KNOWLEDGE AND PRACTICES OF FOOD SAFETY AMONG FOOD HANDLERS IN THE SELECTED PRIMARY SCHOOLS MAKINDYE DIVISION, KAMPALA

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AN UNDERGRADUATE RESEARCH REPORT SUBMITTED TO THE INSTITUTE OF PUBLIC HEALTH AND MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARDOF A BACHELOR OFSCIENCE IN PUBLIC HEALTHDEGREE OF INTERNATIONAL HEALTH SCIENCES UNIVERSITY

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DECLARATION

I, **Ssebatta FixonRichard**declare that this is my original research work submitted to IHSU institute of Health policy and management; it has never been submitted to any higher institution of learning for any academic award. Where work has been referenced, citation has been made in recognition of the author.

Signed: …….....

Date: .....

APPROVAL

This is to certify that this research report has been under my supervision and is now ready for submission to International Health Sciences University Institute of Health Policy and management with my approval.

Signed: …….

Mrs. Mboowa Mary Gorrethy

(Supervisor)

Date……

DEDICATION

I dedicate this piece of work to my family members especially my Sponsor Dr. Solome Nampewo for her support and endurance in this entire course. Thank you so much for the love you have exhibited to me throughout this time of my studies.

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I thank the Almighty God for the gift of life, protection, provision, knowledge and wisdom and all that He has enabled me to go through in the course of my studies.

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OPERATIONAL DEFINITIONS

Knowledge on food safety; An understanding or acquaintance on the different food safety precautions, diseases, and hygiene among food handlers.

Food handlers; People that directly get in contact with food during its procurement, preparation or storage

Practices; Methods undertaken to handle food during its preparation processes including cooking.

Food safety: It refers to the scientific discipline of handling, preparation, and storage of food in ways that prevent illness

LIST OF ABBREVIATIONS

CDC	Center for disease comntrol
FBD	Food borne diseases
KII	Key informant interview
SPSS	Statistical package for social scientists
UBOS	Uganda Bureau of statistics
WHO	World health organisation

ABSTRACT

Background of the study: Food is an important basic necessity which is essential for health and wellbeing of humans and so if the proper food handling and preparation proceses are not followed it might pose health risks to the consumer.Pupils in schools can be be exposed to infections and possible complications; gastroenteritis can impair digestion and absorption of nutrients and the perception or fear about poor food hygiene practices might result in pupils rejecting food.

Objective: The overall objective of this study was to establish knowledge levels and practices of food safety among food handlers in selected primary schools in Makindye division, Kampala

Methodology: A descriptive cross sectional study was carried out in Makindye division, 10 primary schools involving 103 food handlers. Schools were selected using a simple random selection so as to get equal respondents.An interviewer administered questionnaire and key informant interview guide were used to collect qualitative and quantitative data which was entered in SPSS for descriptive, bivariate and multivariate analysis.

Results: Safe food was found to be at 20.4% among the food handlers in the selected schools in Makindye division.Three independent factors were found to be significantly associated with food safety; formal training (p=0.00), level of knowledge (p=0.00) and use of protective coverings (p=0.00).

Conclusion: The safety of food in Makindye divison is at stake with only 20.4% safe food among primary schools. This implies that pupils in these schools are at risk of contracting food borne diseases. The low percentage of safe food is attributed to lack of formal training among food handlers regarding food safety, lack of adequate knowledge on best practices of food and failure to wear protective clothings while conducting food processes

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter introduces this study by spelling out the background to the study, statement of the problem, research objectives, research questions, significance of this study, and the conceptual framework.

1.1 Background to study

Globally, Food is an important basic necessity which is essential for health and wellbeing of humans. Therefore, ensuring safe food handling and preparation is of paramount importance. Food borne diseases remain a major public health problem (Abdalla MA, 2008)in developed countries, up to an estimated 70% of cases of diarrheal disease are associated with consumption of unwholesome food (Annor GA, 2011). Food contamination can occur at any point during its preparation, bringing to bear the importance of food safety and hygiene in the prevention of food borne diseases (Chukuezi, 2011).

Apart from the USA, other developed countries also experienced the burden of Food -borne Diseases (FBDs). In Turkey, for instance, a total of 23,010 cases of dysentery were reported in 1997. (Green L, 2005)In Emilia-Romagna, a single region in Italy, 1564 episodes of food-borne diseases were reported between 1988 and 2000 (Ismail Z, 2013). A national survey done by the British government in 2009 revealed that outbreaks of food poisoning had serious financial and social implications (Abdalla MA, 2008). The survey further added that Salmonella alone caused 1939 food-related illnesses (Acheson, 2011). On the same vein, indicated that about one million people suffer from food poisoning every year at an estimated cost of $ 1.5 million annually (Annor GA, 2011). Another observation by Rona Ambrose, Minister of Health in Canada (2014), also reported that although Canada boasted of the safest

and healthiest food safety systems in the world, the Government was still committed to strengthening food safety by giving tough penalties and cracking down those that did not comply with food safety measures.

In industrialized countries, infected food handlers are an important source of food borne disease. Ingestion of infected food can result in mild to severe illness, hospitalization or even death. Diseases with short incubation periods are more likely to be detected and attributed unless otherwise stated to infected food than those with longer incubation periods where the individual may not associate their illness with ingestion of infected food. Bakhiet A (2008).

In developing countries, particularly in most African countries, a change in socioeconomic setting had resulted in multiple food safety challenges (Green, 2003). Green pointed out that between 70% and 90% of employees in Africa were in the food trade. These traders were said to significantly influence the prevalence of Food -borne Diseases (FBDs) in their respective countries. (Ismail Z, 2013)added that availability, distribution and maintenance of adequate supply of portable water and nutritious food were the major challenges to most of these countries. Moreover, inadequate sanitation and physical facilities were said to contribute to lower aesthetic standards, resulting to contaminated food and water (Annor GA, 2011).

In Africa poverty is the underlying cause of consumption of unsafe food. Lack of access to potable water, poor government structural arrangement, communicable diseases, trade pressure, and inconvenient environmental conditions are notable reasons. High incidences of diarrheal diseases among children are indications of the food hygiene situation in the African region.(Jevsnik M, 2008)

In Kenya, like other countries was not exempted from the burden of FBDs. According to (Chukuezi, 2011), up to 70% of all diarrhoeal episodes were attributed to ingestion of contaminated food and water. This study viewed training intervention of food handling

personnel as a solution not only in Kenya but also in Africa and other developing countries struggling with food safety challenges. It was upon this backdrop that this study aimed at comparing food safety and hygiene practices in training colleges to ascertain their capacity in training food safety and hygienic practices. (Annor GA, 2011).

In Uganda, according to how, a food handler is a person with anyjob that requires him/her to handle unpackaged foods orbeverages and be involved in preparing, manufacturing,serving, inspecting, or even packaging of food and beverageitems. All food handlers are required to use properhygiene and sanitation methods when working with food.Food hygiene is the set of basic principles employed in thesystematic control of the environmental conditions during production, packaging, delivery/transportation, storage,processing, preparation, selling and serving of food in sucha manner as to ensure that food is safe to consume and isof good keeping quality. However, food itself can posea health threat, a problem that is serious in developingcountries due to difficulties in securing optimal hygienicfood handling practices. This is because ofadequate supply of safe, wholesome and healthy foods are essential for the health and well‑being of humans (Ababio and Lovat 2014). Food borne diseases are major health problems in developedand developing countries.

The World HealthOrganization estimated that in developed countries, upto 30% of the populations suffer from food borne diseaseseach year, whereas in developing countries up to 2million deaths are estimated per year. Every daypeople all over the world get sick from the food they eat.This sickness is called food borne disease and is causedby dangerous microorganisms and/or toxic chemicals. Millions of people become sick each year andthousands die after eating contaminated or mishandledfoods (Green L, 2005). Food handlers with poor personal hygieneworking in food establishments could be potential

sourcesof infections of many intestinal helminthes, protozoa, andpathogenic bacteria. Food handler are anyone whoworks in a food and drink establishments and who handlesfood, or contact with any equipment or utensils that are likely to be in contact with food, such as cutlery, plates,bowls, or chopping boards.(Jevsnik M, 2008)In Makindye division, Food hygiene in the selected primary schools can acquire peculiar features: indeed, many pupils could be more vulnerable than healthy subjects to microbiological and nutritional risks; large numbers of persons can be exposed to infections and possible complications; gastroenteritis can impair digestion and absorption of nutrients and the perception or fear about poor food hygiene practices might result in patients rejecting the meals supplied by the hospital catering (Abdalla MA, 2008).

1.2 Statement of the problem

Foodborne diseases present a serious challenge to public health in Makidye division. Studies done in selected primary schools have indicated that the majority of reported foodborne diseases originate in food service establishments (Green L, 2005), and studies on foodborne disease risk factors have indicated that most outbreaks associated with food service establishments can be attributed to food handlers‘ improper food preparation practices (Friedman et al., 2004). Additionally, observational studies have shown that food handlers frequently engage in unsafe food preparation practices (Clayton and Griffith, 2004,). The public health objective of food hygiene and safety is the prevention of illness attributable to consumption of food. The principle of food hygiene implies that there should be minimal handling of food items. Food handlers are thus expected to observe proper hygiene and sanitation methods as the chances of food contamination largely depend on their health status and hygiene practices. Despite efforts in place by Uganda food and drug authority and integration of the food and nutrition in school health program, morbidities and mortalities

have been associated with consumption of contaminated foodstuffs (Havelaar et al,2010). If nothing is done to combat this problem in schools, it will lead to increased morbidity, school absenteeism, low grades, school drop outs and the consequential increased illiteracy among future adults which also leads to increased dependency and low economic productivity in the long run. The main objective of this study is to establish knowledge and practices of food safety among foodhandlers in Makindye division in order to initiate specific food provider improvement services for the maintenance of health among school children.

1.3 General objective

To establish knowledge levels and practices of food safety among food handlers in selected primary schools in Makindye division, Kampala

1.3.1 Specific objectives

i) To determinethe socio-demographic characteristics of food handlers in selected primary schools in Makindye division, Kampala
ii) To assess knowledge on food safety among food handlers in selected primary schools in Makindye division, Kampala.
iii) To investigate practices on food safety among food handlers in selected primary schools in Makindye division, Kampala.

1.3.2 Research questions

i) What are socio-demographic characteristics of food handlers in selected primary schools in Makindye division, Kampala?
ii) What is the level of knowledge on food safety handling among handlers in selected schools in Makindye division, Kampala?

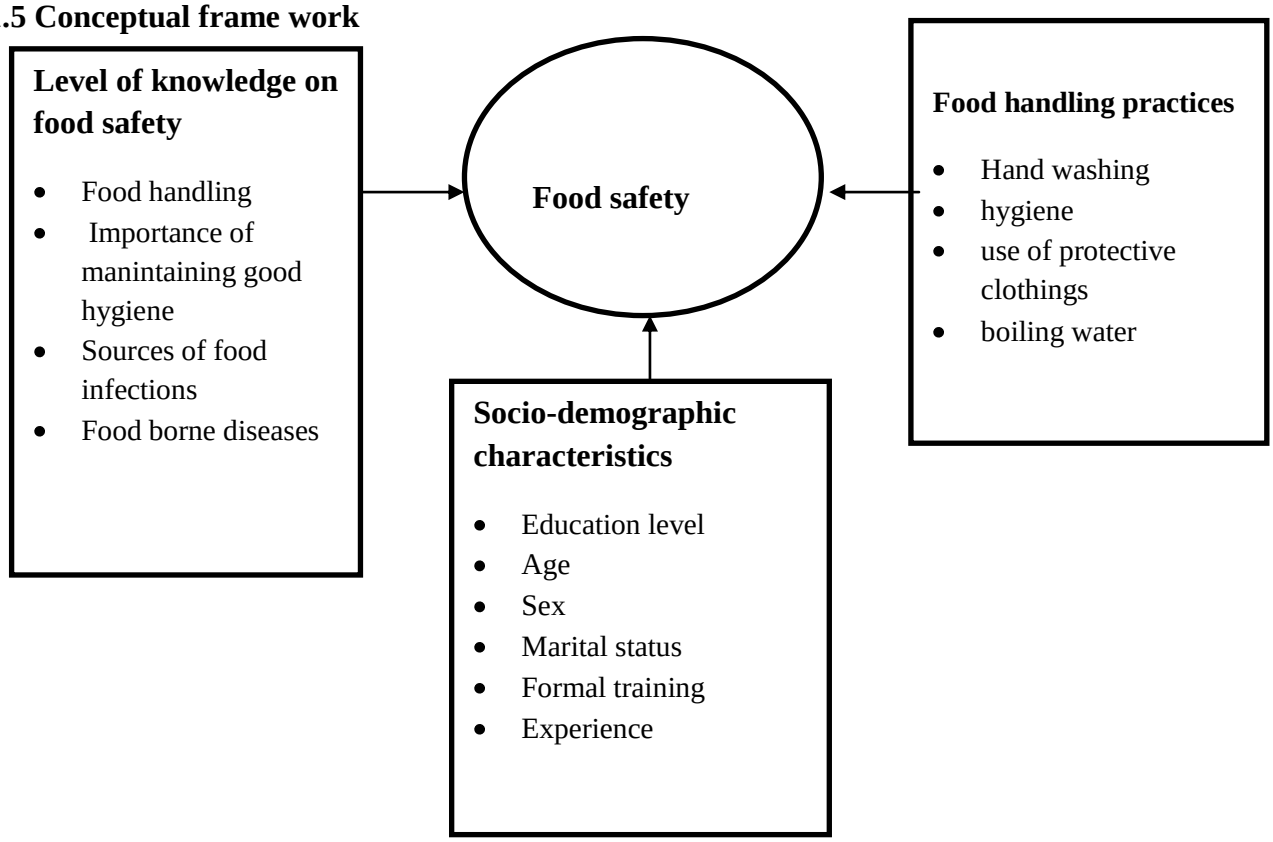
iii) What are the current practices on food safety among food handlers in selected schools in Makindye division, Kampala?

1.4 Significance of the study

This will add to knowledge among scholars on matters regarding school health programs and intended interventions can be planed as per evidence based findings.

The findings obtained will be relevant in determining the most appropriate measures towards eradication of agents of food contamination and education of the food handlers on adherence and maintenance of standards regarding food hygiene.

1.5 Conceptual frame work



Narrative of the frame work

There are several factors that could affect food safety and among them are; socio-demographic factors, knowledge and practices on food safety.

The socio-demographic factors are; sex, age, education level, formal training in food safety, and experience.

The knowledge levels could be determined by testing on the following issues; food handling best practices, importance and risks of hygiene, sources of and types of food borne diseases.

The practices on food could include; hygiene/handwashing, use of protective clothings to mitigate infections, boiling water, and

CHAPTER TWO: LITERATURE REVIEW

2.1 Socio-demographic characteristics

According to a study by Rennie (2008), the food safety training programs might reach only to the people interested in food safety and willing to behave appropriately. Mandatory food safety training programs do ensure a wider and coverage of people handling food. Effectiveness of food hygiene training programs is usually measured by the change in food hygiene practice, food safety knowledge, or food violations detected through inspection or observation. Various studies have been carried out to test the efficacy of these training programs and yielded mixed results.

In Rennie's study, respondents between 21-35 years accounted for the biggest proportion of the sample (49%), followed by those between 31-50 years (23.6%) and those under-21 years (15.5%). 7% of food handlers surveyed were beyond 50 years of age. Regarding gender distribution, women dominated (65%) and only 34% for the men. According to the study, 55% of the food handlers had attained a secondary level of education; 6% of the food handlers had not gone beyond primary education, 1% lacked formal education while 15% had tertiary education. Quite a big proportion of food handlers were employed in the food service industry between 1-5 years (forty three percent), while only 18% had less than a year of work service. 5% of food handlers were employed for over ten years. Majority of the food handlers (fifty two percent) were at the moment employed as food workers, and 12% employed in supervisory positions or management.

The study findings on knowledge and practice of food safety in Uganda (Charles Muyanja et al, 2011), it was revealed that majority of the food handlers were between 21-40 years. There was no significant association between food safety and age. In the study it was noted that

26.4% of respondents above 40 years and 6.7% were less than 20 years old. Muyanja et al also found out that food handlers had relatively low level of education.

In a study in Nigeria about the knowledge and practice of food safety and hygiene among food vendors in primary schools, Tolulope et al (2015) found out that most (51.7%) of the respondents were between the age group of 27-36 years, 119 of these were women while only 57 were men. 67.2% of the food handlers were married and only 24.7% were single. In the study 55.2% of the food handlers were found to have completed secondary education while 14.9% had completed tertiary education. Food handlers who had worked for more than 5 years were 53.4%. Tolupe found out that respondents that were trained in food management were 5 times more likely to practice safe food and hygiene practices than those without training, he also found out that age was not associated with food safety and hygiene (p=0.078).

Park et al. (2010) carried out a study in the republic of north Kore among small franchise restaurants, and the study was about the knowledge and practices of food handlers concerning food safety performance. Park revealed that hygiene education and training based on theoretical impartation of knowledge alone was not enough to improve practices and attitudes of the food handlers. Park revealed that food handlers that were trained in safe food handling and practices were 5 times more likely to adhere to safe food and hygiene practices compared to those that were not trained. Park also added that training was only mandatory for supervisors,

A study by Rennie et al (2008), he found out that food handlers' knowledge with respect to hand washing and the use of thermometer was significantly lower for food handlers for whom

training was mandated than those where training was mandatory for only managers ($p < 0.001$).

According to study by Tan et al (2011) on personal hygiene knowledge and practices among food handlers at selected primary schools in Malaysia, majority (68%) of respondents were male while only 32% were females. More than a half (64%) of the respondents were between 41-60 years, 24% were between 30-40 years, while only 12% were between 61-70 years. In the study majority of respondents were quite well educated with the highest (4%) educational level being diploma, 64% had secondary education, and 32% had primary education. In regards to work experiences, most of the food handlers (44%) had between 1-5 years of work experience, 20% had 6-10 year experience, 4% were between 11-15 years and 8% were less than 1 year.

Hislop et al (2009) carried out a study in Canada to determine the food safety knowledge of food handlers in the food service industry. Knowledge of respondents was assessed by use of standardized and self-administered questionnaire. The study showed that food handlers training was significantly associated with the level of knowledge (p=0.007). This meant that trained food handlers were more likely to adhere to safety precautions hence able to prepare safe food.

According to a study by Jianu et al (2012) to determine food safety knowledge level, it was found out that there was no significant association between food handlers' knowledge level and food safety based on gender, age, or professional experience(p=0.23).

According to study in Slovenia (Jevsnik et al, 2008) to assess food safety practices and knowledge among different food handlers in 2005, it was reported that most of the food handlers were females and that sex was not significantly associated with food safety (p=0.067, OR=0.23). In the same study majority of the respondents were those with lower than a high school education level.

In another Tokuc et al. collected demographic data, along with information on knowledge about food hygiene, foodborne diseases, attitudes about prevention of foodborne diseases, and practices with regards to the prevention of food contamination. Twenty three food service workers from three hospitals participated. Tokuc et al. showed that there was a general lack of knowledge regarding correct holding temperature of food (41% incorrect responses), foodborne pathogens (41% incorrect responses), and refrigeration temperatures (27% incorrect responses). Attitude to food hygiene, especially hand washing, was good as 95% of respondents believed it was important to wash hands to reduce the risk of contamination. However, practice was not consistent with attitudes as 60 hand washing and glove use to prevent cross contamination were not frequently practiced.

In study conducted by Marcia et al (2014) on the knowledge and practice on food safety it was found out that sociodemographic variables like; gender education ($\chi 2 = 14.527$, $p < 0.05$), job position ($x^2 = 9.425$, $p < 0.05$), training ($X^2\ 124 = 27.183$, $p < 0.001$), , $p < 0.001$), and experience in the food industry ($\chi 2 = 39.796$, $p < 0.001$) were significantly associated with food safety.

Roberts et al (2010) found that training had a significant impact on hand washing knowledge ($p < 0.05$) and behavior ($p < 0.00$) and generally to food safety. Food handlers that were

trained were 7 times more likely to meet food safety precautions than counter parts that had not.

2.2 level of knowledge among food handlers on food safety

Pilling et al. (2008) assessed the effect of mandatory training of food handlers and managers on behaviors and knowledge in regard to food safety. Three behaviors were investigated in this cross-sectional study: washing of hands, the use of thermometer and the handling and management of food and work surfaces. The study findings found out that 55.2% of the respondents could correctly define and comprehend food borne disease 83.3%, 75.9% and 11.5% mentioned diarrhea, cholera and Hepatitis A as some of the types of food borne disease respectively. The majority (60.9%) of the food handlers in the study had good knowledge of food safety and hygiene while few had poor knowledge. Level of knowledge was found to be significantly associated with food safety (p=0.004)

Jianu et al, (Nigeria, 2006) revealed that knowledge levels were significantly associated with food safety and hygiene (p=0.011) in addition, respondents with higher education levels had more knowledge levels than those with low knowledge (Jianu et al, Nigeria, 2006).

In a study in Kampala, Masaka and Jinja by Muyanja et al (2011) it was revealed that majority of the food handlers defined diarrhea as the passing three liquids of stool daily. Majority of the respondents, Jinja (87.5%), Kampala (75.9%), and Masaka (71.4%) reported that diarrhea is a result of germs. In Kampala, no respondent associated diarrhea with either passing of bloody stool or mucoid stool. In Kampala only 7.2 % had knowledge about the risk factors from transmission of pathogens (p=0.002), in Masaka it was only 22.9% while 4.2% for Jinja. It was deduced that the lack of knowledge among food handlers is a great risk

factor to transmission of pathogens to food and that Viruses and bacteria contaminate food during processing and lead to diarrhea diseases.

Marcia et al, 2014 conducted a study about Food Safety Knowledge and Practices of Food handlers in Jamaica, from the majority of food handlers showed to have good knowledge on food safety and hygiene. 30% of respondents reported that it was okay to prepare food with a wound on the hand given that a wound is covered with a bandage. Regarding cross-contamination, 32.9% of respondents reported that water and soap alone can be used to kill micro-organisms during and after preparation of raw meats, 23.2% never knew whether foods prepared with multiple steps could increase the chances of the food being contaminated (p=0.010). 90% of the food handlers reported that meat slicers, cutting boards, and knives must be thoroughly washed and sanitized every after use and they disagreed with statements that ready-to-eat foods can be used on the same cutting board which was used to prepare for the meat.

Knowledge of food hygiene and food safety was found to have statistically significant relationship with food safety and hygiene. (Cuprasittrut *et al*., 2011).

Ibrahim et al 2010 indicated in their study that almost all respondents (90.2%) agreed that not adhering to the rules of food hygiene during food management and production causes food-borne disease. In another study by Tokuc et al. in 2009, food handlers working in the beverage and food departments of hospitals had high levels of knowledge on food safety.

According to Walker et al, 2003 (United Kingdom) stated that the most ideal temperature for preservation of hot ready-to-eat food needs to be approximately 60 degree centigrade. According to Tal et al, almost a half (48.8%) of the students knew the correct temperature for preserving food.]’

2.3 Food safety practices among food handlers

According to study by Green et al (2006) found that 40% of workers handling ready-to-eat foods wore gloves and changed gloves on an average 15.6 times during an 8 hour shift and that food service workers washed hands on an average 15.7 times during the same time interval. It was revealed that respondents that washed hands were 5 times more likely to produce safe food (p=0.00).

In a study by Van Tonder et al. (2007) about the personal and general hygiene practices and level of training of food handlers in retail outlets in South Africa. In the study data was collected from 50 randomly selected food handlers from 35 food outlets using interviewer administered questionnaires. The study findings revealed that majority of the respondents had good level of food handling practices such as washing hands before and after visiting the toilet, most of the respondents put on gloves and other protective clothing, respondents that put on protective clothing and gloves never suffered from cough and diarrhea. 82% of respondents wore protective clothing and gloves. It was discovered that respondents who wore protective clothing were 5 times more likely to prepare safe food than those who never wore.

Lubran et al (2010) also conducted an observational study to examine the behavior of food employees in 9 stores of the departments of Deli in Maryland and Virginia and also find out the compliance level with the Food Code. A notational analysis observation protocol focusing on the washing of hands and equipment cleaning, utensils and surfaces was used to collect data from the food handlers. Lubran et al found that all food handlers used gloves every time they prepared and handled ready-to-eat foods. However, washing of hands was observed in only seventeen percent of recommended times. Washed were frequently and mostly washed

at the occasions when gloves were washed, food handlers did clean and sanitized their food contact surfaces 100% of the recommended times.

DeBess et al (2009) also conducted a study among food handlers in Oregon to determine their practices and knowledge in regard to food hygiene and to find out the possible gaps in training and education on food safety. In the study it was revealed that the majority of food handlers reported to have quite adhered to good hygiene practices with respect to hand washing questions in that seventy eight percent of respondents washed their hands before touching cooked foods and 65.4% before touching unwrapped raw foods. He concluded that one of the most significant measures to reduce food-borne disease spread is good kitchen hygiene practices, and this can be improved through the training of food handlers

In a study by Ibrahim Giritlioglu et al (2007), he emphasized that one of the most important rules in food production is that the food handlers must wear caps, gloves and masks so that they can prevent contaminating food with pathogens. In his study it was revealed that most (97.6%) respondents wore gloves, caps and masks during food production. Also Çakiro et al (2008) also found similar results in their study, where eighty three percent of the food handlers wore masks, caps and gloves during food production. Cakiro et al reported that protective clothing do cut transmission of pathogens to food by 20%. In Ibrahim's study it was revealed that majority of the respondents kept all their working places tidy and hygienic during food production. Additionally, 90.2% of food handlers stated that they never wore the same clothes and shoes both inside and outside of the production place. A most all respondents (81.7%) revealed that that they never touched raw food without wearing protective gloves. Most of the students (84.2%) indicated that they did not wear jewellery

during food production. Walker et al. (2003) also found that 97% of food staffs took off their jewellery before engaging in food production

In a study by Tan et al, Malaysia (2013) almost all respondents reported that they always washed their hands after using a toilet.There one can see that almost all of the students (98.8%) reported that they always washed their hands after using the toilet, which is vitally important to safe food production. Tokuç et al. (2009) found a similar result in their study, where 93.2% of the food staff washed their hands after using the toilet. Ninety-two point seven percent of the students also indicated that they always changed their uniform after food preparation.

In another finding on the subject of personal hygiene, 75.6% of the students said they always washed their hands after coughing or sneezing, while 12.2% said they often did so. In a study done by Ehiri et al. (2007), it was determined that 74% of the trainees receiving hygiene education had correct information relating to bacterial contamination resulting from coughing or sneezing. vendors in Jinja and Masaka cooked food during sale.

World Health Organisation (2005) reported that foods that are cooked immediately prior to consumption are safer than those which have been cooked and stored at ambient temperature. Improper storage or holding temperature is a common factor contributing to food borne

A study was conducted to determine personal hygiene knowledge among 25 food handlers at 12 selected primary schools in Klang Valley area, Selangor, Malaysia. A qualitative approach using in-depth interviews was employed and respondents were selected by a convenience sampling. The results showed that the respondents had basic knowledge on personal hygiene practices, mainly on hand washing (30.7%) and glove use (18.7%). The food handlers (<11%) also demonstrated their knowledge on other good personal hygiene practices that

were related to the use of hair restrain/cap/apron, keeping tidy hair/ clean nails/ clean hand, no bare hand.

In a study by Tan (Malaysia, 2011) 12% of food handlers were able to describe a reasonable procedure for hand washing and the steps that were missed most were the failure to specify the need to rinse and dry hands after washing. The respondents knew that the use of glove was to prevent bare hand contact (80%) and can reduce risk of food contamination (88%). All the respondents agreed that food handlers with abrasion or cuts on their fingers or hands should not touch unwrapped foods. A high percentage respondents (>90%) practiced various good hand washing practices, with only 36% did not practice washing hands after eating or drinking. Most respondents (>70%) practiced glove use, however more than 50% did not wash hands with every glove change, change gloves when change type of products and after preparing raw material. The study showed that the food handlers have basic knowledge one good personal hygiene practices. However, some discrepancies were revealed in the proper hand washing procedure. The study recommended good hand washing procedure to be reiterated among the food handlers. There is also an immediate need for continuous training among food handlers regarding good personal hygiene practices

A study in Malaysia (Tan 2011), Hand washing was the most familiar practices performed by the respondents (30.7%), followed by glove use (18.7%). The other 4 main examples given by the food handlers were the use of hair restrain (10.7%), keeping clean nails (8.0%), the use of apron (5.3%) and the use of apron. All respondents washed their hands after visiting restroom and before/after preparing raw materials. A high percentage (96%) was demonstrated by the following hand washing practices; before preparing foods, between handling raw and ready to eat foods, after touching face, hair or clothes, and after handling

rubbish/waste, while 23 respondents (92%) wash hands after sneezing/coughing/blowing nose. Although majority of the respondents had responded highly on good hand washing practices, 9 respondents (36%) did not wash hands after eating or drinking.

Studies have proven that it is essential to care hand cleanliness because hands can be an important vehicle for transmitting microorganism to food due to poor personal hygiene. Taylor *et al*. (2006) proved that the transfer of microorganisms to the hands was due to poor personal hygiene after visiting the toilet, while DeVita *et al*. (2007) found that contact surfaces that were more frequently contaminated were the hands as compared to food-contact surfaces. Therefore, appropriate hand washing procedure must be practiced by all food workers to reduce the risk of microbial spread as emphasized by some studies (Sobel *et al*., 2009; Sattar *et al*., 2005; Curtis and Cairncross, 2007). Incorrect practices among food handlers that led to cross contamination have also been emphasized, such as not using hair protection and long nails or wore nail polish, wore jewelry and skin infection (Campos *et al*., 2009) and bad habits such as touching mouth with hands and wiping their hands on the face or clothes while working (Dag, 2006).

A study by Carlos et al (Spain, 2010) found out that 15.5% of the food vendors practiced cleaning and sanitizing of cutting surfaces as expected. Fifty five (31.6%) of the food vendors stated that they always reheat leftover food before serving it. Ninety-eight (56.3%) of the respondents were found to have good practice of food safety and hygiene. Age of the respondents showed statistically significant relationship with practice of food safety and hygiene ($P < 0.001$). Similarly level of education of the food vendors, knowledge of food safety and attendance of food safety and hygiene training had statistical significant influence on the practice of food safety and hygiene.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

The chapter discusses the methods that were used in the study. Including the research design the study site/geographical area, the study population,with criteria for inclusion and exclusion, the key variables on which data was collected, the sources of data, sample size determination, the sampling procedure, data collection tools, quality control, data analysis plan, ethical considerations, study limitations and study findings dissemination plan

3.1 Study design

The study employed a descriptive cross-sectional study design using quantitative methods of data collection. Quantitative data collection method was used on knowledge indicators, observation technique for quantitative data on practices of food handlers. The rationale for this study design is that both the exposure intervention and outcome are studied at the same time and therefore no follow-up of respondents was be required since data was obtained as per the prevailing situation at that point of time of study. This study design has also been proven to be effective for public health researches since it is easily applicable for bigger populations during the study (Bland M, 2001)

3.2 Study area

Kampala district is the capital city of Uganda located in the central region (Buganda). It boarders Wakiso district, its actually located in the center of Wakiso with a population is 1,516,210 (UBOS 2014). Makindye division is one of the fiveadministrative division of Kampala city. It is bordered by Nsambya to the north west, and Lubowa to the south.

3.3 Scope of the study

Data was collected from food handlers, specifically those that prepare and cook food for the pupils in the selected schools of Makindye division.

3.4 Study Population

Target population:all food handlers in Makindye division

Accessible population: All food handlers in selected schools in Makindye division

Actual study population: All food handlers who will consent to the study.

3.5 Selection criteria

3.5.1 Inclusion criteria

I. All food handlers who presented

II. All those who consented

3.5.2 Exclusion criteria

I. Those who consented to the study

II. Those who were absent during period of study

III. Those who withdrew after consent

3.6 Study variables

These included the dependent and independent variables with their respective indicators.

3.6.1 Dependent variables

Food sefrety

3.6.2 Independent variables

The independent variables are such as;

Socio-demographic characteristics

- Age
- Sex
- Education level
- Formal training
- Marital status
- Experience

Leve of knowledge

- Food preservation
- Sources of pathogens
- food borne diseases
- Handling food

Practices on food handling

- Preservation
- Hand washing
- Food covering
- Protective clothing

3.7 Sample size determination

The sample size of respondents to participate in this study was determined using the Kish and Leslie formula (1965).

$n = z^2 pq/d^2$

Where N is the sample size

z = The Z score corresponding to 95% confidence level = 1.96

p = 7.2%. Basing on study by Charles Muyanja et al on practice, knowledge on food safety among food handlers in Kampala, 7.2% of food handlers met the food safety precautions

q = I-P

d = sampling error that will be allowed for 0.05

p= 0.072

q= 0.928

N =((1.962)2 x 0.072 x 0.928)/0.05x0.05

= 102.6≅ 103food handlers

3.8 Sampling procedure

A probability simple random sampling method was used to select the schools to participate in the study. A total of 20 schools, 10 public and 10 private schools were written on separate sheets and folded.The folded sheets were put in two separate boxes, One box box containing public schools and the scond box containing private schools. One of the research assistant randomly picked 5 scools from each box to represent the study group.In the schools convenience and purposive method was used among the food handlers (respndents) so as to acquire the appropriate information

3.9 Data collection tools

Semi-structured interview schedules was used to collect quantitative data from food handlers.. A pre-coded observation checklist list was employed for collecting data on hygiene facilities in the school and practices of food handlers during the research period. Structured interview schedules were used for collecting qualitative data from key informants like school heads and food handlers.

3.10Data Collection tools

Quantitative tool

A close ended researcher administered questionnaire was used to collect quantitative data of food handlers

Qualitative tool

A key informant guide was used to collect qualitative data from the selected primary school head teachers and fod hanlers

3.11 Quality considerations

Research assistants were trained on data collection techniques and tools and on obtaining consent and maintenance of confidentiality among participants before the exercise. Data collection tools were checked by the superiors. Immediately after data collection, data tools were checked for completeness and correctness and follow-up done for any discrepancies. Data tools were serialized to eliminate the possibility of double entry.

3.12 Controlling for erros and biases

Bias in selectin of partcioants was controlled using a random sampling technique where all participants had equal chances of participation in the study. Correct questions were

designed for the respondents so as to capture the relevant and comprehensive data required, questions were made open ended and closed as required. Further more to control the data anlysis errors, proper questions were designed that could easily match the data analysis strategy so as to produce correct results.

3.13 Ethical Consideration

The research proposal was submitted to the Research and Ethics Committee of International Health Sciences University for approval and thereafter an introduction letter obtained before going to the field. At the district, permission was sought from the district education officer, the district health officer, the district police commander and the head teacher/headmistress. Permission was also obtained from respective school heads and consent obtained from respondents.

3.14Plans for Data Management and Analysis

The pre-coded collection tools with unique identification numbers were entered into the computer using data entry software called EPI-DATA version 3.1. It will then be verified for error elimination and before exporting it to SPSS version 16.0 where it was analyzed.

During analysis, quantitative data was analyzed in three levels: Univariate, Bivariate and Multivariate. Qualitative data was conducted using thematic content analysis. All interviews will be transcribed and the transcripts read and coded appropriately and manually to identify common concepts, patterns and themes relating to the objectives of the study.

At Bi-variate level, data was analyzed using Pearson Chi-Square procedure to determine associations between respective variables. Variables were considered significantly associated if the p-value is less than 0.05 at 95 percent level of confidence. At Multi-variate level, only

variables with significant associations were analyzed and involved the use of Logistic Regression model to determine the Odds Ratio.

CHAPTER FOUR: RESULTS

4.0 Introduction

This chapter presents both quantitative and qualitative results according to the objectives. The results are presented as per the levels of analysis; Univariate, bivariate and multivariate analysis.

4.1 Univariate analysis

This section provides univariate statistics with percentages and frequencies of a sample of 103 respondents from the 10 selected primary schools in Makindye division.

4.1.1 Socio demographic characteristics of the respondents

Table 1 below shows that; Majority of food handlers were men 48(53.4%), more than half of the respondents were between the age of 31-40 years 57(53.3%), the largest percentage75(72.8%) of respondents were married, and more than a half 59(57.2%) of respondents had primary level of education

Table 1: showing socio-demographic characteristics of respondents, n=103

Variable	**Frequency**	**Percentage (%)**
Sex		
Female	48	46.6
male	55	53.4
Age		
20-30 years	12	11.7
31-40 years	57	53.3
Above 40 years	34	33.0
Marital status		
Married/cohabiting	75	72.8
single	20	19.4
Separated/divorced	08	7.8
Education level		
None	14	13.6
Secondary	22	21.4
Primary	59	57.2
Tertiary	8	7.8

Source;primary data

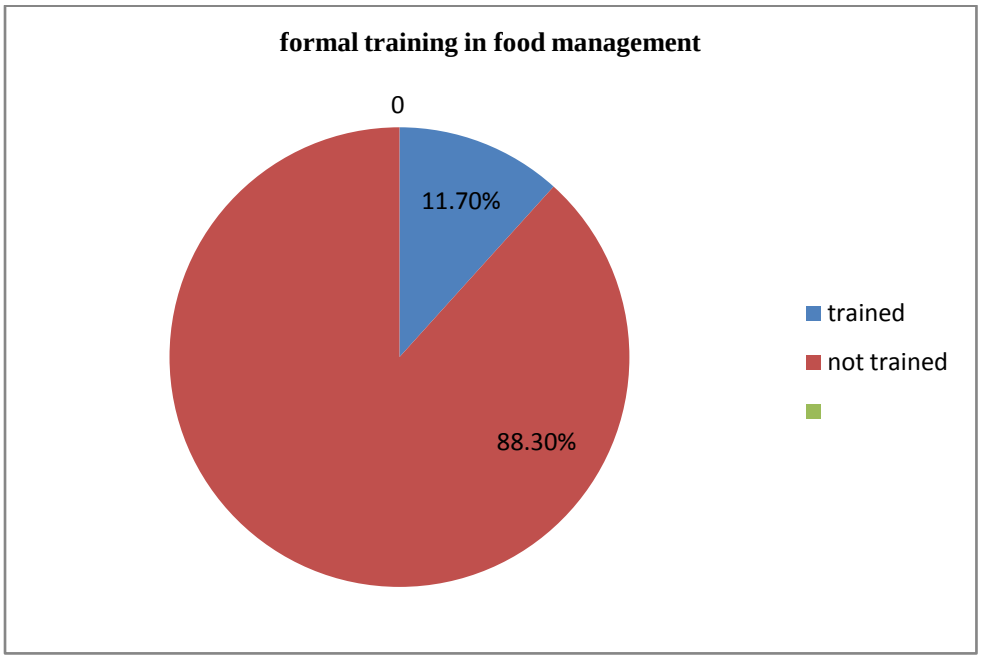


Figure 1: showing a pie chart showing the proportion of respondents trained in food handling and management

The pie chart below indicates that the vast majority (88.3%) of respondents had no formal training in food handling and management while only 11.7% had trained

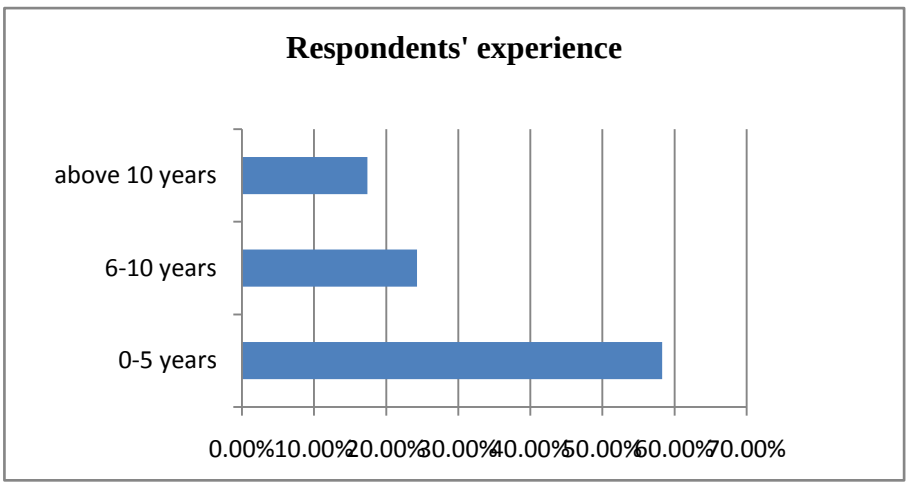


Figure 2: A bar graph showing respondents experience in respect with their job

The figure above shows the working experience of respondents in handling food and it indicates that the majority (58.3%) of respondnets had working experience of 0-5 years,

Almost a quarter (24.3%) of the respondents had working experience of 6-10 years while only 17.4% had 10 years and above experience

4.1.2 Level of knowledge of respondents

Table 2 below shows that majority 78(75.7%) of respondents felt that healthy people can not carry germs to food, 66(64.1%) of respondents agreed that cholera can be spread through food, most of the respondents disagreed that it is unnecessary to wash hands when handling already cooked food, and most respondents disagreed to the idea that may steps in handling food can increase chances of contamination, also majority of respondents 80(77.7%) disagreed to the idea that HIV can be spread through food.

Table 2: showing the knowledge levels of respondents regarding food safety (n=103)

Variable	**Frequency(N=103)**	**Percentage (%)**
Healthy people can carry germs to food		
True	25	24.3
False	78	75.7
Cholera can be spread through food		
True	66	64.1
False	37	35.9
It is unnecessary to wash hands when handling already cooked food		
True	23	22.3
false	80	77.7
Food-borne disease can result from storing raw meat and cooked foods in the same refrigerator		
True	08	7.8
False		
Foods prepared with many steps increase the handling and possibility of contamination of the food	14	13.6
true	30	21.4
false	73	78.6
HIV can be spread through food		
True	23	22.3
False	80	77.7

4.1.3 Determinig level of knowledge

Level of knowledge was determined by asking questions regarding food safety, the questions required one to reply; true or false on the following; Healthy people can carry germs to food, cholera can be spread through food, It is unnecessary to wash hands when handling already cooked food, food-borne disease can result from storing raw meat and cooked foods in the same refrigerator, foods prepared with many steps increase the handling and possibility of contamination of the food, and that HIV can be spread through food. Respondents that scored 4/6 were taken to be knowledgeable and those that had 2/6 and below were regarded not knowledgeable.

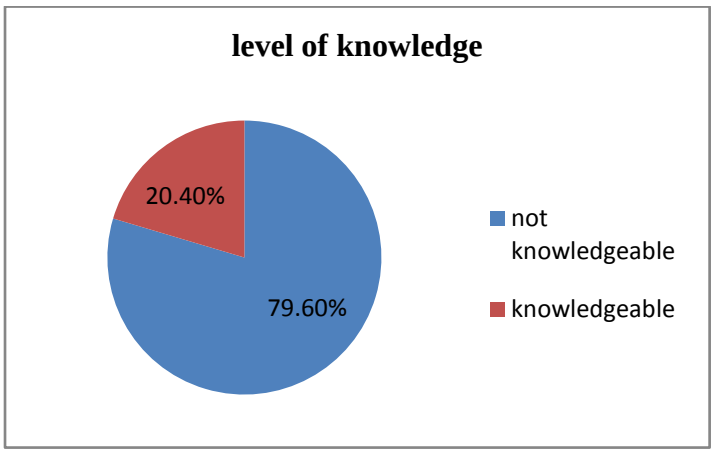


Figure 3: Showing the percentage of respondents' level of knowledge regarding food safety.

Figure 3 above indicates that majority (79.6%) of the respondents from the study were not knowledgeable about food safety while only 20.4% were knowledgeable

4.1.4 practices of food safety among respondents

Table 3 below shows that majority 78(75.7%) of respondents washed their hands with soap before preparing food, the highest proportion, (81/103)of respondents reported to work while sick from disease like diarrhea, cough and typhoid, and majority 82(79.6%) of respondents cleaned food before cooking it, vast majority 88(85.4%) of food handlers reported to work

with their nails untrimmed, the largest proportion (74/103) of respondents covered food while cooking it and majority 70(68%) served cold food.

Table 3: Showing the practices of food safety among respondents (n=103)

Variable	Frequency	Percentage (%)
wash your hands with soap before preparing food?		
Yes	25	24.3
No	78	75.7
Do you work while sick from diseases like diarrhea, cough or typhoid?		
Yes	81	78.6
No	22	21.4
clean food before cooking it		
Yes	82	79.6
No	21	21.4
work with nails untrimmed		
Yes	15	14.6
No	88	85.4
cover food while cooking it		
Yes	74	71.8
No	29	27.2
touch cooked food before washing hands		
Yes	3	2.9
No	100	97.1
serve cold food		
Yes	33	32
No	70	68

Source; primary data

4.1.5Use of protective coverings

Figure 4 below shows that majority (76.7% of respondents were not using protective coverings while only 23.3% used protective coverings

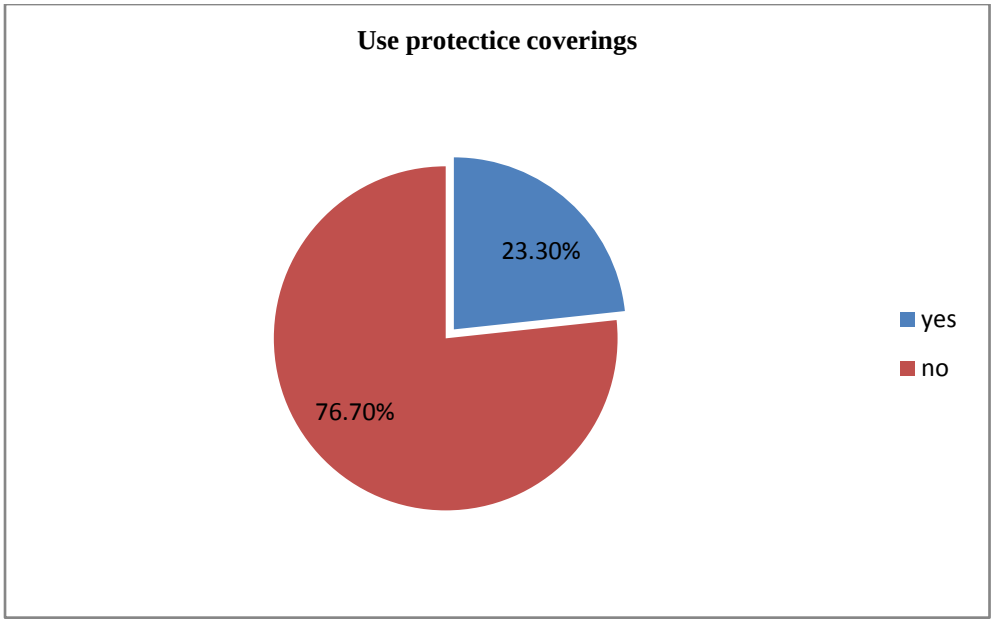


Figure 4: A pie chart showing the percentage of respondents that use protective coverings such as masks, gloves, and clothing.

4.1.6 Respondents boiling water

Figure 5 below indicates that majority 50.5% (52/103) of respondents were found not to boil water for drinking while 49.5% (51/103) boiled the water.

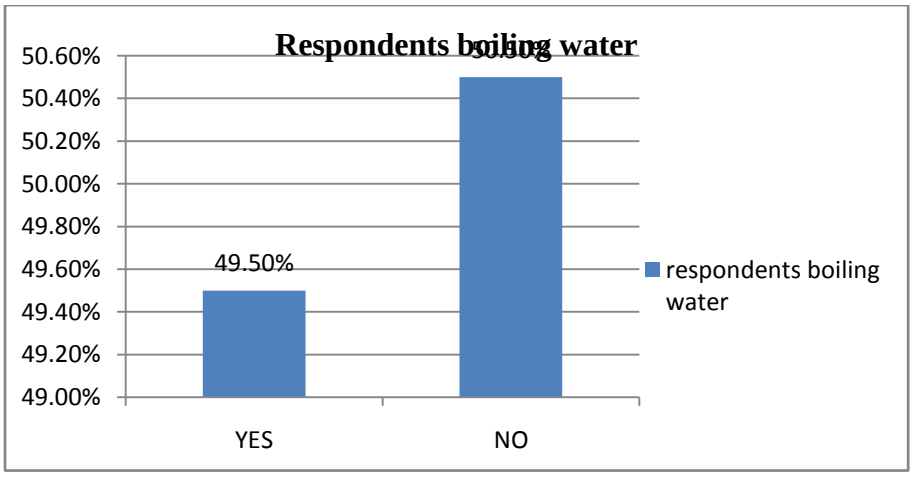


Figure 5: A bar graph showing the percentage of respondents that boil drinking water

4.1.7 Defining and determining safe and unsafe food.

Safe food was defined as that free from pathogens (on observation), kept in a clean and covinient environment, prepared by clean and healthy persons. So food handlers that met all these qualities were considered to have safe food.

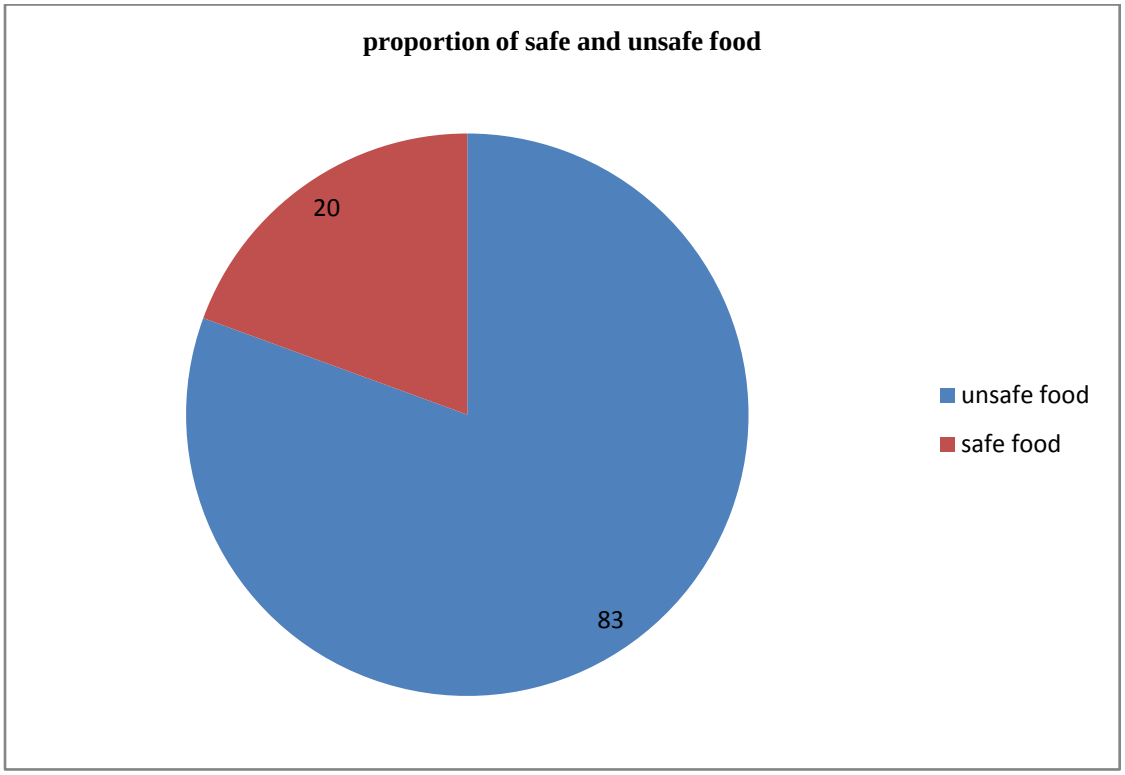


Figure 6: Pie chart showing proportion of safe and unsafe food

Figure 6 above shows that the proportion of safe food was 20/103 and unsafe food was 83/103

4.2 Bivariate analysis

SPSS package was employed to determine association of the different independent variables with the dependent vriable (food safety).Cross tabulations were used at bivariate level of analysis to test for associations between the dependent variable and independent variables.

4.2.1 Socio-demographic characteristics associated with food safety

Table 4: showing socio-demographic characterisitics associated with food safety

Variable	**Food safety**		**Total Frequency (%)**	**Chi-square**	**P-value (at 95%confidence)**
Sex	**safe**	**unsafe**			
Male	11 (20)	44 (80)	55		
Female	9 (18.8)	39 (81.2)	48		
				0.026	0.195
Age					
20-30	6 (50)	6 (50)	12		
31-40	6 (10.5)	51(89.5)	57	10.42	1.04
Above 40	8 (23.5)	26 (76.5)	34		
Marital status					
Married	16 (21.1)	60(78.9)	76		
single	1 (5.2)	18 (94.8)	19		
separated	3 (37.5)	5 (62.5)	8	4.234	1.55
Education level					
None	00 (00)	14 (100)	14		
Primar	00 (00)	10 (100)	10		
Secondary	12 (16.9)	59(83.9)	71	68.14	0.057
Tertiary	05 (62.5)	03(37.5)	08		
Formal training					
Yes	11 (91.7)	1(8.3)	12		
No	9 (9.8)	82(91.2)	91	45.31	0.00*
Experience					
0-5	15 (25)	45 (75)	60		
6-10	8 (32)	17 (68)	25		
Above 10	9 (50)	9 (50)	18	4.43	1.32

**Denotes significant at 0.05 level of significance*

Table 5 above indicates that formal training on food safety was significantly associated with food safety (p=0.00, chi=45.31). The rest of the variables were not found to be statistically significant

4.2.2 Association of the level of knowledge on food safety

The level of knowledge was found to have statistically significant association (p=0.000, chi=85.12) on food safety as indicated in the table below.

Table 5: showing association of level of knowledge on food safety

Variable	**Food safety**		**Total N=103**	**Chi-square**	**p-value**
	Safe (%)	**Unsafe (%)**			
Level of knowledge				85.12	0.00*
knowledgeable	19 (90.5)	2 (9.5)	21		
Not knowledgeable	1(1.2)	81 (98.8)	83		

*denotes significant at 95% level of significance

4.2.3 Food practice association on food safety

According to table 7 below, it was found out that working while sick from dieseases such as diarrhea, and cough was significantly associated with food safety (p=0.00, chi=80.13), also not using protective coverings such as masks,gloves and clothes was found to be significantly associated with food safety (p=0.00, chi=81.69)

Table 6: showing association of food practice on food safety

Variable	**Food safety**		**Total Frequency (%)**	**Chi-square**	**P-value (at 95%confidence)**
Wash hands with soap	**safe**	**unsafe**			
Yes	20 (80)	5 (20)	25	71.32	0.010
No	12 (15.4)	66(84.6)	78		
Serve cold food					
Yes	12 (36.3)	21(63.6)	33	57.36	0.059
No	33 (47.1)	37(52.9)	70		
Boil water					
Yes	21 (41.2)	30(58.8)	51	23.4	0.074
No	17 (32.7)	35 67.3)	52		
Use protective coverings				81.69	0.00**
Yes	20 (83.3)	4 (16.7)	24		
No	12 (15.2)	65(94.8)	79		
Work while sick					
Yes	1 (12.3)	80(81.7)	81	80.13	0.00**
No	19 (86.4)	3 (13.6)	22		
Clean food before cooking					
Yes	33 (40.2)	49(59.8)	82	11.21	0.091
No	07(33.3)	14(66.7)	21		
Nails untrimmed				0.415	0.246
Yes	2 (13.3)	13(86.7)	15		
No	18 (20.4)	70(79.6)	88		

**Denotes significant at 0.05 level of significance*

4.3 Multivariate analysis

All variables that were significant at the bivariate analysis (p-value <0.05) were considered at multivariate analysis.

4.3.1 Multivariate Analysis of knowledge and practices on food safety

Formal training was the only socio-demographic factor that was significantly associated with food safety.Respondents that were not formally trained in food management were 0.10 times less likely to have safe food than those who were formally trained (p=0.00).

Level of knowledge was also found to be significantly associated with food safety. Respondents that were not knowledgeable were 0.001 times less likely to have safe food than those who were knowledgeable (p=0.00).

Respondents who never wore protective coverings such as masks, aprons and gloves were found to be 0.04 times less likely to have safe food than those who wore the protective coverings (p=0.001)

Table 7: showing multivariate Analysis of knowledge and practices on food safety

Variable	**Food safety OR (CI)**	**P-Value**
Formal training		
Yes	1.0 (refrence group)	
No	0.10 (0.002-4.440)	0.00*
Level of knowledge		
Knowleadgeable	1.0 (reference group)	
Not knowledgeable	0.001 (0.000-10.01)	0.00*
Use protective coverings		
Yes	1.0 (refernce group)	
No	0.04 (0.001-8.320)	0.00*
Work while sick		
No	1.0 (reference group)	
Yes	0.00 (0.00-9.85)	0.996

4.4 Qualitative results

1. Key informants where asked about whether gloves reduce risks of food contamination and about 65% agreed while only 35% disagred. The following were some of the reactions;

"Gloves act as barriers betwwen me and the germs." (KI, respondent)

"No, because still I can forget and touch my self with dirty gloves" (KI, Respondent 2)

2. Key informants where asked whether its it okay to touch food with bare (dirty) hands and almost all the respondents agreed that food handlers should not touch food with dirty hands.

"It is very inappropriate because it leads to infections" (KI, respondent)

3. On having training on food safety and management, majority of the respondents never had any training regarding food safety. Below is the reaction;

"I have never had one because I don't have money to study" KI, respondent)

4. Regarding, the different food related challenges in schools, Here is one of the responses from some school head teacher.

"The major challenge is hygiene, they do not comply with the procedures and regulations set in place and you find your self in a tricky position were most of the food borne diseases in school are a result of their poor hygiene" (School Head master, KI)

CHAPTER FIVE: DISCUSSION OF RESULTS

5.0 Introduction

This chapter contains a detailed discussion of the findings, covering the several methods used in relation to different views of the other scholars. The discussion is presented according to the objectives of the study.

5.1 Scoio-demographic characteristics of food handlers on food safety

The socio-demographic characteristic significantly associated with food safety was formal training of the food handlers in food management.

The current study found out that respondents that were not formally trained in food management were 0.10 times less likely to have safe food compared to those who were not formally trained (p=0.00). This finding is consistent with a study in Nigeria (Tolupe, 2015) where respondents that were trained in food management were 5 times more likely to practice safe food and hygiene practices than those without training. According to Rennie (2008) he attributed training to the willingness of those particular foodhandlers who have an im to improve their quality of food and meet all the required and appropriate food safety precautions. In the Ugandan setting, training is not an issue of willingness but rather an economic challenge; Most of the respnodents that were trained were those that were financially able and the majority that lacked training faced financial constraints.

Individual financial constraints though do not justify the fact that most food handlers are untrained who do deliver poor services in terms of food quality and the processes that come with food preparation. This must be strictly and swiftly fixed by the Ugandan authorities in all possible ways.

Several other studies found that education level, age and experience were significantly associated with food safety. However the current study did not find any of the above factors significantly asscociated with safety, though at bivariate analysis were significant. The discrepancy could be due to the different population target used, the current study only considered food handlers in schools, most of whom had gone to school atleast secondary level so as to ably communicate with students. The other studies intergrated other food handlers like vendors, hotels and restaurants that gave varying results from the current study.

5.2 Level of knowledge on food safety

The current study found out that the level of knowledge was significantly associated with food safety. Level of knowledge was determined by scoring respondents on the various questions regarding food safety. 6 questions were asked that whoever answered 4 correct was considered knowledgeable and whoever failed to answer atleast 2 was considered not knowledgeable.

Respondents that were not knowledgeable were 0.001 times less likely to have safe food than those who were knowledgeable (p=0.00). This finding is in agreement with Baluka et al study conducted among food handlers in Makerere university (2015, Uganda) where respondents with more knowledge on food safety were more likely to adhere to safe food practices hence having safe food compared to those that had inadequate or no knowledge on food safety.

The findings aslo concur with Muyanja's (2011) conclusion that the lack of knowledge among food handlers in Kampala, Jinja and Masaka is a great risk factor to transmission of pathogens to food and that Viruses and bacteria contaminate food during processing and lead to diarrhea diseases. From Muyanja's conclusion, it is evident that the schools in Makindye division are at risk of food borne diseases because the majority (79.6%) of food handlers in

the respective schools have no knowledge on proper food handling practices and safety precautions.

The current findings however, contrasts Pilling et al study findings where it was found out that the majority (60.9%) of the food handlers in the study had good knowledge of food safety and hygiene while few had poor knowledge. The difference from the current study might be due to the different gorvernance system, the Ugandan system is not doing enough to monitor the quality of food in schools and streamlining best practices for food handlers in schools.

5.3 Food safety practices among food handlers in the selected primary schools in Makindye division.

The food safety practice significantly associated with food safety was wearing protective coverings such as masks, aprons and gloves.

The respondnets that wore masks, gloves and aprons were 0.04 times less likely to have safe food compared to those that never wore them. This finding is consistent with a study conducted in south Africa by Van Tonder et al (2007) where rspondents that wore their protective clothings were 5 times more likely to prepare safe food compared to those that never wore the protective clothings.

The implication of not wearing protective clothings is contaminating food with pathogens passed on from the hands. This is in agreement with Ibrahim Giritlioglu et al (2007), he emphasized that one of the most important rules in food production is that the food handlers must wear caps, gloves and masks so that they can prevent contaminating food with pathogens. Aslo Cakiro et al reported that protective clothing do cut transmission of pathogens to food by 20%, so food handlers in schools of Makindye division should ensure wearing protective clothings so as to prevent related food borne dieases.

Other studies (Tan, S. L., 2011, Tokuç et al, 2009, Walker et al, 2003) found washing hands on preparing food significantly associated with food safety. However, the current study did not find washing of hands significantly associated with food safety and this could be due to the improved efforts and awareness by government to the public on the importance of hand washing; This has successfully been complied by even the food handlers. This might be the difference from the other study areas of the different studies.

CHAPTER SIX:CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter involves the conclusion and the recommendations as per the study findings

6.1 Conclusion

The proportion of safe food is very low according to the study, safe food is only 20.4% in the selected schools. This means that the vast majority of pupils and entire school communities in Makindye division are at risk of food borne diseases aggravated by unsafe food practices of food handlers in the schools. The small proportion of safe food is majorly attributed to the following;

a) Lack of formal training by food handlers in food related hygiene, practices, and management so as to aquire adequate knowledge regarding safe food practices
b) Failure to use protective clothings such as masks, aprons and gloves so as to mitigate against transmission of pathogens to food.

6.2 Recommendation

I. The government of Uganda through the ministry of Education and sports should ensure consistent follow up on the food safety practices among food handlers and also establish best practices of food handlers.
II. Schools should conduct continual education of their workers (food handlers) on food safety.
III. Food handlers should always ensure to wear gloves, masks and aprons every time they are preparing food.

IV. More research should be done to assess the factors that influence adherence to the food handling standards and regulations

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APPENDICES

APPENDIX I: CONSENT FORM

KNOWLEDGE AND PRACTICES OF FOOD SAFETY AND HYGIENE AMONG FOOD HANDLERS IN THE SELECTED PRIMARY SCHOOLS MAKINDYE DIVISION, KAMPALA

CONSENT FORM/INFORMATION SHEET

Dear respondent,

You are invited to take part in a research study of knowledge and practices of food safety and hygiene among food handlers in the selected primary schools. The researcher is inviting literate food handlers who handle prepared foods to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part. This study is being conducted by a researcher named **Fixon Richard Ssebatta a student Of international health Sciences University**

Background Information:

The purpose of this study is to determine food hygiene knowledge and self-reported practices of food handlers.\

Procedures:

If you agree to be in this study, you will be asked to:

- Complete one questionnaire without talking to anyone. This should take about 30 minutes.
- Return completed questionnaire to the researcher.
- Direct any questions you have to the researcher.
- Not write your name on the questionnaire.

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at the food handlers' clinic or the health department will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress related to completing the questionnaire because you may not know some of the answers. Being in this study would not pose risk to your safety or wellbeing. However, the benefit you will derive form participation in this study is better training in the future that will equip you to serve safer food to the public.

Payment:

After completing the questionnaire, light refreshment will be served.

Privacy:

Any information you provide will be kept anonymous. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by storing paper questionnaires in locked filing cabinets and in electronic form on password protected computers. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone at 0772049436 or email at the fixon2010@gmail.com.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By returning a completed survey, I understand that I am agreeing to the terms described above.

OR

My name is …… working on behalf of the International Health Sciences University and the principal investigator Fixon Richard Ssebatta a student to conduct a research to assess levels of knowledge and practice of food safety and hygiene among food handlers in the selected primary schools. You have been identified to provide your views because of your nature of work and experience in handling and preparing food. The information you give us will be treated with a high level of confidentiality. You may not directly benefit from this study but the outcome shall help the University research department to plan targeted programs for her students in achievement of their academic qualification. Your participation in this study is voluntary and you are free to ask me any questions or contact the principal investigator Fixon Richard Ssebatta on tel. **0772-049436**

Do I have your permission to continue? YES NO

APPENDIX II: QUESTIONNAIRE

QUESTIONNAIRE FOR THE ASSESSMENT OF FOOD HANDLERS'

QUESTIONNAIRE FOR THE ASSESSMENT OF FOOD HANDLERS ON FOOD SAFETY

Respondent Identification Code: ___/___ , School identification code: ___/__

Q.No	Questions	Probable Answer
SOCIO-DEMOGRAPHIC CHARACTERISTICS		
1	sex	**1.** Male **2.** Female
2	Age Bracket	1. 20-30 2. 31-40 3. Above 40
3	Marital status	1. Married/cohabiting 2. Single 3. Separated/divorced
4	Educational level	1. none 2. secondary 3. primary 4. Tertiary
5	Have formal training in catering	1. Yes 2. No
6	Experience	1. 0-5 years 2. 6-10 years 3. Above 10 years
KNOWLEDGE ON FOOD SAFETY		
7	Healthy people can also carry germs to food	1. True 2. False
8	Cholera can be spread through food	1. True 2. False
9	It is unnecessary to wash hands when	1. True

	handling already cooked food	2. False
10	Food-borne disease can result from storing raw meat and cooked foods in the same refrigerator	1. True 2. False
11	Foods prepared with many steps increase the handling and possibility of contamination of the food	1. True 2 False
12	HIV virus can be spread through food	1. Ye 2. No
FOOD HANDLING PRACTICES AND HYGIENE		
13	Do you use protective clothing, gloves, masks or caps	1 Yes 2 No
14	Do you wash yo hands with soap before preparing food?	1. Yes 2. No
15	Do you work while sick from diseases like diarrhea, cough or typhoid?	1. Yes 2. No
16	Do you thoroughly clean food before cooking it?	1 Yes 2 No
17	Do you work with your nails untrimmed?	1 Yes 2 No
18	Do you cover food while cooking it?	1 Yes 2 No
19	Do you boil water for driniking?	1. Yes 2. No
20	Do you touch cooked food before washing hands?	1 Yes 2. No

APPENDIX III: CHECLIST FOR FOOD SAFETY

Variable of interest (Tick as appropriate)	Yes	No
1) Food is properly covered		
2) Latrine is >30M away from kitchen		
3) Food is properly cooked **4)** Availability of a well covered waste container		

APPENDIX IV: INTERVIEW GUIDE

1. Does the use of gloves reduce risks of food contamination?

2. Is it okay to touch food with bare (dirty) hands?

3. Have you ever had any training food safety and management, and if no, why?

4. What are some of the challenges you face with your food support staff regarding the quality of food they prepare?

Question to be addressed to the different school heads.

APPENDIX V: INTRODUCTORY LETTER

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
sanitas per scientiam

making a difference to health care

Dean's Office-Institute of Public Health and Management

Kampala, 8th November 2016

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Permitted to carry out his research

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

Greetings from International Health Sciences University.

This is to introduce to you **Ssebatta Fixon Richard** Reg. No.**2013-BSCPH-PT-001** who is a student of our University. As part of the requirements for the award of a Degree of Public Health, the student is required to carry out field research for the submission of a Research Dissertation.

Richard would like to carry out research on issues related to:**Knowledge and Pratices of Food Safety and Hygiene Among Food Handlers in the Selected Primary Schools Makindye.**

I therefore request you to render the student such assistance as may be necessary for research.

I, and indeed the entire University are thanking you in anticipation for the assistance you will render to the student.

Sincerely Yours,

Alege John Bosco
Dean, Institute of Public Health and Management.

INTERNATIONAL HEALTH SCIENCES UNIVERSITY
08 NOV 2016
INSTITUTE OF PUBLIC HEALTH AND MANAGEMENT

MILDCARE PARENTS' SCHOOL MUNYONYO HEADTEACHER
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