to curb incidences of water-related diseases. Public health practitioners at county and national levels need to ensure that households have adequate access to potable water and improved sanitation.