

Knowledge, Attitude and Practice of Users towards Water Usage in IUIU Main Campus, Mbale

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Abstract

Water has a profound influence on human health since water is required for consumption on a daily basis for survival and therefore access to it is essential to life. However, water has much broader influences on health and well-being. Therefore, the quantity and quality of the water supplied is important in the health of individuals and whole communities. This study aims to determine the knowledge, attitudes, and practices (KAP) on water usage in the IUIU community. A pretested interview guide was administered to 250 residents in the study area that were selected to elicit information on their KAP on water handling and waterborne diseases. The result showed that most of the respondents had limited knowledge regarding water storage practices for prevention of water contamination. This implied that the major cause of the disease was from the poor handling and storage practices. This could increase the prevalence of waterborne diseases. There is a need to fill the knowledge gap about proper water handling practices and hygiene at the campus.

Keywords: Waterborne, diseases, water usage, bacteria, Uganda.

Introduction

Water is required for consumption on a daily basis for survival, and therefore access to it is essential to life. In most developing countries, provision of safe drinking water is of countless concern (Pritchard *et al.*, 2008). However, according to Fonyuy and Innocent (2014), about 1.1 billion people do not have access to safe drinking water sources, while 2.4 billion are lacking access to improve sanitation facilities. Moreover, diarrheal-related diseases have induced the death of over 2 million people (the majority of whom are children aged less than five years).

On a daily basis, about 20 litres of freshwater is required to meet the rudimentary subsistence needs (cooking and drinking) of an individual, and supplementary 50 to 150 litres for laundry, bathing, washing, and irrigation among others (Amiri *et al.*, 2013). Increase in global population and the effects of climate change may lead to an increase in demand for freshwater. Oki and Kanae (2006), reported that irregular distribution freshwater resources in time and space have led to the dwelling of over 2 billion people in exceedingly water-stressed areas. Similarly,

effluence from agricultural, industrial, and urban sources brings about health risk or usability of obtainable resources. As such, about 5 million deaths recorded in developing countries were attributed to water-related diseases. However, these deaths may be prevented by providing sufficient clean and safe water.

In Uganda, due to uncertainty in the supply of piped water from National Water Sewage Cooperation, students are imposed to collect and store water before the need arise. However, storing water can provide some opportunities for microbiological contamination. Transmission of microorganisms among the students can occur through several routes. The most important transmission routes include water, food, and person-to-person contact, unhygienic behavior, storage conditions at the point of use and decantation conditions of water from the storage container (Roberts *et al.*, 2001; Potgieter, 2007). In hostels, water storage containers are often not cleaned and exposed to contamination due to the unhygienic handling of the water storage.

Water boiling is widely used since it is easy and is highly effective at removing pathogens. A study carried out in rural Guatemala by Rosa *et al.* (2010) indicated that the microbiological quality of drinking water could be significantly improved by boiling. However, due to the rising cost of power at the campus students are not allowed to boil water. Even if done, the water is often transferred to storage containers for cooling and maybe re-contaminated (Sobsey, 2002).

Numerous studies have definitively shown that sanitation and hygiene behaviours are equally important in disease prevention (Esrey *et al.*, 1991; Macy and Lochery, 1997). Improvements in the quality of water and the delivery of general hygiene education are all important factors in achieving reductions of the disease rate (Bartram and Cairncross, 2010). Improving sanitation in the campus should include hand washing stations with soap and adequate water for hand washing after using the toilets.

Also, basic hygiene practices, particularly hand washing was shown to be an effective intervention in the reduction of waterborne diseases in developing countries. Several studies have indicated that *E. coli*, *Klebsiella* spp., and *Shigella sonnei* can survive for 10 minutes, 2.5, and up to 3 hours respectively on unwashed hands; thus can contaminate water and food (Potgieter, 2007). Furthermore, Hoque (2003) showed that soap, ash, and soil are equally effective hand washing reagents. However, washed hands should not be dried with dirty clothes since recontamination of hands may occur.

Improvements in the quality and availability of water, the disposal of excreta, and the delivery of general hygiene education are all important factors in achieving reductions in diarrhea-related morbidity and mortality rates (WHO, 1999). Proper education should be provided to people to promote the correct hygiene practices and to be informed on the transmission risk and the causes of waterborne diseases (Banda *et al.*, 2006). Information about water quality and available methods of improving it and hygiene behaviour provided through health education classes, awareness campaigns or hygiene promotion programs has been shown to be an effective instrument (Cairncross *et al.*, 2006; O'Reilly *et al.*, 2007). Thus, the objectives of this study were to assess the attitude and knowledge of different users towards water safety in Islamic University in Uganda (IUIU) main campus, Mbale.

Materials and Methods

Random sampling was used in collecting socioeconomic data pertaining knowledge and attitudes of different users towards water safety and hygiene practices at IUIU. This study made use of a self-administered interview guide where respondents were interviewed in their hostels after consenting. The interview was administered to two students in each room. Information collected includes basic demographic details, treatment methods for drinking water, storage practices, hand washing practices and knowledge regarding the causes of diarrhoea and other water-related ailments.

Statistical Analysis

Statistical analysis was performed using statistical package SPSS version 16.0. The socioeconomic data was analyzed using of frequencies and percentages.

Table 1. Knowledge of respondents on waterborne diseases

Questions	Frequency (n=130)	Percent (%)
Do you know what waterborne diseases are		
Yes	103	79.2
No	25	19.2
Missing System	2	1.5
Have you suffered from any of these diseases		
Yes	63	48.7
No	66	50.5
Missing System	1	.8
What do you think are the curses of these diseases		
contaminated water	72	55.8
Eating stale food	7	4.9
Eating with dirty hands	9	6.9
Dirty surroundings	10	7.8
All	26	20
Missing System	6	4.6
How do you know if you are suffering from these diseases		
Headache	7	5.4
Body weakness	13	10.0
Running stomach	21	16.2

Questions	Frequency (n=130)	Percent (%)
Do you know what waterborne diseases are		
Yes	103	79.2
No	25	19.2
Loss of appetite	6	4.6
Fever	13	10.0
All	43	33.1
Missing System	27	20.8

Among all the respondents participated in the current study, 48.9% reported to have suffered from water-related infections and the major signs and symptoms perceived by the respondents who suffered from the diseases include; a headache, body weakness, running stomach as well as loss of appetite and fever. These signs and symptoms are similar to the manifestation of water-borne diseases highlighted by WHO (2006), which are mainly gastrointestinal upset (nausea, vomiting, and diarrhea) and usually of short duration. However, in susceptible individuals such as infants, elderly, and the immune-compromised individuals, the effect may be more severe and cause harmful effects, e.g., kidney damage (Cairncoss and Feachem, 1993).

Table 2. Description of water treatment in IUIU

Questions	Frequency (n=130)	Percent (%)
Do you boil your drinking water		
Yes	98	75.9
No	29	21.7
-		
Missing System	3	2.3
How often is your storage container cleaned		
Daily	65	50.0
Weekly	50	38.5
Monthly	7	5.4
Yearly or not at all	2	1.5
Missing System	6	4.6
What do you use to clean your storage container		
Soap and water	102	77.9
Only water	19	14.9
Others	3	2.6
Missing System	6	4.6

Inadequate or no treatment of drinking water remains a problem on the campus. 79.5% treat water by boiling before consumption while 21% of the respondents do not use any treatment before consumption. This indicates that there is high knowledge of the treatment of water by the respondents. Although boiled, water may still not be safe for consumption according to Ugandan recommended guidelines. Several studies have reported that bacteria could be accidentally be introduced to the water during the storage process (Sobsey, 2002; Skipton *et al.*, 2004). Thus, treatment with chemical disinfectant is highly recommended.

With regards to hand washing practices, 85.5% of the respondents washed hands before they prepared food. Almost all the respondents 92.7% indicated that they washed hands before eating, 97.3% of the respondents washed hands after using a toilet, while only 74.5% of the respondents wash their hands after waking up in the morning.

Table 3. Sanitation and hygiene-related information

Questions	Frequency (n=130)	Percent (%)
Do you wash your hand before preparing food		
Yes	83	63.8
No	14	10.8
Missing System	33	25.4
Do you wash your hand before eating food		
Yes	102	78.5
No	8	6.2
Missing System	20	15.4
Do you wash your hand after waking up in the morning		
Yes	70	53.8
No	24	18.5
Missing System	36	27.7
Do you wash your hand after using the toilet		
Yes	107	82.3
No	3	2.3
Missing System	20	15.4

These findings are contrary to that of Monique (2012) in the rural community in Rwanda, who reported that only 20% of the respondents wash their hands before preparing food. This could be attributed to the fact that the respondents in the current study are more knowledgeable compared those used in Monique (2012).

Also, basic hygiene practices, especially hand washing was shown to be an effective intervention in the reduction of waterborne diseases in developing countries. Human fecal contamination from children and adults who do not wash their hands after using the toilet can contribute to secondary contamination of household stored drinking water (Potgieter, 2007).

Conclusion and Recommendations

The main concern of this community was lack of knowledge with regards to water handling practices and their importance in waterborne diseases prevention. The majority of students used a mug method of drawing water from the storage containers. Implications are that these practices may contribute to the fecal contamination. However, awareness of diseases related to use contaminated water among the respondents was high, but there is limited knowledge on the safe storage of water. Based on the information and experiences gathered during field visits, the study recommended that there is a need to educate the public on efficient water use practices and the intensification of educational awareness as to how to handle and treat water for domestic use.

Acknowledgment

The authors thank the IUIU for providing the facilities used for the study. No financial support was obtained.

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