KNOWLEDGE, ATTITUDES AND PRACTICES ABOUT SAFE WATER USE AMONG COMMUNITY MEMBERS IN LOWER NAMUWONGO PARISH, MAKINDYE DIVISION

BIRUNGI PATIENCE

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AN UNDERGRADUATE RESEARCH REPORT SUBMITTED TO THE SCHOOL OF NURSING IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR'S DEGREE IN NURSING OF INTERNATIONAL HEALTH SCIENCES UNIVERSITY

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DECLARATION

I declare that the work contained in this dissertation is mine and has never been presented before any academic institution for any award. Any other author's contributions have been duly acknowledged. All omissions are entirely mine.

BIRUNGI PATIENCE

Signature ……..……

Date……

APPROVAL

This research report titled, “Knowledge, attitudes and practices about safe water use among community members in Lower Namuwongo Parish, Makindye Division”, has been under my supervision as the college supervisor. It is now ready for submission for examination.

MS. SITUUMA ELIZABETH

Signature ..……

Date ……

DEDICATIONS

I dedicate this work to my parents Mr. and Mrs. Goora Fredrick, My sisters Irene, Winnie, Catherine and my brothers Andrew and Brian.

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I thank my sponsor Mr Mohamood Thoban for the financial and material support in my life and throughout all my studies.

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DEFINITION OF KEY TERMS

Attitude	-	This was the perception of respondents about safe water use. It can bepositive or negative.
Boiling	-	Rapid vapourisation of a liquid which occurs when a liquid is heated to its boiling point
Contamination	-	Is the unwanted pollution of something by another substance.
Distillation	-	Process of separating the component substances from a liquid mixture by selective evaporation and condensation.
Filtration	-	The mechanical separation of a liquid from the undisclosed particles floating in it.
Infection	-	The invasion and multiplication of micro-organisms such as bacteria, viruses, and parasites in any organism's body tissues.
Knowledge	-	This was the level of understanding respondents had on safe water use.
Practice	-	This meant the different ways how respondents used water.
Purification	-	Is a process of rendering something pure that is clean of foreign elements and or pollution.

Safe Water	-	refers to potable water that is free from harmful micro organisms and substances even if it may have colour, odour or taste problem due to dissolved minerals.
Water borne diseases-		Are any illnesses caused by pathogenic micro-organisms that mostly are transmitted in contaminated fresh water.
Water stress	-	Refers to economic, social, or environmental problems caused by unmet water needs.

LIST OF ABBREVIATIONS

LDCs	-	Least Developed Countries
MDG	-	Millennium Development Goal
MOH	-	Ministry of Health
UBOS	-	Uganda Bureau of Statistic
UDHS	-	Uganda Demographic and House Survey
UN	-	United Nation
UNDP	-	United Nations Development Programme
UNFPA	-	United Nations Population Fund
UNICEF	-	United Nations International Children Emergency Fund
USA	-	United States of America
WHO	-	World Health Organization

ABSTRACT

Though 89% of the world's population had access to drinking water facilities, about 768 million people relied on unimproved drinking water-sources; 83% of them resided in rural areas by the end of 2013 (World Health Organization/ United Nations, 2013). Safe water use is use of water free from water borne diseases. The study assessed the level of knowledge, attitude and practices of community members of Go down Zone of lower Namuwongo Parish on safe water use. A sample size of 257 respondents with a response rate of 250(97%) respondents answered the research questions through interviews. These were selected by simple random sampling through a descriptive research design.

Respondents had low knowledge about safe water use; because 210(84%) could not correctly define it. It could be due to the fact that 145(58%) had never had any formal education about safe water use, did not know; 158(63%) safe water sources, 140(56%) the ideal distance between a latrine and a natural water source (between 10 and 20 meters, 90(53%) the major effect of using unsafe water, 185(74%) the water borne diseases, 130(52%) the importance of fetching water in covered containers and 203(81%) that all clear water was unsafe for consumption.

Respondents had negative attitude where, they believed that; 205(82%) that all clear water was safe for consumption, 210(84%) could consume unprocessed water, 233(93%) chemicals were not safe to treat water, 173(69%) filtered water was safe for drinking, 162(65%) could share water sources with animals. However, they recommended 240(96%) boiling as the best way to process water, 200(80%) it was good to cover water for consumption and 183(73%) acknowledge the importance of having an educational program on water use. It was observed that, most of the water containers were unclean, close to latrines, never protected water sources, did not usually cover drinking water, but never shared water sources with animals. About purification, majority of the respondents never left water to settle to use it, never used chemicals, but boiled, filtered and refrigerated water for consumption. All in all, there was poor knowledge, negative attitude and poor practices of community members towards safe water use. The researcher therefore recommends that; government and local administrators should promote education and sensitization programs on safe water use , avail safe water sources such as taps at friendly costs, community members should; fetch water from safe sources, protect water sources, maintain good hygiene of water containers and purify all water before use.

CHAPTER ONE

1.0 Introduction

This chapter includes the background of the study, problem statement, and purpose of the study, specific objectives, research questions, and significance of the study.

1.1 Background to the study

Providing safe water use is a major contributor to improved health. This knowledge, attitudes and practice study/survey aims at enlisting what is known, believed and done in relation to safe water use in Lower Namuwongo Parish, Makindye Division Kampala. Though 89% of the world's population has access to drinking water facilities, about 768 million people rely on unimproved drinking water-sources; 83% of them residing in rural areas (World Health Organization/ United Nations, 2013).

This study is important because in a global study conducted by the United Nations, unsafe water is responsible for around 80% of diseases and 30% of deaths in developing countries throughout the world. In Africa, which accounts for 90% of global cases of malaria, water stress plays an indirect role in curing malaria because it impedes the human recovery process.

When slum dwelling populations such as Namuwongo have limited access to safe water use and present repeated incidences of waterborne diseases. This is a great public health threat which strains health budgets, calls for immediate deployment of health cadres to curb such waterborne diseases (WHO/UNICEF, 2013), and puts stress on the fewer available health facilities through congestion. Providing for safe water use would act as preventive strategy that will lessen public health expenditure (MOH, 2012).

The World Health Organization and other major global public health organizations define safe water access as reasonable access through an improved or an unimproved source (WHO, 2015). An improved source of safe water consists of one of the following: a piped household connection, public standpipe, borehole, protected dug well or spring, and/or rainwater collection. An unimproved source is considered any of the following: vendors, tanker trucks, surface water, bottled water (due to the inability to confirm source and quality), and unprotected dug wells and/or springs. Reasonable access to an improved source is defined as the availability of at least

20 liters a person a day from a source within one kilometer (6 miles) of the dwelling (Global Water, Sanitation and Hygiene, 2012).

Globally, an estimated 1.7 million people die annually of waterborne diseases. Water misuse is responsible for 90% of diarrhea-related mortality more than combined mortality from malaria and HIV/AIDS (UN Water. 2015). Although piped water facility in the rural regions almost doubled in past two decades, 171 million people in rural regions use surface water as the primary source of water (WHO, UNICEF, 2013).Over 783 million people do not have access to clean and safe water worldwide, 37% of those people live in Sub-Saharan Africa, 443 million school days are lost each year due to water-related diseases and 84% of the people who don't have access to improved water, live in rural areas, where they live principally through subsistence agriculture (WHO, 2015).

Coverage of safe water in Eastern Asia increased by 27% points and exceeded the MDG target, with over half a billion people gaining access in China alone. Access in Southern Asia and South-eastern Asia rose by 20% and 19% respectively, and these regions met the target. In Africa about 85% of the water is used in agriculture. Only 10% is used in households and only 5% in the industry. Because of the growing population there will be absolutely used more and more water in agriculture.

In sub-Saharan Africa, 427 million people gained access during the MDG period – an average of 47000 people per day for 25 years, In 2015 only 3 countries – Angola, Equatorial Guinea and Papua New Guinea – have coverage of less than 50%, compared to 23 countries in 1990.Sub-Saharan Africa did not meet the MDG target but still achieved a 20% point increase in the use of improved sources of drinking water. There are rural and urban disparities, 96% of the global urban population uses improved drinking water sources, compared with 84% of the rural population, 80% still do not have improved drinking water sources live in rural areas.

The populations without access are mainly in sub-Saharan Africa and Asia; Sub Saharan Africa – 319 million, Southern Asia – 134 million, Eastern Asia – 65 million, South Eastern Asia – 61 million and All other regions – 84 million. 842000 deaths from diarrhoeal diseases each year could be prevented by improved water, sanitation and hygiene

Globally, an estimate of more than 340,000 children under five die annually from diarrheal diseases due to unsafe drinking water – that is almost 1000 per day.

In Africa, 42% of health facilities do not have access to an improved water source within 500 metres. The Joint Monitoring Programme's(2012) report, notes that, in a Kenya a population of 46.7 million, 17.3 million lack access to safe water. Access to safe water supplies throughout Kenya is 59%, in Tanzania 23 million people did not have choice but used unsafe water WHO, (2015).

Kampala with about 2 million people has only 8% of Kampala's 2 million people have access to the sewer pipes operated by NWSC (Kamara, 2012).The increase in Kampala City's urban population has an stimulated exponential growth of informal settlements. Increase in slum population with less access to safe drinking water and improved sanitation is a public health threat (Kamara, 2012).

Kampala's formal water supply (production capacity currently 100,000 m3 per day) is drawn from Lake Victoria's Inner Murchison Bay (Water-technology.net 2010). UNDP data: in-plot piped supply 36% of households, piped supply from community standpipe 5% of households, non-piped supply or water vendors 59% of households. Promotion and provision of low-cost technologies that enable improved water, sanitation, and hygiene (WASH) practices are seen as viable solutions for reducing high rates of morbidity and mortality due to enteric illnesses in low-income countries (Classen, *et al*, 2007).

This study assesses the knowledge level of community members of lower Namuwongo Kampala on safe water use, assess their attitudes and establish community practices that could improve or hinder access to safe water use.

1.2 Problem statement

Limited access to safe water use can result in water borne diseases which can cause morbidity and loss of a productive population in terms of labour as well as mortalities, a case in point the recent (2015) typhoid outbreak in Kampala. Lower Namuwongo Parish is one of the major slums surrounding Kampala. Foristance, a total of 560 people were diagnosed with typhoid, just in three days in February 2015 (Nantambi and Waiswa, 2015). Two of 506 died. All the five

hundred and sixty patients were admitted at Kisenyi Health Centre IV, Kampala. Such an acute outbreak of typhoid and consequently admissions puts a burden on the KCAA health budget.

Communities drain water from unsafe water points especially to low income earners. An estimated 884 million people lack access to safe drinking water and contaminated water is responsible for 1.6 million deaths per year, primarily in children under age 5 (Global Water, Sanitation, 2012). Communities in slums environments are limited in terms of access to safe water provisioning points.

The NWSC has tried to supply piped water across the city, with reports putting access to safe water at 77% (Kagolo, 2012). For one to be considered having access to clean/safe water means that the water source is 250 metres from his home. However, those with the highest access are in upscale city suburbs. According to a report by the Africa Development Bank (AFDB), only about 17% of the population in informal settlements (slums) had safe water access by 2006. Inaccessibility, coupled with poverty and the high tariffs of piped water, have compelled most slums dwellers to rely on spring wells for water. This study intends to assess the knowledge, attitudes and practices of safe water use among community members of Lower Namuwongo Parish, Kampala.

1.3 Objectives

1.3.1 Main objective

The main objective of the study was to determine the knowledge, attitude and practices of safe water use among community members of Lower Namuwongo Parish Kampala in order to ensure better water harvesting, handling and storage strategies so as to minimize the prevalence of waterborne diseases.

1.3.2 Specific Objectives

The study based on the following specific objectives

i. To assess the knowledge on safe water use among the community members of Lower Namuwongo parish Kampala.
ii. To assess the attitudes on safe water use among the community members of Lower Namuwongo Parish Kampala.

iii. To establish the practices among the community members of Lower Namuwongo Parish Kampala on safe water use.

1.4 Research Questions

i. What is the knowledge level of community members of Lower Namuwongo parish Kampala on safe water use?
ii. What are the attitudes of the community members of Lower Namuwongo Parish Kampala on safe water use?
iii. What are the community practices of members of Lower Namuwongo Parish Kampala that are directed towards improving access to safe water use?

1.5 Justification/significance

Safe water use is a pre-requisite to preventing waterborne related diseases such as typhoid which is caused by *salmonella typhi,* cholera, *shigellosis, amebiasis*, among others. Thus this is timely to guide city authorities on promotion of use of safe water among communities of Lower Namuwongo, since outbreak of water borne diseases strains health the public health budget, this research is vital in identifying community practices that hinder access to safe water use, measure their attitudes towards safe water use and suggest measures to Kampala Capital City Authority (KCCA) to deal with the challenges of water borne diseases that are of public health interest.

This study was significant to the researcher since it is leading to the award of Bachelor of Science Nursing of International Health Sciences University, Uganda.

The study has generated data for policy makers such as Kampala Capital City Authority for proper decision making on safe water provisioning to slum dwellers. It is also an addition to the knowledge base on safe water use especially in slum environment.

The study has further generated ideas to local council authorities on involvement of community leaders in promoting safe water access as a pre-requisite for waterborne disease prevention. This KAP could be essential to help plan, implement and evaluate safe water use in Lower Namuwongo Parish, Kampala by Kampala Capital City Authority (KCCA).

Since this study has identified information that was commonly known and attitudes that are commonly held by community members of LowerNamuwongo Parish, Kampala, it also

identified factors influencing behaviour and attitudes that are not known within the communities, the reasons for their attitudes, and how and why communities of Lower Namuwongo Parish practice certain behaviours which are barriers to safe water use.

KCCA could use information on safe water needs, problems and resolve shortcomings to safe water access as well as solutions for improving access to safe water points in Lower Namuwongo Parish, Kampala. This could provide a lasting solution to the challenge of safe water use and access in lower Namuwongo Parish, Kampala.

1.7 Scope of the study

1.7.1 Time scope

The study was conducted in July 2016.

1.7.2 Geographical scope

Lower Namuwongo Parish is located in Makindye Division, Kampala city. It's one of the several slums within the Metropolitan Kampala.

1.7.3 Subject scope

The study assessed the knowledge of community members on safe water use, enlisted their attitudes on safe water access and established community's practices that hindered accessibility to safe and clean water in Lower Namuwongo Parish Kampala.

1.8 Conceptual Framework

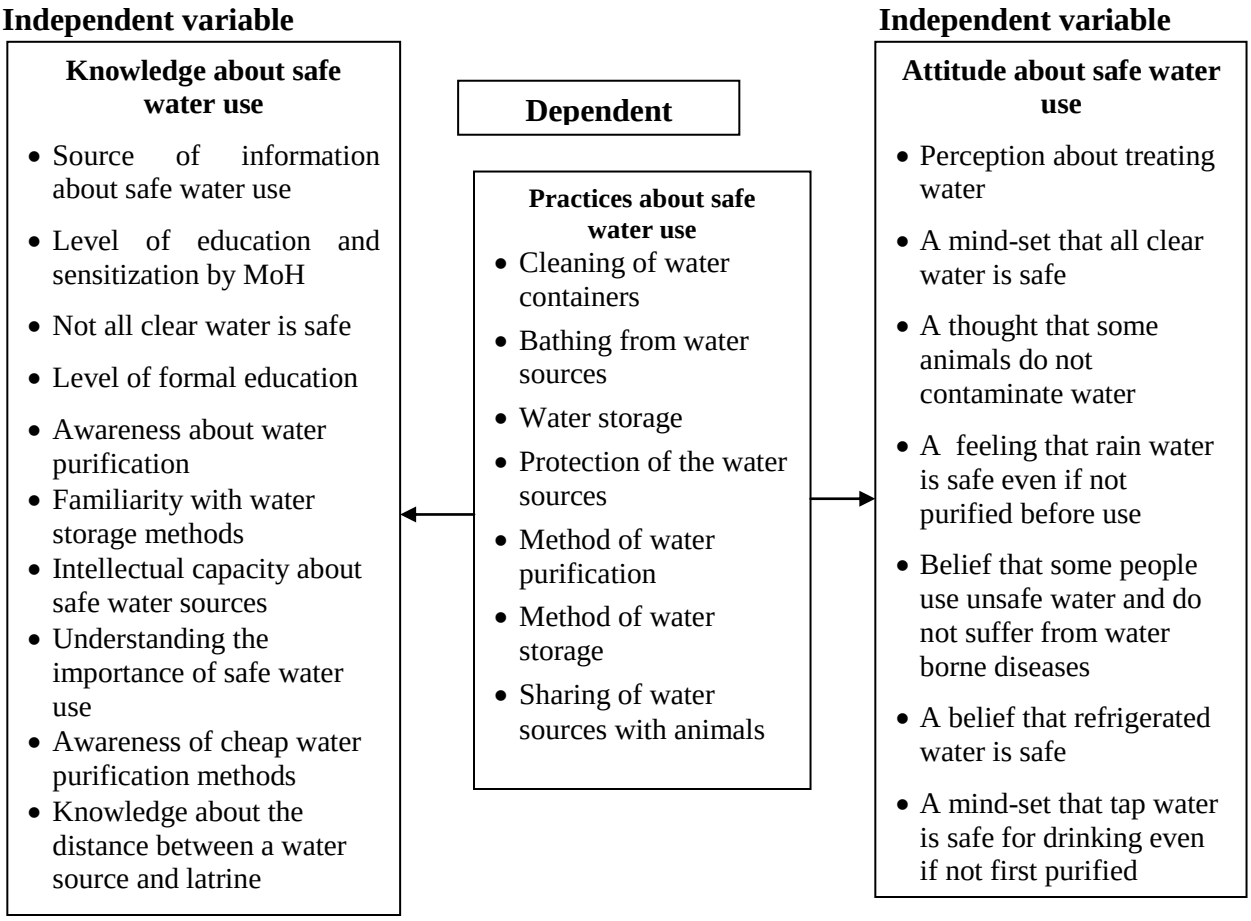


Figure 1: Conceptual Framework

Indicators of knowledge were; Source of information about safe water use, Level of education and sensitization by MoH, Having facts about what safe water was, awareness about water purification, familiarity with water storage methods, having right information about safe water sources, understanding the importance of safe water use, awareness of cheap water purification methods, and knowledge about the distance between a water source and latrine.

Indicators of attitude were; perception about treating water, a thought that some animals did not contaminate water, a feeling that rain water was safe even if not purified before use, belief that some people used unsafe water and did not suffer from water borne diseases, a mind-set that tap water was safe for drinking even if not first purified.

Indicators of practices were; maintenance of water containers clean, water storage, protection of the water sources, method of water purification, method of water storage and sharing of water sources with animals.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter presents information from acknowledged studies related to the study at hand. This information will be reviewed in relation to the study specific objectives that include; assessing the knowledge on safe water use among the community, to assess the attitudes on safe water use among the community members and to establish the practices among the community members.

2.1 Knowledge on safe water use among the community members

2.1.1 Knowledge about what safe water was

In a study on the water and sanitation hygiene knowledge attitude practice in urban slum settings, Ashish et al (2014) found out that, 83% of the participants perceived gastrointestinal tract infection as the most important health problem. Some 75% of the participants did not use any method for drinking water treatment. 45% of the participants consumed water from privately-owned tube well/ bore well. Water shortage lasted two days or more (50%) at a stretch with severe scarcity occurring twice a year (40%). Females aged 15 years and above were largely responsible (93%) for fetching water from water source. 45% of the participants had toilets within their households. 53% of drinking water samples collected from storage containers showed positive bacteriological contamination.

Wright (2012) revealed that 51% of the participants knew that unsafe drinking water could cause general fever, whereas 22%, 18%, and 16% of the participants reported common cold, diarrhea, and vomiting respectively as potential consequence of drinking unsafe water. Water supply timing was the biggest challenge faced by the majority (94%) of the participants. Twenty-five percent of the participants did not have access to toilets inside the households. Seventy-nine percent of the participants had access to septic tank type of toilets.

The majority of the participants agreed that hands should be washed before and after meals, while only 32% felt that hands should be washed after defecation. Results showed that 17% of the participants used plain water or water with ash to clean their hands while majority of the participants washed their hands to prevent infection (82%) or for hygiene maintenance (76%).

Forty-seven percent of the participants reported that they discharge their waste in open drainage. Sixty-two percent of the participants desired for filter water and 38% of them desired for boiled

and safe water facilities from the suppliers. Most of them had reported improper sanitary facilities and stressed on the need of sanitary education.

Around two third (64.3%) of informants were aware that boiling or filtering water can prevent water borne diseases but it was being practiced in only 10 % of households. In India, approximately 72.7 per cent of the rural population does not use any method of water disinfection. Bhattacharya et al (2011) also found 72% of households did not follow any treatment and drunk it as it was (Bhattacharya et al, 2011). This could have been due to unawareness or ignorance. One in every fourth households had history of diarrheal episodes in past 6 months among family members.

Tatlock (2006) in a daily News Brief Reported on water stress in Africa, stated that many people were not familiar with the right water storage facilities to maintain the water safe for domestic use and drinking. Report findings showed that, some people did not regularly cover their water. Some did not know that a water container should always be washed when it gets empty and before refilling it.

WHO, (2015) showed that, there was general lack of right information about the right sources from where safe water could be drawn. The Key facts from WHO, UNICEF, Joint Monitoring Programme2015 report, indicated that local communities had not done enough to educate the local people on how to create and maintain water sources. Natural sources such as wells, lakes, rivers, streams had not been protected due to ignorance of the community members on the potential pollutants and contaminants.

Kamara, (2012) in a study on household's access to safe water and improved sanitation in urban slum settlements: Case of Kampala's slums Uganda revealed that, there was scanty knowledge about the different recommended water purification methods among most of the people. Majority of slum dwellers mainly used settling and filtration methods to purify their water which made it remain unsafe.

Ochieng (2012) reported that, majority of the respondents never knew the ideal distance a water source should be from a contaminant such as a rubbish pit or a latrine. Findings showed that most respondents thought that a distance of ten metres was enough for a water source such as a

well or a pond. This was wrong knowledge because that was such a short distance that predisposed respondents to infections because the ideal distance is 30 metres and above. Similar findings were found among fishermen on Lake Victoria in Kampala District of Uganda, where most of them thought that a lake is such a very big water body to be contaminated by just a simple latrine nearby (Mutaawe, 2011).

In a study on knowledge, attitudes and practice of desalinated water among professionals in health and water departments in Shengsi, China, Chen et al, (2015), reported that, majority of respondents knew the definition of desalinated water and knew the importance of refrigeration in ensuring safe water. "That was to take away the salt by some technique from water to make it safe for drinking.*"* However, no one knew the technology used in desalinated water production except three people with related work in water plants in Shengsi, in which reverse osmosis membrane technique was used. This implied that they had good knowledge on safe water.

Fattima et al (2012) in a cross sectional descriptive study was conducted in Baleendah during September−October 2012, participated by 210 mothers with 12−59 months children, and using rapid survey method. As much as 168 (80%) of mothers were in moderate knowledge status, 126 (60%) of mothers were in moderate attitude status. Practically, 127 (54.7%) of mothers used water from borehole/tube well. Most of the mothers (54.6%) used drinking water from refillable water stores. Most mothers who participated had varied moderate knowledge and attitude status, and practice towards safe water usage.

In a study on water quality assessment of groundwater resources in Nagpur Region (India) by Rajankar et al (2009) it was found out that, majority of the respondents thought that, the water they used was safe because it was underground. Findings showed that, water extracted directly from rocks was free from sewerage and other water contaminants such as garbage. The study on water quality of groundwater resources showed that the water quality index of bore well, dug well and hand pumped was safe for domestic use. It was more reliable, since about one in five of the participants reported water shortage twice in a year with average shortage period of 2-3 days. Majority (75%) of the participants felt that the quality of water being used was safe.

Nantambi and Waiswa (2015) in a report extracted from New Vision Online Website, indicated increase in typhoid cases in Kampala. It was established that, majority of the community

members especially from slum areas were not aware of the effects of using unsafe water on health. Majority of community members in swampy areas thought that, clear water was good for domestic use which was wrong knowledge.

Vivas, Aboset, Kumie, Berhane and Williams, (2010) in a study on knowledge, Attitudes and Practices (KAP) of Hygiene among school children in Angolela district of Ethiopia, revealed that, majority of learners knew about waterborne diseases but could not mention any diseases. However, about 65.0 ± 1.97% did not know about the route of transmission of waterborne diseases, while the others knew that waterborne diseases were mostly transmitted through drinking dirty water. It was found that 60% of the school children did not know the disease transmission routes.

The survey revealed that most of the respondents who had knowledge about waterborne diseases got it from school, television and radio.

2.2 Attitude of community members towards the use of safe water

Blanton, and colleagues (2010) in a study on the evaluation of the role of school children in the promotion of point of use water treatment and hand washing in schools and households—Nyanza Province, western Kenya, some respondents had negative attitude towards use of chemical to purify water. They thought that, they could cause them illnesses such as cancer yet they had ever taken untreated water and never felt sick.

In a study in Viet Nam, Noi, (2008) findings indicated that, majority of the participants (95%) perceived that the quality of water being used was safe while 71% of the participants agreed that quality of water could affect health status of an individual if not stored well even if it was drawn from a safe source.

Awuah et al (2009) in a study carried out in Ghana, found out that, 75% of them stored drinking water in wide mouth closed containers and most of them cleaned water containers daily (70%).

Hulton, (2012) reported that, 40% of the participants in various water use studies carried out in WHO regions, did follow any methods of water treatment and among them half of the participants felt that piped and rainwater was already clean and did not require any additional treatment. They thought that rain water comes from the cloud where no pathogen could survive

so water from it was safe. Findings further showed that, these people did not mind about where they stored their water which exposed it to contamination. Water was kept in unwashed containers which made it impure.

Kagolo, (2012) in a study on drinking fecal water by Kampala slum dwellers revealed that, some community members have a belief that, most of the natural water sources in Kampala were safe and not all water drawn from sources that were thought to be unsafe could cause diseases. They thought that water from underground was safe and could not cause any diseases if consumed before treating it.

Kamal (2009) reported that, majority of community members thought that refrigerated water was safe for drinking. They had a perception that very cool water could not allow germs to survive. Some respondents in West African country Mali, who had electricity and refrigerators felt that it was a wastage of time to boil water and then take it.

In a study on knowledge, attitudes, and practices around peri-urban and rural water access and sanitation during a cholera outbreak in Puerto Plata Region, Dominican Republic, Berthoud, (2012) noted that, respondents expressed happiness and satisfaction with water access and found out it was a relatively easy and stress free process. Many community members seemed surprised or amused by my questions about their water and sanitation. I regularly heard, *"there was always* water here!" as a respondent readily demonstrated how their running water system worked.

Chen et al (2015) revealed that, the majority of respondents accepted the desalination and believed that desalination was a good way to mitigate water shortages. However, some still showed concerns as they did not use it since it was given to Guinea pigs and would rather use unsafe water instead of it. A doctor said that attention would be paid to long-term accumulative effects, "It may not have been a problem then, but would be a problem after a few decades. No one could be sure about that*."*

Chen et al (2015) revealed that respondents had positive attitudes towards purifying water relatively negative attitudes towards safe water use. Some of the participants revealed that they disliked un-treated water because those who drunk it fell sick while those that never drunk it did not fall sick. One participant had opposite viewpoint*:* "Most of the necessary nutrients our body

needs comes from food rather than water, so I don't care about what was in desalinated water. No one got sick in drinking pure water, but more problems were found in people drinking un-treated tap water".

Berthoud (2012) revealed positive attitude towards safe water use. Feelings of self-determination and a "take charge" attitude were apparent, and residents in both communities demonstrated a desire to manage their own circumstances surrounding safe water access. One young respondent in Arroyo de Leche reported meticulously boiling water for her 4-month-old daughter.

Ministry of Health Republic of Indonesian, (2010) stated that, mothers had a positive attitude towards safe water. Findings showed that, 60% of the mothers recommended that water for domestic use would be clean and acquired from a safe place from all possible contaminants. They revealed that drinking water would be kept in a clean container and clean place to avoid making family members sick.

In general, the level of maternal attitudes towards safe water usage was moderate. It was proven from the results of research that the average rates of the respondents' attitude were in the moderate category (60%). Most mothers agreed that the water used for daily needs, especially for drinking would be clean.

Kuberank et al (2015) showed that, majority of the participants (95%) perceived that the quality of water being used was safe, 71% of the participants agreed that the quality of water could affect health status, 75% of them stored drinking water in wide mouth closed containers and most of them cleaned water containers daily (70%). Forty-five percent of the participants were not following any methods of water treatment and among them half of the participants felt that water was already clean and did not require any additional treatment. Half of the participants (51%) agreed that unsafe drinking water could cause general fever, whereas 22%, 18%, and 16% of the participants reported common cold, diarrhea, and vomiting respectively as potential consequence of drinking unsafe water.

2.3 Practice of community members towards the use of safe water.

Water is one of the precious natural resource and is essential element of our life. Clean water and optimum sanitation facilities can prevent the occurrence of various infectious diseases and help

in curbing the associated morbidity and mortality. The current study was conducted in rural setting of India to understand the existing water and sanitation facilities, perceptions and practices.

Nerkar (2013) in a study carried in India reported that, majority of the participants used public tap/stand pipe for water procurement and most of them had water supply inside their household premises. This was because the local authorities had ensured that all people accessed safe water with less difficulty.

Females of ages between 15 and 60 years were the primary responsible people for fetching water, which was consistent with the previous report. Most of the participants were consuming 151-200 L of water daily for cleaning and washing and ≤100 L of water for drinking, cooking and ablutions. Most of the participants reported that their daily needs of water quantity were met by the current supply.

In a study on knowledge, attitude and practices (KAP) survey on water, sanitation and hygiene in selected schools in Vhembe District, Limpopo, South Africa, Sibiya and Gumbo, (2013) reported that, majority of the respondents did not maintain water containers well. Some schools did not regularly clean their water tanks which led to the growth of different of pathogens that made water unsafe for use. Water tanks were not routinely cleaned before water was pumped in or during the time they expected rains.

The water supplies were inadequate in rural schools, with no hand washing areas. The only water tap, located at the centre of the school premises, was not enough for the whole school community.

Only schools using flushing toilets had water taps inside their toilets and two other water taps on the school premises. This enabled learners to wash their hands immediately after coming out of the toilet. The other two schools used pit latrines with no taps inside and outside the toilets, which led to learners having to use one tap located at the central point of the school. This might discourage the learners from washing their hands since the tap was far and at times the tap was over crowded. All the schools in the rural areas were found to be using pit toilets for sanitary

purposes, without a water tap inside and outside the toilet for washing hands. The non-availability of flushing toilet systems in the rural areas might be linked to the lack of water.

Only 25% of the schools had hand washing areas that were located inside the flush toilets, although there was no soap provided. The remainder of schools (75%) had hand washing facilities (one tap, no soap) that were located at the centre of the schools and were about 100 m from the toilet. These findings are an improvement in comparison to the Viet Nam where 29% of schools had access to hand washing facilities with sufficient water. Furthermore, the study from Viet Nam showed that 4.6% of schools had soap at the hand washing facility, while there was none in this study.

In a study on knowledge attitude and practices regarding water handling and water quality assessment in a rural block of Haryana, Bharti et al (2013) showed that, around two third of informants (64.4%) did know about importance of ladle to draw water while ladle was actually being used in less than one third (30.5%) of households only. Similarly, Bhattacharya *et al.,* (2011) found only 38% of household used handled jug to take out drinking water from vessel and most of the respondents interviewed took out water by dipping glass held in hand (Bhattacharya *et al.,* 2011). This practice of drawing water increases the risk of microbial contamination of drinking water by contact with potentially contaminated hands yet the community members never knew.

Various studies have shown that chronic diarrhea was a consequence of poverty, poor hygiene and environmental contamination (Bhattacharya et al, 2011; Pokhrel et al, 2004).Bhattacharya, *et al.,* (2011) found out that, majority 76.5% of respondents had low knowledge about diarrhea as being caused by taking unsafe water. The common reason cited for cause of diarrhoea, were 'heat', spicy food, excessive sweets. Water quality assessment was not found to be potable in around 20% of households. Orthotolidine test results were found negative in 100% of households indicating absence of both free and combined chlorine in drinking water. This indicates that water disinfection techniques are not adequate at level of production in this area. Remedial measures like adequate disinfection of drinking water sources including well disinfection need to be performed with community involvement.

Ray, Zaman, and Laskar, (2010) in a study on hand washing practices in two communities of two states of Eastern India, revealed that, revealed that, respondents never knew that hand washing with safe water was good for the safety of their health. Few recommended that hand washing should be done with safe water especially when going to hand eats.

Research conducted in 2010 by a local organization, Kampala Integrated Environmental Planning Management Project (KIEMP), indicated that water in Kampala's slums cost three times more than it did in the planned upscale suburbs such as Kololo and Nakasero. Whereas people in better-off neighbourhoods paid sh1, 000 for 20 litres of water, those in poor parishes often paid sh1000, three times more than the planned settlements pay (MOH, 2014).

In a study carried out in Chennai City, Venkatachalam, (2011), 45% of the individuals were consuming water from tube well/bore well run by private suppliers or community representatives. In a study in South Africa, Nagpur Region of India revealed that on water quality of groundwater resources showed that the water quality index of bore well, dug well and hand pump declined in post monsoon season (Rajankar *et al*., 2009).

Suthar, (2011) in a study on contaminated drinking water and rural health perspectives in Rajasthan, most of the respondents felt that water was safe for drinking while 95% (n=38) of the participants felt that level of water quality can affect health and more than two-third of the participants (83%; n=33) felt that unclean water can cause gastro intestinal tract infection or disorder.

A study on consumer preferences for household water treatment products showed that 15% of the households used boiling, 26% of them used filtration and less than 1% used chemical treatment for drinking water (Wright et al., 2012). In the current study, three-fourth of the respondents were not using any method to treat the water and 73% (n=22) felt that water is already clean so there is no need to treat it. In contrast, the result of water sample collected from households showed that 53% of the samples were contaminated. Suthar, (2011) showed that the potable water samples from 78% of the town/villages showed *E. coli*contamination.

Ministry of Health Republic of Indonesian, (2010) stated that, in low income communities, majority of the respondents fetched water from open sources. Some community members fetched water from ponds, streams, rivers and lakes.

Vivas, et al (2010) in a study on knowledge, Attitudes and Practices (KAP) of Hygiene among school children in Angolela, Ethiopia, revealed that, majority of the respondents were more used to boiling, filtration and leaving water to settle as water purification methods. These were not very reliable to make water safe for use especially drinking since filtered water and that left to settle did not mean that germs had died. This indicated low knowledge.

Mpazi, and Mnyika, (2005) in a study on knowledge, attitudes and practices regarding cholera outbreaks in Ilala Municipality of Dar es Salaam Region, Tanzania, reported that, few community members had good water storage facilities. Majority of the community members never always covered their drinking water. Most of them stored their water in pots that never had good rids. They were placed in the cover of the sitting rooms that had insects such as cockroaches that were diseases carriers.

In a study on knowledge, attitude and practices (KAP) survey on water, sanitation and hygiene in Selected Schools Gumbo, (2013) reported that, in all sampled schools from urban areas obtained water of good quality on a regular basis from municipal supply while in the rural areas the three of the four schools used borehole water. The rural schools used storage tanks to store water that was abstracted from the borehole and also to allow for accessibility and use of the water. In terms of water shortages, urban schools did not experience water shortages while some rural schools experienced shortages, but normally those shortages lasted less than a week.

Majority of the burden of water fetching was on women, who were largely responsible for fetching water from distant sources (Venkatachalam, 2011). Half of the respondents had to move out of their houses to fetch water with females above 15 years being majorly responsible for doing the same. Despite the water supply timings being in the morning and evening the role of adult male partners was found to be limited in fetching the water.

Similar findings were found in a study on the role of informal water markets in urban water supply, which revealed that 81% of families fetching water from a distant source and women

were more responsible for fetching water in comparison to males (Poulos et al, 2012). A Girl child was four times more responsible for filling water from distant source than male child.

Fattima, et al (2012) in a cross sectional descriptive study was conducted in Baleendah during September−October 2012, participated 210 mothers with 12−59 month's children, and using rapid survey method. As much as 168 (80%) of mothers were in moderate knowledge status, 126 (60%) of mothers were in moderate attitude status. Practically, 127 (54.7%) of mothers used water from borehole/tube well. Most of the mothers (54.6%) used drinking water from refillable water stores. Most mothers who participated had varied moderate knowledge and attitude status, and practice toward safe water usage.

Results showed that more than half of the participants (63%) used public supply water for drinking, 30% used private supply water and 7% used both. Half of the participants used public supply water for cooking. Three out of five participants used private supply of water for other (ablutions, washing & cleaning) purposes. The average amount of water consumed in a day for drinking, cooking and other purposes (ablutions, washing clothes, house cleaning and miscellaneous) was found to be about 16, 18 and 318 liters, respectively.

In a cross-sectional study that involved individuals over 18 years of age living in Thandalam village, Chennai, India, Kuberan et al (2015) reported that, majority of the respondents had poor practices towards safe water use. Findings showed the 45% of the participants were not following any methods of water treatment and among them half of the participants felt that water available to them was clean and did not require any additional treatment. Twenty-five percent of the participants surveyed did not have access to toilets inside their household and used open defecation which exposed danger to the safety of water sources in the area.

Sibiya, and Gumbo, (2013) in a study that assessed the knowledge, attitude and practices (KAP) of learners on issues related to water, sanitation and hygiene in selected schools in Vhembe District, South Africa, it was found out that majority of the respondents had relatively poor practices regarding water use. Some schools from the urban areas had proper hand washing facilities, but there was no soap available. The borehole water quality for rural schools appeared clear, but the microbial quality was unknown. The water supply and sanitation facilities were inadequate in rural schools, with no hand washing areas and no sanitary bins for girls. The only

water tap, located at the centre of the school premises, was not enough for the whole school community.

Kuberan et al, (2015) reported good water use practices as regards the sources where they got it from. This was because, 95% of the participant's fetched water within premises that they were sure were safe from any form of contamination. Majority of them (81%) required <5 min for fetching water from the water outlet. Findings further revealed that, 98% of the respondents met the daily water collection procedures. These included washing the water containers before drawing water and covering all the water until time for use.

Nerkar, et al, (2013) reported good knowledge about safe water use. This was because majority of the participants were aware of the effects on health due to quality of water and half of them agreed that the consumption of unsafe drinking water would lead to one or more infectious diseases.

Fattima, et al, (2012) revealed that, mothers had positive practice. Findings showed that, 187 mothers (89%) knew that regularly mopping the floor in the house with safe water was one way to prevent diarrhea in young children, while 23 mothers (11%) did not know that mopping the floor could prevent diarrhea. Majority used clean water because they knew that their children spent most of the time on the floor and if they cleaned with unsafe water, it would lead to contracting diseases.

City management authorities had not taken enough initiative to avail safe water to the communities. This implied that majority had to buy it which made it a challenge to use safe water all the time. Very few members of the community in urban slums could afford to pay for water dues due to low income.

Kagolo, (2012) noted that, the high water prices made people develop negative attitude towards the use of safe water. In some areas like Kawempe, Mbogo, a 20-litre jerry can of water cost between sh200 and sh500 yet majority were very low income earners. This forced many people to draw water from contaminated, unprotected spring wells, exposing them to health hazards such as cholera, dysentery and diarrhoea. Although the Kampala Capital City Authority (KCCA) spent substantial resources on environmental health sanitation in the city (sh2.47b last financial

year), the report by the ministry of water showed that most of the money (91% of the environmental health budget) was spent on solid waste management, whereas little was spent to address feacal disposal which ended up in water systems (MOH, 2014).

Water had increasingly become more expensive in slums (Kagolo, 2012). In sub-Saharan Africa, despite most slum dwellers being poverty-stricken, they had to spend more money to get safe water compared to their wealthy counterparts residing in upscale suburbs.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter includes; research design, source of data, study setting, sample size calculation, sampling technique, sampling procedure, study variables, inclusion Criteria, exclusion criteria, data collection techniques, data collection instruments and measurement, data collection procedure, data analysis, quality control, dissemination of the study results, ethical issues and limitations of the study. Research methodology means the methods the research will use to collect data (Shahrokh and Dougherty, 2014).

3.1 Research Design

Research design was the framework that was created to seek answers to research questions. The study adopted a descriptive cross-sectional study design in which quantitative approaches of data collection and analysis were be used. Quantitative research approach was used because it enabled the researcher to get much information from a big number of respondents.

Descriptive cross sectional study design was used because the researcher collected data at a point in time about the current use of water in Industrial Area View and Go-Down zones, Namuwongo Parish. Data was collected using interview guides and questionnaires. This enabled the researcher to describe findings on about level of knowledge, attitude and practices of respondents about water use. This data would be tabulated into frequencies and percentages presented in charts.

3.2 Sources of data

The study was based on both primary and secondary data.

3.2.1 Primary data

Here information was derived directly from the respondents by use of face to face interviews using structured interview guided questionnaires and an observation checklist.

3.2.2 Secondary data

Information was gathered from acknowledged studies in relation to the study objectives. These mainly included; on-line journals, electronic books, library books, research dissertations, learning websites, etc.

3.3 Study setting

The study was carried out in Industrial Area View and Go-Down zones, Namuwongo Parish, in Makindye Division, Kampala District. The area was bordered by Lugogo to the north, Nakawa to the northeast, Kiswa and Bugoloobi to the east, Muyenga to the southeast, Kisugu and Kabalagala to the south, Kibuli to the west and Kololo to the northwest. The neighborhood was located approximately 6 kilometres (3.7 miles), by road, southeast of the central business district of the city. The coordinates of Namuwongo are: 0°18'29.0"N 32°36'44.0"E (Latitude: 0.308050; Longitude: 32.612223) (Nasasira, 2014).

North of the railway line in Namuwongo sits a place known as "Soweto"; a slum that is divided into seven zones namely: 1. Industrial Area View 2. Go-Down 3. Kasanvu, 4. Namuwongo B, 5. Namuwongo A, 6. Kanyogoga/Masengere and 7. Yoweri Kaguta (YOKA). These zones have over 20,000 people that are living in very confined spaces, averaging 2 rooms for a family of at least 4 members (Tenywa, 2013).Industrial Area View and Go-Down zones have an estimated population of 5,000 with an estimate of 1,800 adults.

3.4 Population of study

A population was a group of individuals, objects or items from which a sample was taken for measurement (OrodhoamdKombo, 2002 Industrial Area View and Go-Down zones have an estimated population of 5,000 people. The target population would comprise of all residents of Industrial Area View and Go-Down zones. There was an estimate of 1841 adults and 3,159 children with an average of 625 households.

3.5 Sample Size and Selection

The researcher considered an average of 720 households out of the estimated 980 households due to limited resources mainly finance and time. From each household one adult member was selected to participate in the study and preferably a household head. Sample size was determined by the Slovenes formula. Though of the 257 target respondents, only 250 participated in the survey which made a response rate of 97%.

$$n = \frac{N}{1 + N (e)^2}$$

Where; n = Sample size

N = Population size

E = standard margin of error

$$n = \frac{720}{1 + 720\ (0.05 \times 0.05)}$$

$$n = \frac{720}{1 + 720(0.0025)}$$

$$n = \frac{720}{1 + 1.8}$$

$$n = \frac{720}{2.8}$$

n= 257 respondents

3.6 Sampling

3.6.1 Sampling Technique

The researcher used probability sampling. With this method everyone in the population was known and each had a certain probability of being selected (Robson, 1993). Simple random was adopted as an example of probability sampling. The population was known and participants were by random selection (Creswell, 2012). This method was used because it ensured equity without prejudice. Though with simple random sampling there was no assurance of complete representativeness of the sample.

3.6.2 Sampling Procedure

This was done through dividing the population into strata from which a sample was drawn. Each zone was divided into four parts which could make 8 parts. This implied from 625 households, in each stratum, there were 78 households from which 12 households were selected to make a total of 250respondents. However, this was not the case as only 62 respondents participated in the survey.

Here a household head found at home during the time of study was selected and in a home where there was no household head, any available adult member who could give answers to the questions was interviewed.

3.7 Legibility

3.7.1 Inclusion Criteria

The researcher considered all adult community members found at home during the time of study and requested them to consent and participate in the study.

3.7.2 Exclusion Criteria

The researcher did not however, consider adult community members found at home but too sick to respond or those with mental problems.

3.8 Study variables

Knowledge and attitudes were the independent variables that led to practices which were the dependent variable**.**

Indicators of knowledge were; Source of information about safe water use, Level of education and sensitization by MoH, Having facts about what safe water was, awareness about water purification, familiarity with water storage methods, having right information about safe water sources, understanding the importance of safe water use, awareness of cheap water purification methods, and knowledge about the distance between a water source and latrine.

Indicators of attitude were; perception about treating water, a thought that some animals did not contaminate water, a feeling that rain water was safe even if not purified before use, belief that some people used unsafe water and did not suffer from water borne diseases, a mind-set that tap water was safe for drinking even if not first purified.

Indicators of practices were; maintenance of water containers clean, water storage, protection of the water sources, method of water purification, method of water storage and sharing of water sources with animals.

3.9 Data Collection techniques

The researcher used different approaches for data collection that were guided by specific objectives or research questions. These were through face-to-face interviews and Observation.

3.10 Data Collection Instruments

The study used interviews and observation checklist to collect data for the study.

3.10.1 Interviews

Personal interviews were a way to get in-depth and comprehensive information. These involved one person interviewing another person for personal or detailed information. Personal interviews were very expensive because of the one-to-one nature of the interview (Muaz, 2013).The researcher asked questions from a written questionnaire (interview-guide) of well set questions

both structured and semi-structured and recorded the answers verbatim. Personal interviews were used because not all community members were literate to answer a written questionnaire by themselves alone.

Interviews were used because they enabled the researcher to establish friendship with respondents and therefore understood their interest in the study. The keenness, accountability and emphasis community had in the study was identified basing on their responses during field work. Interviews yielded the highest response rates in survey and also allowed the researcher to clarify ambiguous answers and when appropriate, sought follow-up information. However, some respondents might have not disclosed some information due to fear of study findings.

However a few challenges such as tiredness of some respondents not completing the interviews were faced during field data collection.

3.9.2 Observation checklist

Water management in the household was captured through visual checking by the interviewer. Items of interest under the checklist included; water collection, processing, storage and consumption.

3.10 Data collection methods and tools

In this study, both quantitative and qualitative data were collected using questionnaire based interviews. A standardized questionnaire containing both close-ended (structured) and open-ended (semi-structured) questions on knowledge, attitudes and practices regarding safe water use (refer to appendix II) was used. This was pre-tested in another similar setting so as to check for applicability, accuracy and consistency of collected data before commencement of study. Using both closed and open-ended questions, new issues that could not otherwise had been captured using structured questions were collected during a semi-structured interview. The questionnaires were written in English and translated to the local Luganda dialect which was the local language used by most of the respondents. This was done to obtain appropriate responses. Questionnaires were administered with the help of research assistants who were first trained by the principal investigator before beginning of the field work.

3.11 Quality control for field data

Quality control ensured that the following items were considered to yield validity and reliability of the data collected. These included:

- Developing a standardized questionnaire and pretesting in a similar setting before application to the real study site.
- Translation of questionnaire into the localLuganda dialect which was understood most of the respondents
- Training of research assistants to assist in administration of questionnaires
- Questionnaires were checked for consistence and completeness of information obtained from the study participants so as to ensure reliability of the collected data
- Double checking all questionnaires for completeness and approved them for storage by the principal investigator.
-

3.12 Data Collection Procedure

The researcher moved around the community from home to another with the help of the local leaders in Go Down Zone Local Council I during field data collection. On reaching a home, the LCI would inquire whether there was any adult member in home preferably a household head.

In households where one of the two was found, the local council official introduced the researcher and the latter informed the household head of the study intent, thereafter consent was sought to participate in the study. Strict confidentiality was adhered where respondents were assured that the data generated was meant for academic purposes only.

3.14 Quality control

The study tools were pretested in Katwe Zone, an area that also suffered the problem of unsafe water use and occurrence of water borne diseases. This helped the study to make necessary adjustments before research was conducted in Lower Namuwongo Parish.

The researcher also trained one (01) research assistant who helped her to interpret some questions to respondents who did not share similar language(s) with the researcher.

Before respondents were enrolled into the study, the researcher though their consent, whereby she requested them to sign on the consent form.

3.15 Data analysis

After data collection, the pre-coded data was entered manually questionnaire by questionnaire and then analyzed using Statistical Package for Social Scientists (SPSS) computer program. Data was run in this program where tables were developed and then transferred to Microsoft word where data was interpreted in a written form. This was used to find the relationships between variables by use of correlation (bivariate analysis). Univariate analysis was calculated using Chi-tests which helped to establish the most significant factors within variables. This was based on whether community members purified water for drinking. Multivariate analysis was done by regression analysis where average mean from knowledge and attitude outcomes was regressed against the average mean from the practice outcomes.

3.13 Ethical consideration

The researcher got a letter of introduction from IHSU, school of Nursing that introduced her to the local council leaders of Lower Namuwongo and Go Down zone. The local council officials had also presented a letter the researcher which showed that they approved field data collection in their zones.

3.15 Dissemination of the study results

After report writing, five copies would be produced. The distribution could be as follows" One copy to be submitted to International Health Science University, School of Nursing for examination, the second copy, to IHSU Library, and the third copy could be given to the supervisor, fourth copy could be submitted to local council authorities of Lower Namuwongo Parish, while the fifth copy would be retained by the researcher for personal reference.

3.16 Limitations of the study

The study was faced with a challenge of some respondents withholding information due stigma of water sources used. Further to this the principal investigator spent a lot of money as she looked for the chairperson of research sites quite often, who was a bit busy. Though this could not hinder the research process, as the researcher had to preserve all circumstances.

CHAPTER FOUR: RESULTS

4.0 Introduction

This chapter presents the findings of the study based on the specific objectives that included; assessing knowledge, attitude and practices on safe water use among the community members. The findings are discussed

4.1 Findings on the social demographic characteristics of the respondents

Table 1: Findings on the social demographic characteristics of the respondents

Indicators	**Category**	**Frequency**	**Percentage**
Gender of the respondents	Females	190	76
	Males	60	24
Age of the respondent	18-25 years	165	66
	26-36 years	43	17
	37-45 years	33	13
	46 years and above	10	04
Marital status of the respondent	Single	53	21
	Married	168	67
	Divorced/separated	20	08
	Widow/widower	10	04
Occupation of the respondent	House wives	135	54
	Civil servant	15	06
	Self employed	25	10
	Student	35	14
	Casual employee	40	16
Respondents levels of education	No formal education	18	07
	Primary education	143	57
	Secondary education	60	24
	Tertiary education	30	12
Total		**250**	**100**

Majority 190(76%) of the respondents were females, 165(66%) were between 18-25 years, 168(67%) were married, 135(54%) were housewives and 143(57%) had primary education.

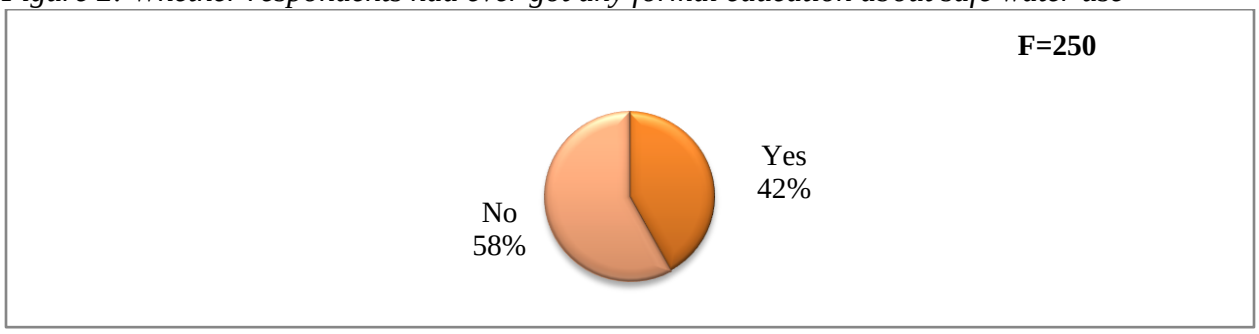
4.2 Findings on the knowledge on safe water use among the community members

Table 2: Findings on the knowledge on safe water use among the community members

Indicators	Category	Frequency	Percentage
Had ever heard of safe water	Yes	210	84
	No	40	16
Understanding of safe water	It was clear water that could not make one sick	134	64
	It was processed water without germs that could cause diseases such as diarrhoea	76	36
Knew safe water sources	Yes	93	37
	No	158	63
Were aware of the effects of using unsafe water	Yes	170	68
	N o	80	32
Responses on the effects of using unsafe water	High body temperatures	90	53
	Skin rashes	60	35
	Malaria infection	20	12
Were knowledgeable about water borne diseases	Yes	65	26
	N o	185	74
Water borne diseases respondents knew	Malaria	35	53
	Diarrhea	21	33
	Measles	5	08
	Cholera	3	4
	Cough	1	2
Knew the importance of fetching water in covered containers	Yes	120	48
	No	130	52
Importance of fetching water in covered containers	To avoid water from pouring	76	63
	To avoid contamination	28	23
	For easy transportation	16	14
Thought that safe drinking water services be free of charge	Yes	195	78
	No	55	22
Responses on safe water storage for consumption	In a refrigerator	110	44
	Closed jerry can in a cool place	70	28
	Open jerry can or bucket/container	50	20
	In a flask	20	08
Knew that all clear water was safe for consumption	Yes	203	81
	No	48	19
Reasons why all clear water was safe for consumption	There were no visible germs	114	56
	It looked nice	59	29
	They usually consumed it with no effect	30	15
Had suffered from diarrhea in the recent past	Yes	208	83
	No	42	17
Causes of diarrhea in children	Change of diet	49	59
	Drinking unsafe water	21	25
	Walking on foot	13	16
Total		**250**	**100**

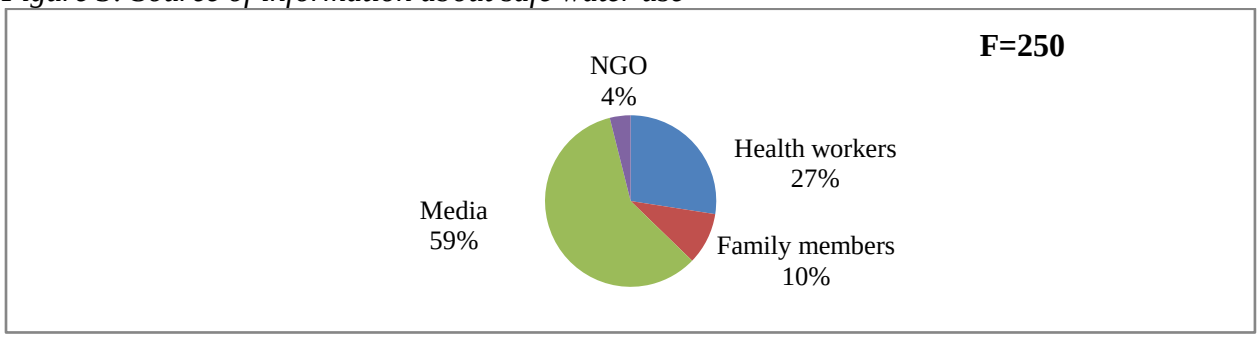
Out of the 250 respondents interviewed, 210(84%) had ever heard of safe water use where 134(64%) understood it as was clear water that could not make one sick, 145(58%) had never had any formal education about safe water use.

Figure 2: Whether respondents had ever got any formal education about safe water use



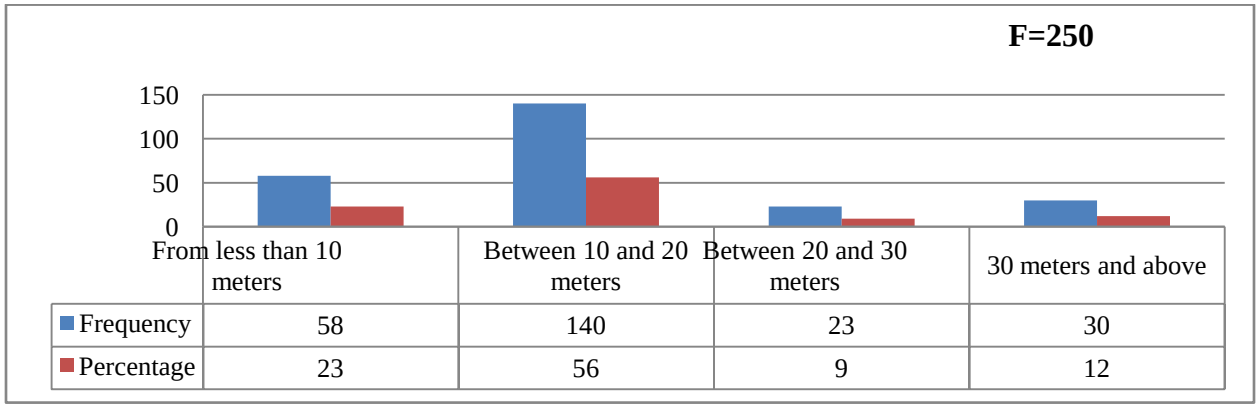
Respondents thought safe water sources were; 150(60%) media, 70(28%) health workers, 25(8%) family members while 10(4%) NGOs. 158(63%) did not know safe water sources,

Figure 3: Source of information about safe water use



Respondents did not know the ideal distance between a latrine and a natural water source as majority 140(56%) mentioned that it should be between 10 and 20 meters.

Figure 4: Distance respondents thought should be between a natural water source and a pit latrine



170(68%) were aware of the effects of using unsafe water, high body temperatures 90(53%) was the major effect of using unsafe water, 185(74%) did not know the water borne diseases, where 35(53%) mentioned malaria, majority 130(52%) did not know the importance of fetching water in covered containers, 195(78%) thought that safe drinking water services should be free of charge, 110(44%) reported refrigerators as the best water storage, 203(81%) that all clear water was safe for consumption where 114(56%) reported that there were no visible germs, 208(83%) had suffered from diarrhea in the recent past but 49(59%) thought it was due to change of diet

4.3 Findings on the attitudes on safe water use among the community members

Table 3: Findings on the attitudes on safe water use among the community members

Indicators	**Responses**	
	Agree	**Disagree**
All clear water was not safe for consumption	45(18%)	205(82%)
It was important to have an educational program related with potable water consumption and hygiene practices	183(73%)	67(27%)
It was good to always fetch water in covered containers	83(33%)	167(67%)
Safe drinking water services were supposed to be free of charge	215(86%)	35(14%)
All water consumption had to be processed	40(16%)	210(84%)
Boiling was the best way to process water	240(96%)	10(4%)
Chemicals were safe to treat water	17(7%)	233(93%)
Water processed by filtering was not safe for drinking	77(31%)	173(69%)
Distilled water was safe for drinking	205(82%)	45(18%)
It was not good to share water sources with animals	88(35%)	162(65%)
It was good to cover water for consumption	200(80%)	50(20%)

Out of the 250 respondents; 205(82%) believed that all clear water was safe for consumption, 183(73%) believed it was important to have an educational program related with potable water consumption and hygiene practices, 167(67%) believed it was not good to always fetch water in covered containers, 215(86%) believed safe drinking water services were supposed to be free of charge, 210(84%) did not believe that all water for consumption should be processed, 240(96%) believed that boiling was the best way to process water, 233(93%) believed chemicals were not safe to treat water, 173(69%) did not believe that water processed by filtering was not safe for drinking, 205(82%) believed that distilled water was safe for drinking, 162(65%) did not believe that it was not good to share water sources with animals and 200(80%) believed that it was good to cover water for consumption

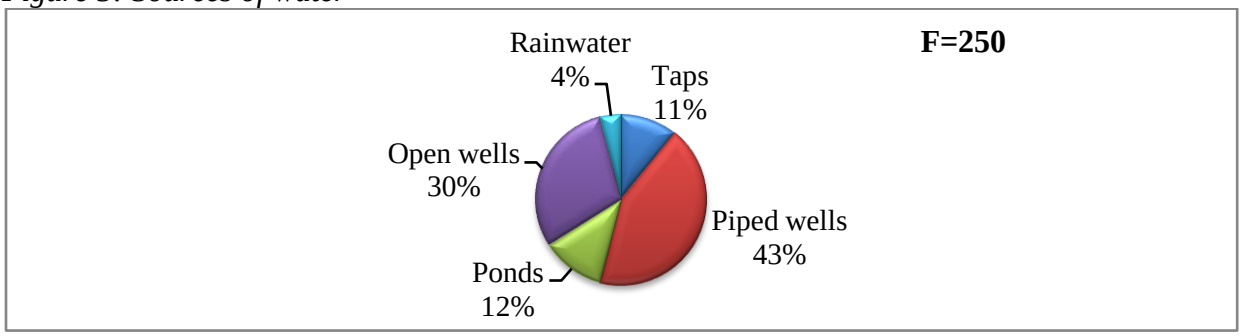
4.4 Findings on the practices among the community members on safe water use

Table 4: Findings on the practices among the community members on safe water use

Indicators	Category	Frequency	Percentage
Freely took any clear water	Yes	185	74
	No	65	26
Reasons for taking any clear water even without knowledge whether it was processed	It was clear	72	39
	They had taken it for a long time without any problem	80	43
	It was got from a tap	33	18
Distance between a pit latrine and a natural water source	Less than 10 meters	30	12
	Between 10 and 20 meters	120	48
	Between 20 and 30 meters	63	25
	30 meters and above	37	15
Suffered Typhoid, diarrhea, dysentery and cholera in the recent past	Yes	215	86
	No	35	14
Type of containers respondents used to collect water	Open buckets	75	30
	Closed jerry cans	142	57
	Basins	8	03
	Pots	20	08
	Others	5	02
Water purifying processes before consumption	By filtering	50	20
	By boiling	160	64
	By distillation	12	05
	By treating it with chemicals	8	03
	Leaving it to settle	20	08
Shared water sources with animals	Yes	210	84
	No	40	16
Community had a committee concerned with management of water sources	Yes	52	21
	No	198	79
Total		**250**	**100**

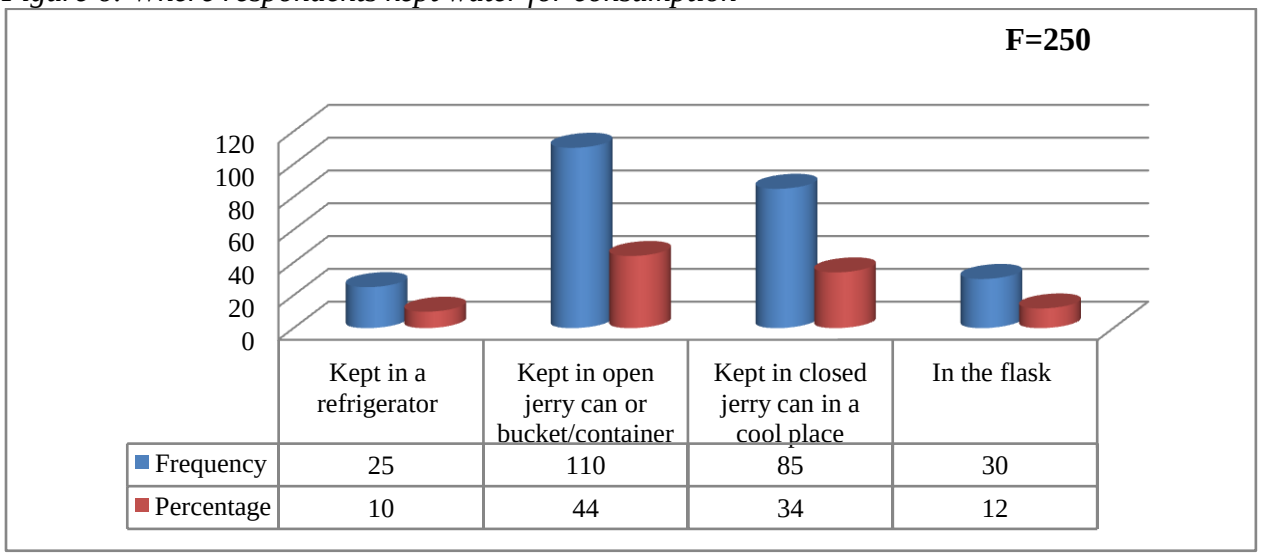
Majority 185(74%) of the respondents freely took all clear water even if they did not know whether it was processed because 80(43%) had taken it for a long time without any problem, piped wells and open wells 108(43%), 75(30%) respectively were the major sources of water in the area,

Figure 5: Sources of water



120(48%) fetched water from a distance between 10 and 20 meters, 215(86%) had suffered from typhoid, diarrhea, dysentery and cholera in the recent past, 142(57%) fetched water in closed jerry can.

Figure 6: Where respondents kept water for consumption



	Kept in a refrigerator	Kept in open jerry can or bucket/container	Kept in closed jerry can in a cool place	In the flask
Frequency	25	110	85	30
Percentage	10	44	34	12

160(64%) mainly processed water by boiling, 110(44%) kept in open jerry cans or buckets/containers, 210(84%) shared water sources with animals and 198(79%) reported that there was no community committee on management of water sources.

4.5 Findings from the observations made by the researcher

4.5.1 Observations made by the researcher

Table 5: Findings from the observations made by the researcher

No	Item		Yes	No
1	Water containers are clean			
2	Water source is distant from the latrine			
3	Shared water sources with animals			
4	Protected water source			
5	Usually covered drinking water			
6	Water purification	Boiling		
		Filtration		
		Leaving it to settle		
		Use chemicals		
		Refrigeration		

It was observed that, most of the water containers were unclean, close to latrines, never protected water sources, did not usually cover drinking water, but never shared water sources with animals.

About purification, majority of the respondents never left water to settle to use it, never used chemicals, but boiled, filtered and refrigerated water for consumption.

Table 6: Bivariate analysis of results

Characteristic	Indicator	Purified water	Never purified water	Freq	Percentage
Social demographic					
Gender	Female	124	66	190	
	Males	36	24	60	
Marital status	Singles	34	48	82	
	Married	116	52	168	
Education	Low levels	70	91	161	
	High levels	80	09	89	
Knowledge					
Knew safe water sources	Yes	80	13	93	
	No	70	87	157	
Were knowledgeable about water borne diseases	Yes	60	05	65	
	N o	90	95	185	
Thought that safe drinking water services be free of charge	Yes	140	55	195	
	No	10	45	55	
Had suffered from diarrhea in the recent past	Yes	113	95	208	
	No	37	05	42	
Attitude					
All clear water was not safe for consumption	Yes	40	5	45(18%)	
	No	110	95	205(82%)	
All water consumption had to be processed	Yes	38	07	40(16%)	
	N o	117	93	210(84%)	
Chemicals were safe to treat water	Yes	15	02	17(7%)	
	No	135	98	233(93%)	
It was not good to share water sources with animals	Yes	81	07	88(35%)	
	No	69	93	162(65%)	
		150	**100**		

Table 7: Expected values

Characteristic	Indicator	Purified water	Never purified water	Freq	Probability value
Social demographic					
Gender	Female	114	76	190	0.138640675
	Males	36	24	60	0.0
Marital status	Singles	49.2	32.8	82	2.91878E-05
	Married	100.8	67.2	168	(0.0000)
Education	Low levels	96.6	64.4	161	7.39296E-13
	High levels	53.4	35.6	89	(0.0000)
Knowledge					
Knew safe water sources	Yes	55.8	37.2	93	1.021E-10
	No	94.2	62.8	157	(0.0000)
Were knowledgeable about water borne diseases	Yes	39	26	65	6.3798E-10
	N o	111	74	185	(0.0000)
Thought that safe drinking water services be free of charge	Yes	117	78	195	7.61419E-13
	No	33	22	55	(0.0000)
Had suffered from diarrhea in the recent past	Yes	124	83.2	208	4.9612E-05
	No	25.2	16.8	42	(0.0000)
Attitude					
All clear water was not safe for consumption	Yes	24	16	45(18%)	8.22016E-07
	No	126	84	205(82%)	(0.0000)
All water consumption had to be processed	Yes	24	16	40(16%)	8.22016E
	N o	126	84	210(84%)	(0.0000)
Chemicals were safe to treat water	Yes	10.2	6.8	17(7%)	0.013835007
	No	139.8	93.2	233(93%)	(0.0000)
It was not good to share water sources with animals	Yes	52.8	35.2	88(35%)	2.48227E-14
	No	97.2	64.8	162(65%)	(0.0000)
		150	**100**		

Social demographic characteristics of respondents were gender (P=0.0000), marital status (P=0.0000) and education (P=0.0000). Knowledge was measured on awareness of respondents about safe water sources (P=0.0000), water borne diseases (P=0.0000), safe drinking water services should be free of charge (P=0.0000) and had suffered from diarrhea in the recent past (P=0.0000). The attitude; all clear water was not safe for consumption (P=0.0000), all water

consumption had to be processed (P=0.0000), chemicals were safe to treat water (P=0.0000) and it was not good to share water sources with animals (P=0.0000).

CHAPTER FOUR: DISCUSSION OF RESULTS

5.0 Introduction

This chapter presents the discussions of results. They are based on study findings in relation to the study specific objectives.

5.1. Discussion of findings

5.1.1 Discussion of findings on the social demographic characteristics of the respondents

Majority 190(76%) of the respondents were females and 165(66%) were between 18-25 years. This implied that they were young which could have affected their level of knowledge about safe water use. Similarly, Ashish, et al., (2014) found out that, females aged 15 years and above were largely responsible (93%) for fetching water from water source.

There were 168(67%) of the respondents who were married and 135(54%) were housewives. This implied that these people needed a lot of water for domestic supplies which needed enough emphasis on safety.

Respondents had low levels of education as reported by 143(57%) who had primary education. This could have affected their level of understanding the different information disseminated through the different channels.

5.1.2 Findings on the knowledge on safe water use among the community members

Out of the 250 respondents interviewed, 210(84%) had ever heard of safe water use, 134(64%) understood it as was clear water that could not make one sick. Despite having heard of safe water, they did not have the right knowledge on water safe water was because majority gave a wrong definition. This could have led them to use unsafe water thinking that it was safe for consumption.

Generally the community members had never had any formal education about safe water use as reported by 145(58%) of the respondents respondents thought safe water sources were; 150(60%) media, 70(28%) health workers, 25(8%) family members while 10(4%) NGOs.

Also most respondents 158(63%) did not know safe water sources. This was very dangerous which meant that majority of the respondents drew water from any point they found. In an

interview, one respondent revealed that, 'I do not mind where I draw water from so longer as it will help me clean at home and wash utensils'. This predisposed them to water borne diseases such as cholera thus a problem. In relation, WHO, (2015) showed that, there was general lack of right information about the right sources from where safe water could be drawn. The Key facts from WHO, UNICEF, Joint Monitoring Programme 2015 report, indicated that local communities had not done enough to educate the local people on how to create and maintain water sources.

Respondents did not know the ideal distance between a latrine and a natural water source as majority 140(56%) mentioned that it should be between 10 and 20 meters. This meant that they never knew the ideal distance which implied low knowledge about safe water use.

Despite the fact that 170(68%) had reported that they were aware of the effects of using unsafe water, they could not directly mention the right effects. This was because 90(53%) of the respondents mentioned high body temperatures which was not a direct effect. May be high temperatures could have resulted from the typhoid they suffered from when they took unsafe water. Similarly, Wright (2012) revealed that 51% of the participants knew that unsafe drinking water can cause general fever, whereas 22%, 18%, and 16% of the participants reported common cold, diarrhea, and vomiting respectively as potential consequence of drinking unsafe water. However, some studies such as Nantambi, and Waiswa, (2015) in a report extracted from New Vision Online Website, indicated increase in typhoid cases in Kampala. It was established that, majority of the community members especially from slum areas were not aware of the effects of using unsafe water on health. M

There was low knowledge 185(74%) did not know the water borne diseases, where 35(53%) mentioned malaria. This was wrong information which needed to be revealed. Similarly, Vivas, et al., (2010) in a study on knowledge, Attitudes and Practices (KAP) of Hygiene among school children in Angolela district of Ethiopia, revealed that, majority of learners knew about waterborne diseases but could not mention any diseases. However, about 65.0 ± 1.97% did not know about the route of transmission of waterborne.

There was also low knowledge about the importance of fetching water in covered containers as reported by 130(52%) of the respondents. Fetching water in open containers increased the rates of contamination which made water unsafe for use.

There were 195(78%) of the respondents who thought that safe drinking water services should be free of charge. This could be a right perception because even the United Nations Organization and World Health Organization acknowledge different governments to provide safe water for their

Further on, 110(44%) thought that, refrigerators as the best water storage as it remained cool and pleasant to drink. Refrigerating water was good because it kept it cool but it had to first be purified to kill off the germs. If water is not first purified, the coldness of the refrigerator can kill off the germs. In relation, Kamal, (2009) reported that, majority of community members thought that refrigerated water was safe for drinking. They had a perception that very cool water could not allow germs to survive. Some respondents in West African country Mali, who had electricity and refrigerators felt that it was a wastage of time to boil water and then take it.

Unfortunately, 203(81%) thought that all clear water was safe for consumption basing on the arguments that 114(56%) there were no visible germs. This was wrong because, 208(83%) had suffered from diarrhea in the recent past but 49(59%) thought it was due to change of diet. Respondents generally lacked information the right effects of taking unsafe water. Hulton, (2012) reported that, 40% of the participants in various water use studies carried out in WHO regions, did follow any methods of water treatment and among them half of the participants felt that piped and rainwater was already clean and did not require any additional treatment. They thought that rain water comes from the cloud where no pathogen could survive so water from it was safe.

5.1.3 Discussion of the findings on the attitudes on safe water use among the community members

Out of the 250 respondents; 205(82%) believed that all clear water was safe for consumption. This was a wrong perception because germs that cause disease are very small that cannot be seen by our naked eyes. Similarly, in a study in Vietnam, Noi, (2008) findings indicated that, majority of the participants (95%) perceived that the quality of water being used was safe while 71% of

the participants agreed that quality of water could affect health status of an individual if not stored well even if it was drawn from a safe source.

However, majority of the 183(73%) believed it was important to have an educational program related with potable water consumption and hygiene practices. Also, 215(86%) believed safe drinking water services were supposed to be free of charge. This implied that people were just ignorant about safe water use but would take up the knowledge if right information about safe water use was given to them which implied a positive attitude.

There were 167(67%) who believed that it was not good to always fetch water in covered containers which was a negative attitude towards safe water use. 210(84%) did not believe that all water for consumption should be processed which was a negative attitude. Chen, *et al.*, (2015) revealed that respondents had positive attitudes towards purifying water relatively negative attitudes towards safe water use. Some of the participants revealed that they disliked un-treated water because those who drunk it fell sick while those that never drunk it did not fall sick.

233(93%) believed chemicals were not safe to treat water, Blanton, and colleagues (2010) in a study on the evaluation of the role of school children in the promotion of point of use water treatment and hand washing in schools and households—Nyanza Province, western Kenya, some respondents had negative attitude towards use of chemical to purify water. They thought that, they could cause them illnesses such as cancer yet they had ever taken untreated water and never felt sick.

Poor attitude still prevailed where 173(69%) believed that water processed by filtering was safe for drinking which was wrong because diseases cause germs are very small that they pass through the sieve and cause infection any individual who consumes that kind of water.

There were 205(82%) respondents who believed that distilled water was safe for drinking; Ministry of Health Republic of Indonesian, (2010) stated that, mothers had a positive attitude towards safe water. Findings showed that, 60% of the mothers recommended that water for domestic use would be clean and acquired from a safe place from all possible contaminants.

They revealed that drinking water would be kept in a clean container and clean place to avoid making family members sick.

Finally, 240(96%) believed that boiling was the best way to process water, 162(65%) did not believe that it was not good to share water sources with animals and 200(80%) believed that it was good to cover water for consumption.

5.1.4 Discussion on the findings on the practices among the community members on safe water use

Majority 185(74%) of the respondents freely took all clear water even if they did not know whether it was processed because 80(43%) had taken it for a long time without any problem. This was wrong because clear water can contain micro organisms that can cause infection and diseases result. Some of such respondents could even have suffered from water borne diseases but they did not know the cause. Similarly, Kagolo,(2012) noted that, the high water prices made people develop negative attitude towards the use of safe water. In some areas like Kawempe Mbogo, a 20-litre jerry can of water cost between sh200 and sh500 yet majority were very low income earners. This forced many people to draw water from contaminated, unprotected spring wells, exposing them to health hazards such as cholera, dysentery and diarrhoea.

Piped wells and open wells 108(43%), 75(30%) respectively were the major sources of water in the area, 120(48%) fetched water from a distance between 10 and 20 meters. This could have led to 215(86%) suffering from typhoid, diarrhea, dysentery and cholera in the recent past, 142(57%) fetched water in closed jerry cans. It could be that some piped wells were contaminated by animals that fed around the wells.

Water boiling was the major water processing method used by majority of the respondents as reported by 160(64%). This was the most familiar method to most people because they boiled water after cooking food which helped them to save a lot. Similarly, Hrudey and Hrudey, (2007) noted that, around two third (64.3%) of informants were aware that boiling or filtering water can prevent water borne diseases but it was being practiced in only 10 % of households. In India, approximately 72.7 per cent of the rural population does not use any

Also 110(44%) of the respondents kept in open jerry cans or buckets/containers which exposed such water to contamination. In contrast, Awuah, et al., (2009) in a study carried out in Ghana, found out that, 75% of them stored drinking water in wide mouth closed containers and most of them cleaned water containers daily (70%).

Lack of a community committee on management of water sources as reported by 198(79%) of the respondents could have led to 210(84%) shared water sources with animals. This implied that, some people who reared animals were not bothered because no one could penalize them which was a wrong practice. Similarly, Tatlock, (2006) in a daily News Brief Reported on water stress in Africa, stated that many people were not familiar with the right water storage facilities to maintain the water safe for domestic use and drinking. Report findings showed that, some people did not regularly cover their water.

5.1.5 Discussion of the findings from the observations made by the researcher

It was observed that, most of the water containers were unclean, source were close to latrines, never protected water sources, did not usually cover drinking water. This scenario highly predisposed community members to water borne diseases because most of them got water from natural sources that could easily be contaminated by the pit latrines which were the commonest in the area.

However, community members never shared water sources with animals. This could have reduced the chances of contaminating the water. About purification, majority of the respondents never left water to settle to use it, never used chemicals, but boiled, filtered and refrigerated water for consumption. Similarly, Hrudey and Hrudey, (2007) noted that, around two third (64.3%) of informants were aware that boiling or filtering water can prevent water borne diseases but it was being practiced in only 10 % of households. In India, approximately 72.7 per cent of the rural population did not use any method of water disinfection.

About purification, majority of the respondents never left water to settle to use it, never used chemicals, but boiled, filtered and refrigerated water for consumption. This was a wrong practice because chemicals are safe to human life and filtered and refrigerated water is not safe for consumption. Similarly, Ashish, et al., (2014) found out that, 83% of the participants perceived

gastrointestinal tract infection as the most important health problem. Some 75% of the participants did not use any method for drinking water treatment.

5.2 Discussion of bivariate relationships between variables.

The significant factors among social demographic characteristics of respondents were; marital status (P=0.0000). Marital status was another variable significantly associated with safe water use (P<0.05). This is possible because spouses especially husbands influence their counterparts in water use. The counterparts may obey because they follow and adapt the suggestion of the opposite sex and do not want to hurt the feelings of their spouses. In a study done in India by Bhattacharya et al (2013) found out that, 83% of the participants perceived found out that majority of the respondents were married. To me as a researcher, in families/ households there is need for good health which starts with basic hygiene and sanitation which starts with consuming drinks and foods free of germs. Policy implication of these findings is that it is important to sensitize both married couples regarding the dangers of using unsafe water so that both understand and comply accordingly. In another study done in India, 81% of families fetching water from a distant source and women were more responsible for fetching water in comparison to males (Poulos et al, 2012).

Education was another variable significantly associated with safe water use (P<0.05). Educating people about water use and the effects of unsafe water use creates awareness to people about the different ways they can maintain water. Through education, community members become aware of the best sources of water, perseveration, purification and storage. The government should use the media to educate and sensitize the public about safe water use. Mass media especially televisions, radios and internet should be used so that even people in remote areas receive the information.

Knowledge was measured on awareness of respondents about safe water sources was another variable significantly associated with safe water use (P<0.05). Majority of the respondents never knew safe water sources. This could be due to the fact that they fetched water from wells for a long period of time and some of them did not know that they were at risk of contracting water borne diseases. Also majority not did not have good knowledge about water borne diseases (P=0.0000) where they had mix knowledge. They mentioned; malaria, diarrhea, measles, cholera and cough. Being not sure of water borne diseases was an indication of low education

about safe water use. A few who know water borne diseases revealed that they had suffered from them in the recent past. The government should construct safe water sources and educate people at community levels for safe water use.

Majority of the respondents had poor attitude on safe water use. Majority believed that all clear water was safe for consumption (P=0.0000). This factor was a significantly associated with safe water use (P<0.05). There is a lot of clear water especially from piped wells especially those that were near contaminants such as toilets.

Most respondents thought that chemicals were not safe to treat water and it was a significant factor in water use (P<0.05). Given low routine education about management of water, most respondents did not know that chemicals used to treat water are clinically proven to human consumption. Policy-wise the government should introduce more user friendly means of purifying water which are accepted by all the community members. Similarly, in a study carried out in Thandalam village, Chennai, India, Kuberan et al (2015) reported that, majority of the respondents had poor practices towards safe water use. Findings showed the 45% of the participants were not following any methods of water treatment and among them half of the participants felt that water available to them was clean and did not require any additional treatment.

Majority did not know that it was bad to share water sources with animals with a significant value (P=0.0000). Some animals like cows and goats were regarded clean and people never felt bad if they shared water sources with them. This exposed them to helminthes and other intestinal parasites which cause them water borne diseases. Policy-wise, the local community administrators are reluctant with enforcing laws regarding protection of water sources from all contaminants.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter includes; the major findings of the study and the suggested solutions to the problems found in the study

6.1 Conclusion

Social-demographically majority of the respondents were females, young, married, housewives with low levels of education. Respondents had low knowledge on safe water use because; they could not define it because they had never had any formal education about it, did not know safe water sources, did not know the ideal distance between a latrine and a natural water source were unaware of the major effect of using unsafe water, did not know the water borne diseases, as they wrongly mentioned malaria, thought refrigeration was the best water storage, considered clear water safe for consumption and did not know that diarrhea was a water borne disease.

They also had good attitude towards safe water use among the community members because they believed it was important to have an educational program related with potable water consumption and hygiene practices, believed that boiling was the best way to process water, believed that distilled water was safe for drinking, believe that it was not good to share water sources with animals and believed that it was good to cover water for consumption. Though some believed that all clear water was safe for consumption, believed safe drinking water services were supposed to be free of charge, did not believe that all water for consumption should be processed, believed chemicals were not safe to treat water, did not believe that water processed by filtering was not safe for drinking, believed it was not good to always fetch water in covered containers,

There were poor practices among the community members on safe water use because they freely took all clear water even if they did not know whether it was processed because they had taken it for a long time without any problem, fetched natural water sources that were close to pit latrines, shared water sources with animals and there was no community committee on management of water sources.

It was observed that, most of the water containers were unclean, close to latrines, never protected water sources, did not usually cover drinking water, but never shared water sources with animals.

About purification, majority of the respondents never left water to settle to use it, never used chemicals, but boiled, filtered and refrigerated water for consumption.

6.2 Recommendations

6.2.1 Government

- Should emphasize education talks on the use of safe water. This should emphasize the safe water sources, way of collection, processing and storage. This should be done over the different media channels such as radios, televisions and newspapers that are accessible to the general community.
- They should avail safe water to the community at cost friendly terms. They should provide tap water services to the people so that they connect at lower costs and build modern wells in contamination free areas to provide safe water for domestic and industrial use.
- Analytical tests should always be done to test the safety of the water people use in different areas so that appropriate measures are done to avoid diseases outbreak.

6.2.2 Health workers

- They should educate the community members about the effects of unsafe water use and clearly identify to them the water borne diseases.
- They should make reports to the Ministry of health and the central government so that efforts are done to avail safe water to the people
- They should carry out community outreaches on the safety of the different water purification methods use. They should educate them on the safety of chemicals used to treat water and the dangers of consuming filtered water.

6.2.3 Local administrators

- They should pioneer education talks to the community members on water use because they have better access and authority to them than any administrator in the central government.
- They should penalize community members who contaminate water sources.

6.2.4 Community members

- Community members should equally seek medical help in cases of illness

- They should change their perception that all clear water is safe for consumption.
- They should engage in the maintenance of water sources so that they always get safe water.
- They should build protection around water sources. This may be through fencing or building a perimeter wall around the water source.
- They should cover all drinking water all the time
- They should fetch water from a water source that is over 30 meters from a major contaminant such as a pit latrine.
- They should fetch water in closed containers and cover all the water at home to avoid any form of contamination.

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APPENDIX I: CONSENT FORM

Title of the study……..……..

Name of Investigator……..……..…….

Phone numbers……..……..……

I understand that I am agreeing to participate in a research project that the purpose of the study is to identify……..……

I will be asked a series of interview questions and the investigator will record my answers. My name will not be used and the confidentiality of my responses will be protected. The entire produce will take 10-15 minutes. My participation will take place in a private area with only the researcher present. I can decline to answer any question.

Risks

The interview is entirely voluntary and does not entail any foreseeable risks. I understand that I may quit at any time. All data will be maintained in a locked file by investigator for one year and then shredded. Benefits of participation may include a contribution to scholarly research that identifies issues of……

Participation

I understand that my participation in this study is voluntary and that I may withdraw from the study at any time. My refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled. I will understand that I will not be compensated for my participation. An offer has been to answer all of my questions and concerns about the study. I will be given a copy of the dated and signed consent form to keep.

Signed …… **Date……..**

Investigator ……..…… **Date……...……..**

APPENDIX II: QUESTIONNAIRE

Dear Respondent Am, **Birungi Patience,** a student of International Health Sciences University pursuing a bachelors degree in Nursing. As a requirement for the course a research study is supposed to be carried out to fulfill the course. You are invited to participate in the study entitled, "**Knowledge, Attitudes and Practices about safe water use among community members in Namuwongo Parish, Makindye Division".** The information you provide will be confidential and strictly used for research purposes only. Your time and cooperation will be highly appreciated.

SECTION A: BACKGROUND INFORMATION

1. What is your gender?

a) Male ☐ b) Female ☐

2. How old are you?

a) 18-25 years ☐ b) 26-36 years ☐

c) 37-45 years ☐ d) 46 years and above ☐

3. What is your current Marital Status?

a) Married ☐ b) Unmarried ☐

c) Separated ☐ d) Divorced ☐

e) Widowed ☐ f) Others, (specify) …….

4. What is your occupation?

a) House wife ☐ b) Civil servant ☐

c) Self employed ☐ d) Student ☐

e) Unemployed ☐ f) Others, (specify)……

5. What is your level of education?

a) No formal education ☐ b) Primary ☐

c) Secondary ☐ d) Tertiary education ☐

e) Others, (specify) …….

SECTION B: Knowledge on safe water use among the community members

1. i) Have you ever heard of safe water?

a) Yes ☐ b) No ☐

ii) If yes, can you describe in your own words what safe water is?

……

……

2. i) Have you ever received any formal teaching about safe water use?

a) Yes ☐ b) No ☐

ii) If yes above, from whom did you get that information?

a) Family member ☐ b) Non-Governmental Organization ☐

c) Friend ☐ d) Media ☐

e) Health worker ☐ f) Any other (specify)……

3. i) Do you know a safe water source?

a) Yes ☐ b) No ☐

ii) If yes, what is a safe water source?

a) One protected from reach of animals and other contaminants ☐

b) Piped water ☐

c) Distant from dust bin and toilet ☐

d) All the above ☐

e) Any other (specify)……

4. i) What is the reasonable distance between a latrine and a natural water source?

a) From 5-10 meters ☐ b) Between 10 and 20 meters ☐

c) Between 20 and 30 meters ☐ d) 30 meters and above ☐

5. Do you know the effects of using unsafe water?

a) Yes ☐ b) No ☐

ii) If yes mention them?

……

……

6. i) Do you know any water borne disease?

a) Yes ☐ b) No ☐

ii) If yes mention them?

……

……

…

7. What is the importance of fetching water in covered containers?

a) To avoid water from pouring ☐

b) To avoid contamination ☐

c) For easy transportation ☐

d) Others (specify) ☐

……

……

8. Do you think that safe drinking water services should be free?

a) Yes ☐ b) No ☐

9. How can water be stored safe for consumption?

a) In a refrigerator ☐

b) Open jerry can or bucket/container ☐

c) Closed jerrycan in a cool place ☐

d) In a flask ☐

e) Others (specify)……

10. i) Is all clear water safe for consumption?

a) Yes ☐ b) No ☐

ii) If yes, give reasons for your answer.

……

……

……

11. What do you think are the benefits of protecting or maintaining your water source?

……

……

12. i) Have you and your children suffered from diarrhea in the recent past?

a) Yes ☐ b) No ☐

ii) What do you think caused the diarrhea in your children?

a) Change of diet b) Drinking unsafe water

c) Walking on foot d) Others (specify)……..

SECTION C: Attitudes on safe water use among the community members

1. i) Is all clear water safe water?

a) Yes ☐ b) No ☐

ii) Give reasons for your answer?

……

……..……

…

2. Do you think that it is important to have an educational program related with potable water consumption and hygiene practices?

a) Yes ☐ b) No ☐

3. i) Is it ideal to always fetch water in covered containers?

a) Yes ☐ b) No ☐

ii) If yes, give reasons for you answer.

a) To avoid water from pouring ☐

b) To avoid contamination ☐

c) For easy transportation ☐

d) Others (specify) ☐

……

……

4. Do you think that safe drinking water services should be free?

a) Yes ☐ b) No ☐

5. What type of containers should be used to collect water?

a) Open buckets ☐ b) Closed jerry cans

c) Pots ☐ d) Basins

6. How can safe water be processed?

a) By filtering ☐ b) By boiling ☐

c) By treating it with chemicals ☐ d) By distillation

e) By leaving it to settle ☐ f) Others (specify)…….. ☐

7. Is it ideal to collect water in open containers?

a) Yes ☐ b) No ☐

12. i) Are there any effects of sharing water sources with animals?

a) Yes ☐ b) No ☐

ii) If yes, mention them.

……

……

……

13 What could be the effects of sharing an open water source with many users?

a) High rate of contamination ☐

b) Fighting for water ☐

c) Depletion of the water source ☐

d) Others (specify)…… ☐

14. i) Would you be free to consume any clear water even if you do not know its source?

a) Yes ☐ b) No ☐

ii) Give reasons for your answer.

……

……

……

15. i) Is it safe to treat water for consumption with chemicals?

a) Yes ☐ b) No ☐

ii) If yes, give reasons for you answer.

a	Chemicals are scientifically proven safe for human life, chemicals kill microorganisms present in the water	
b	Chemicals are soluble in water, chemicals evaporate and leave the water safe	

ii) If no, give reasons for your answer?

……

……

SECTION D : Practices among the community members on safe water use

The researcher will use the observation checklist below on issues regarding respondents' practices towards use of safe water.

1. i) Would you be free to take any clear water even if you do not know the source?

a) Yes ☐ b) No ☐

ii) If yes, give reasons for you answer.

……

……

2. Where do you fetch water from?

a) Open well ☐

b) Tap ☐

c) Swamp ☐

d) Rain water in a water tank ☐

e) Any other (specify)…….

ii) If you are fetching from a natural water source, how far is it from a pit latrine?

a) From 5-10 meters ☐ b) Between 10 and 20 meters ☐

c) Between 20 and 30 meters ☐ d) 30 meters and above ☐

iii) If you are depending on water bought from vendors, what is the price of a jerrycan?

……

……

3. Have you suffered any of the following diseases in the recent past?

Typhoid, diarrhea, dysentery, cholera,

a) Yes b) No

4. What type of containers do you use to collect water?

a) Open buckets ☐ b) Closed jerry cans

c) Pots ☐ d) Basins

5. How do you process water to make it safe water (especially for consumption)?

a) By filtering ☐ b) By boiling ☐

c) By treating it with chemicals ☐ d) By distillation ☐

e) By leaving it to settle ☐ f) Others (specify)……..

6. When do you keep your water for consumption?

a) In a refrigerator ☐

b) Open jerry can or bucket/container ☐

c) Closed jerry can in a cool place ☐

d) In a flask ☐

e) Others (specify)……

7. i) Is it good to share water sources with animals?

a) Yes ☐ b) No ☐

ii) If no, what are the reasons for your answer?

a) To avoid destroying them ☐

b) To avoid contamination ☐

c) To avoid threat to human being ☐

d) Others (specify) ☐

……

……

8. Do you always take clear water even if it is not processed?

a) Yes ☐ b) No ☐

9. i) Do you have any committee in your community concerned with management of water sources?

a) Yes ☐ b) No

ii) If yes, what does it actually do?

……

……

OBSERVATION CHECK LIST

No	Item		Yes	No
1	Water containers are clean			
2	Water source is distant from the latrine			
3	Share water sources with animals			
4	Protected water source			
5	Covering of drinking water			
6	Water purification	Boiling		
		Filtration		
		Leaving it to settle		
		Use chemicals		
		Refrigeration		

APPENDIX III: MAP OF THE STUDY AREA

APPENDIX IV: INTRODUCTORY LETTER

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
sanitas per scientiam

making a difference in health care

Office of the Dean, School of Nursing

Kampala, 5th August 2016

THE GO DOWN ZONE LC1 CHAIRMAN
KISUGU PARISH, MAKINDYE DIVISION,
P.O BOX 7010,
KAMPALA.

GO DOWN ZONE LC1 KISUGU PARISH
17 AUG 2016
MAKINDYE DIVISION
P.O. BOX 7010, KAMPALA

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

Greetings from International Health Sciences University.

This is to introduce to you **Birungi Patience,** Reg. No. **2013-BNS-TU-035** who is a student of our University. As part of the requirements for the award of a Bachelors degree in Nursing of our University, the student is required to carry out research in partial fulfillment of her award.

Her topic of research is: Assessing Knowledge, **Attitudes and Practice of safe water use among community member of Lower Namuwongo Parish Makindye Division, Kampala.**

This therefore is to kindly request you to render the student assistance as may be necessary for her research.

I, and indeed the entire University are grateful in advance for all assistance that will be accorded to our student.

Sincerely Yours,

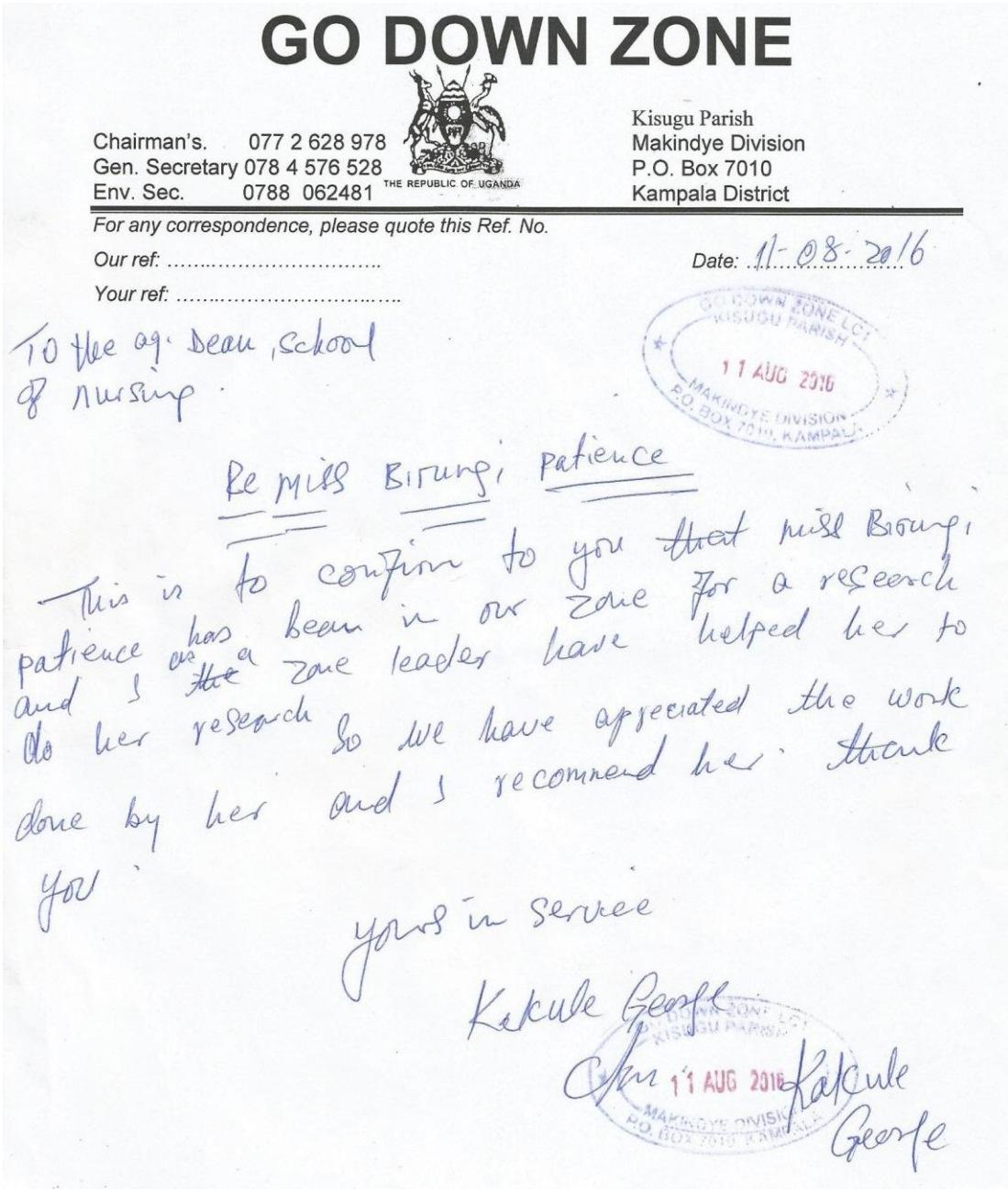
Ms. Agwang Agnes
Ag. Dean, School of Nursing

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
08 AUG 2016
SCHOOL OF NURSING
P. O. Box 7782, Kampala - Uganda

GO DOWN ZONE LC1 KISUGU PARISH
17 AUG 2016
MAKINDYE DIVISION
P.O. BOX 7010, KAMPALA

The International Health Sciences University
P.O. Box 7782 Kampala – Uganda
(+256) 0312 307400 email: aagwang@ihsu.ac.ug
web: www.ihsu.ac.ug

APPENDIX V: CORRESPONDENCE LETTER



GO DOWN ZONE

Chairman's. 077 2 628 978
Gen. Secretary 078 4 576 528
Env. Sec. 0788 062481

THE REPUBLIC OF UGANDA

Kisugu Parish
Makindye Division
P.O. Box 7010
Kampala District

For any correspondence, please quote this Ref. No.

Our ref: .....

Your ref: .....

Date: 11-08-2016

GO DOWN ZONE LC1 KISUGU PARISH 11 AUG 2016 MAKINDYE DIVISION P.O. BOX 7010, KAMPALA

To the ag. Dean, School of nursing.

Re Miss Birungi patience

This is to confirm to you that miss Birungi patience has been in our zone for a research and I as a zone leader have helped her to do her research so we have appreciated the work done by her and I recommend her. thank you.

yours in service

Kakule George

GO DOWN ZONE LC1 KISUGU PARISH 11 AUG 2016 MAKINDYE DIVISION P.O. BOX 7010 KAMPALA

Kakule George