

FACTORS ASSOCIATED WITH UPTAKE OF MEDICAL EXAMINATION AMONG FOOD HANDLERS IN CENTRAL DIVISION, KAMPALA CITY, UGANDA

SAZIRI SEMAKULA

RM23M21/016

**A DISSERTATION SUBMITTED TO THE FACULTY OF PUBLIC HEALTH, NURSING AND
MIDWIFERY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
THE DEGREE OF MASTER OF PUBLIC HEALTH OF UGANDA CHRISTIAN UNIVERSITY**

February, 2026



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DECLARATION

I **Semakula Saziri**, do hereby declare that all the work presented in this research dissertation is my original work and has not been submitted to any institution for any academic award.

Signature

Date ; 8th February, 2026

Semakula Saziri

APPROVAL

I confirm that Mr. Semakula Saziri has developed this research dissertation under my supervision and has been submitted with my approval as the Research Supervisor.

Supervisor's signature.....

Date ; 10th February, 2026

Dr. Solomon T. Wafula

Faculty of Public Health, Nursing and Midwifery

OPERATIONAL DEFINITIONS

Contaminant- Any biological or chemical agent, foreign matter, or other substances not intentionally added to food, which may compromise food safety or suitability.

Contamination- The introduction or occurrence of a contaminant in food or food environment.

Disinfection- The reduction, by means of chemical agents and/or physical methods, of the number of microorganisms in the environment, to a level that does not compromise food safety or suitability.

Food: Anything consumed by mouth either solid or liquid to obtain minerals for the body

Food establishment- Any building or area in which food is handled and the surroundings under the control of the same management

Food borne diseases: Diseases transmitted through consumption of contaminated food or drinks

Food handler - Any person who directly handles packaged or unpackaged food, food equipment, and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements

Food hygiene- All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.

Food poisoning - Is an illness affecting our digestive system that result from eating food or drinking water contaminated by bacteria, bacterial toxins, or less commonly by residues of insecticides (on fruits and vegetables), or poisonous chemical such as lead, mercury, etc. It can also be caused by ingestion of fungi, berries, etc. that irritates the digestive system.

Food safety- Assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.

Hazard- A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.

Medical examination: Practice of routine screening and testing of individuals to ascertain if they are infection free to cut short the transmission cycle.

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ABSTRACT

Background

Uptake of routine medical examination among food handlers remains low, and is a public health concern in Kampala Capital City. This study aimed to investigate factors associated with uptake of medical examination among food handlers in central division, Kampala city, Uganda.

Methods

This was a cross-sectional study among 424 food handlers Kampala city central division. The researcher collected data on respondent's demographic characteristics, Individual characteristics of food handlers and institutional factors using a structured questionnaire. Data was entered into KOBO collect app and extracted as an excel file. The outcome variable (Medical examination in last six months) was dichotomized as yes or no. Data was analysed at univariate, bivariate and multi-variate analysis. A modified Poisson regression was used to examine associations between uptake of medical examination and demographic characteristics, individual characteristics of food handlers and institutional factors. Prevalence ratios (PRs) and corresponding 95% confidence intervals have been reported. All analysis were performed in Stata Version 15 SE software.

Results

Uptake of medical examination among food handlers in Kampala Central Division found to be sub optimally low at only 35.6%. Factors associated with uptake of medical examination included education level (a PR 0.55, 95%CI: 0.30-0.99, p-value=0.048); participant view on who should pay for medical examination as variable (a PR 0.65, 95%CI: 0.44-0.97, p-value=0.035); and Licence status of the business by KCCA (a PR 1.79, 95%CI: 1.22 -2.62, p-value=0.003)

Conclusion

Suboptimal uptake of medical examination observed in Kampala central region is associated with educational level attained by respondent, perception of participant on who should pay for medical examination services and license status of the business by KCCA.

Recommendation

There is need for KCCA to enhance enforcement of medical examination among food vendors and to empower food vendors with information regarding the importance of medical examination in order to build their self-efficacy to make critical decisions regarding uptake of medical examination.

CHAPTER ONE: INTRODUCTION

1.0 Background

Food is anything that a person drinks or eats in order to maintain life. Access to sufficient amount of safe and nutritious food is essential for sustaining life and promoting good health ([World Health Organisation, 2022](#)). Conversely, food may also contribute to ill health either due to failure to consume sufficient nutrients or consuming contaminated food ([Prabhu & Shah, 2012](#)). When an individual eats or drinks contaminated food or beverage, this is likely to lead to food borne infections(FBI) ([World Health Organization, 2008](#)). A famous example that has been reported in literature resulting from consumption of contaminated food is that of the notorious case of “Typhoid Mary,” a food handler who was also a chronic carrier of typhoid. She is reported to have infected at least 1,300 people with typhoid fever in the United States through food contamination ([Brooks, 1996](#))

Globally, it is estimated that, unsafe food containing physical, biological or chemical contaminants causes more than 200 diseases and is globally responsible for at least 600 million cases of foodborne illnesses and 420,000 deaths annually ([World Health Organization, 2020](#)). Available evidence shows that an estimated 91 million people in Africa contracted food borne infections in that year resulting into 137,000 deaths ([World Health Organization, 2015](#)). The World Bank Group previously reported that foodborne illnesses especially in low and middle-income countries cost up to \$15 billion annually for medical treatment ([Jaffee, Henson, Unnevehr, Grace, & Cassou, 2018](#)). The observed global burden related to food handling is not different from the Ugandan context. In Uganda, about 1.3 million people are diagnosed with food borne illnesses annually, which makes a contribution of 14% of all diseases treated every year ([Ministry of Health, 2019](#)). In a similar setting to that of Uganda in Nigeria, It is also estimated that about 40% of the overall burden of food borne diseases occur in children under five years ([Aremu, Kurah, Okparavero, Rahman, & Aina, 2021](#)). This does not only increase the national budgets on health but also family expenses on medical treatment. A study in Uganda, Malawi and Tanzania observed that, about 27 % of individuals in the three countries rely on out of pocket expenditure to finance their health care ([Garcia-Diaz, Sapkota, & Flores, 2024](#)).

Food can be contaminated through avenues such as plant surfaces, animals, water, air, soil, and wastewater or food handlers during handling and/or processing of food ([Tilahun, Endebu, & Abera, 2020](#)). The spread of food borne diseases through food handlers is recognised as a

frequent public health concern that has persisted globally (Al Suwaidi, 2015). In a study done in **Chandigarh India among food venders**, it was found that the majority of food handlers are carriers of entero pathogens and are usually asymptomatic ([Manisha et al., 2012](#)) making it difficult to mitigate the challenge yet these food handlers are implicated in nearly 20% of all foodborne disease outbreaks ([Nyenje, Odjadiare, Tanih, Green, & Ndip, 2012](#)).

Medical examination of food handlers is one of the interventions that have been proposed to minimise risks of foodborne disease transmission since food handlers are big contributors to foodborne disease illness and outbreaks ([Lalit, Brkti, & Dejen, 2015](#)). This is mandatory for all individuals involved in handling food at all stages from preparation to serving customers. According to the Uganda Public Health Act, individuals involved in direct contact with food in terms of physical handling of raw or already cooked food in places such as hotels, restaurants and food kiosks are required to undergo mandatory medical examination at least twice a year. The health status of food handlers is thus critical in preventing occurrences of foodborne illnesses, which can be effectively achieved through routine medical examination ([Joviah & David, 2019](#)).

Although there is wide scope of literature on acceptability and uptake of medical examination in different regions of the world, most studies reported suboptimal uptake of medical examination suggesting significant knowledge gaps on driving factors on determinants medical examination. Most studies have been conducted in low and middle income countries where results can be triangulated to Ugandan setting ([Apania, Asare, & Denteh, 2019a](#); [da Silva et al., 2014](#); [Kumar, Dudeja, Maurya, & Singh, 2019](#); [Prabhu & Shah, 2012](#); [Rakha et al., 2022](#)) ([Joviah & David, 2019](#)). Studies also showed that even where uptake of medical examination was relatively high; there were many barriers to the uptake of medical examination, which necessitates further investigation. In Uganda, specifically, information on uptake of medical examination among food handler in Uganda is limited. Therefore, the proposed study will seek to understand the uptake and factors associated with medical examination services in Central Division, Kampala City.

1.2 Statement of the problem

Data from the Directorate of Public Health and Environment at KCCA indicates that there are an estimated 70,000 food handlers operating in about 2,400 licensed food premises in Kampala City, Uganda. In Accra, Ghana, medical examination is a mandatory procedure before starting any food handling activity and any food preparation and handling for sale must be undertaken by a medically examined person ([Annor & Baiden, 2011](#)). However, recent statistics show that in the FY 2022/23, only 23,000 (33%) of food handlers in Kampala City underwent medical examination, which ideally should be conducted every six months (KCCA, 2022). Although it is recommended that all food handlers should undergo medical examination as low as 12% and awareness levels on periodic examination of 31% have been previously reported in Kampala City ([Galiwango et al., 2024](#)). The reasons for this discrepancy are not fully understood but could be related to either individual or systemic factors or a combination thereof. Elsewhere, unhealthy food handlers have been implicated in occurrence of several foodborne diseases. Recent evidence shows that in 2018-2019, Cholera outbreak in Kampala which resulted from water source contamination led to 53 suspected cholera cases and four fatalities([Eurien et al., 2021](#)). In another incidence, the 2015 typhoid in Kampala led to over 10,000 suspected cases of typhoid; making this one of the biggest outbreaks of typhoid fever in the country ever recorded by World Health Organisation([Bulage et al., 2017](#); [Kabwama et al., 2017](#)). Although one of the benefits arising from medical examination is a strong preventative tool in reducing cases of foodborne illnesses([Kumar et al., 2019](#)), residents of Kampala are at risk of food borne diseases as evidenced by KCCA directorate of public health reports indicating disparities in food handling practices away from the normal. Despite this, however, the level of compliance to this vital food safety control measure in Central Division is largely unknown despite the huge number of food business operators in this particular area. Despite the efforts of the local Authorities (KCCA) to sensitize the food business operators about medical examination, this has not translated into actual uptake of the Medical Examination services at least twice a year. Rather, there has been more effort in fulfilling requirements of business operation than embracing benefits of medical examination of food handlers. Few research studies have explored the uptake of medical examination especially in Kampala City; thus, this study will fill gaps in understanding the determinants of this key intervention in food safety and generating possible solutions. Therefore, the proposed study will seek to determine the level of uptake of food handler medical examination services in Central Division of Kampala City and the factors influencing its uptake among food handlers.

1.3 Purpose of the study

The purpose of the study is to assess the factors associated with uptake of medical examination among food handlers in Central Division, Kampala City, Uganda. The study is also expected to contribute to the existing body of knowledge regarding medical examination of food handlers in Kampala City and generally on food safety. This study will inform stakeholders involved in medical examination about the existing barriers or opportunities for continuous improvement of the service.

1.4 Objectives

1.4.1 General objective

To determine the uptake of medical examination and associated factors among food handlers in Central Division, Kampala City, Uganda.

1.4.2 Specific objectives

- a) To determine the uptake of medical examination among food handlers in Central Division, Kampala City, Uganda.
- b) To determine the individual factors associated with uptake of medical examination among food handlers in Central Division, Kampala City, Uganda.
- c) To determine institutional factors associated with uptake of medical examination among food handlers in Central Division, Kampala City, Uganda.

1.4.3 Research questions

- a) What is the level of uptake to medical examination among food handlers in Central Division, Kampala City, Uganda?
- b) What individual factors are associated with uptake of medical examination among food handlers in Central Division, Kampala City, Uganda?
- c) What institutional factors are associated with uptake of medical examination among food handlers in Central Division Kampala City, Uganda?

1.5 Scope of the Study

1.5.1 Geographical scope.

The study was conducted amongst food handlers in Central division, Kampala, Uganda. Central division is one of the five (5) divisions in Kampala city, Central Uganda. The central division of Kampala is a home to over 18,000 food handlers that serve a population of over 88,100 (UBOS, 2023)

1.5.2 Time scope

The study was carried out from May 2025 to July 2025.

1.5.3 Content scope.

The study was limited to determining the level of compliance to medical examination, Individual and institutional factors associated with uptake of medical examination among food handlers.

1.5.4 Justification

Examination of food handlers is one of the most effective approaches for preventing food borne pathogens from contaminating foods and beverages served to customers and hence reducing the associated disease burden. Low uptake and compliance to medical examination among food handlers remains a challenge in many restaurants and food points in Uganda, which poses the risk of food borne diseases among consumers of foods and beverages. Food handlers are potential reservoirs of infection, which can find its way to the food they serve customers under unhygienic conditions like previously observed in history ([Brooks, 1996](#)). Many of these problems can be avoided by correctly adhering to routine examination of food venders before licensure and during practice to detect and treat those who are potential reservoirs of infection. Adherence to medical examination practices can promote achievement of the **MDG number 3** that focuses on ensuring healthy lives and promotion wellbeing for all ages through combating food borne diseases and other communicable diseases ([United Nations, n.d](#)). This study also carries potential benefits in terms contribution towards achievement of objectives of the Ministry of Health Strategic plan II (2025/26-2029/30) ([Ministry of Health, 2025](#)). There is a knowledge gap on the compliance levels to standard practices of medical examination among food venders, which may form potential barriers in planning for public health programs in the city. This study is expected to generate evidence that will add to the body of knowledge in regard to uptake of medical examination among food handlers. Therefore, understanding uptake and factors associated with compliance to medical examination among food handlers in central division in Kampala City could facilitate setting up targeted interventions focusing on identified predictive factors. In the long run, this study finding can be useful in advising stakeholder involved in public health law enforcement to design targeted sensitization programs as well as strategies for public health law enforcement.

1.6 Significance

This study provides additional information on status of medical examination in Kampala City to academicians, KCCA, Ministry of health and health practitioners which can be used to inform decisions on public health law enforcement concerning food safety

The findings of this study are expected to highlight barriers leading to non-compliance of standard practices of medical examination among food vendors. This may facilitate KCCA officers to respond accordingly.

The study findings will be useful to adding to a pool of knowledge to the existing literatures in prevention of medical examination of food handlers. The study will also increase the knowledge of the researcher on the subject

1.7 Conceptual Framework & narrative

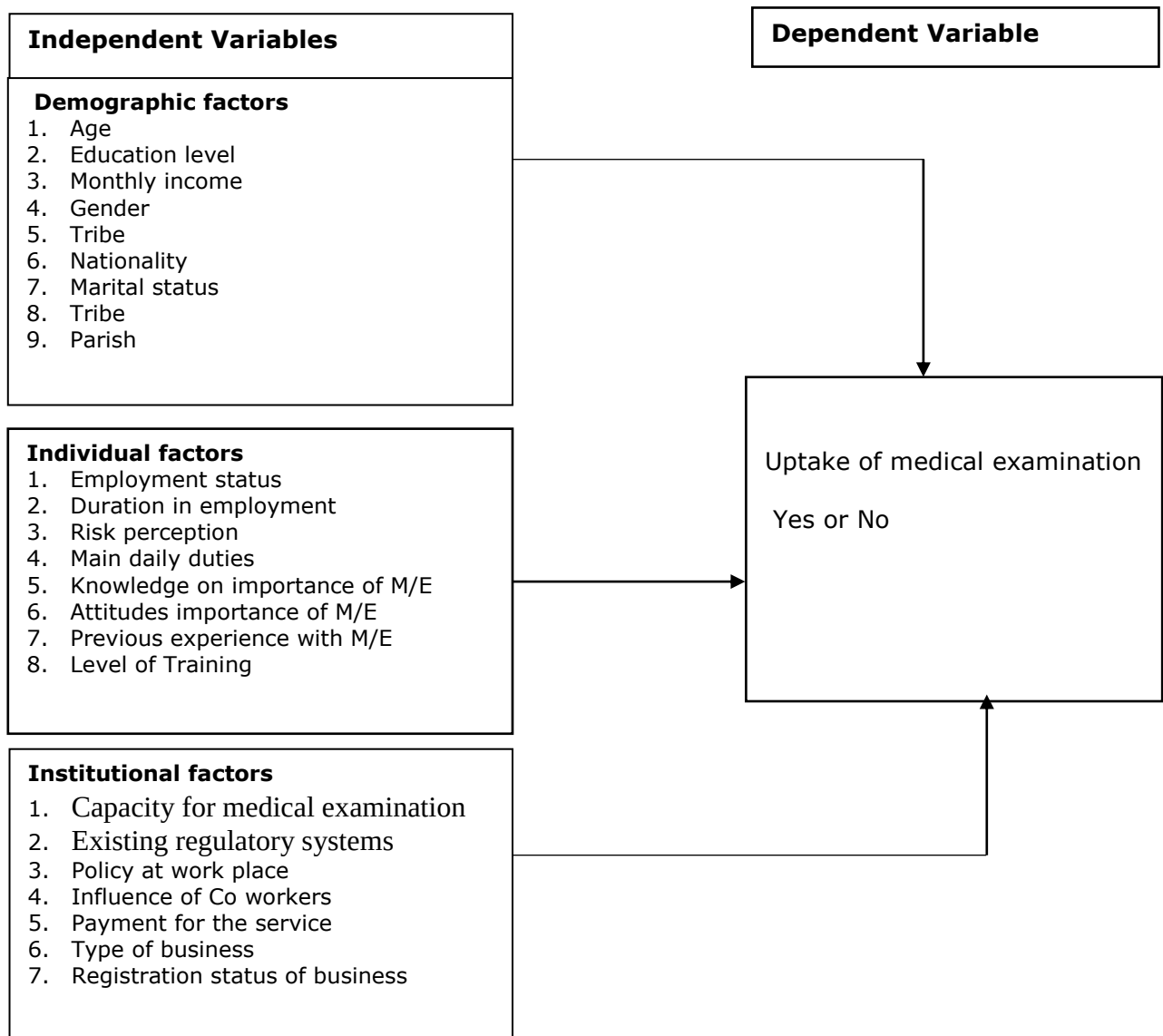


Figure 1; Relationship between predictor factors and the Dependent variable (Uptake of Medical examination)

The framework describes the relationships and interactions between the various variables. Uptake of medical examination is the dependent variable where the individuals who have had at least one medical examination in the last six months preceding the study period will be considered to have a good uptake while those vendors without medical examination in the last six months will be considered to have poor uptake. This will be treated as a binary outcome. Socio-demographics, Individual factors and Institutional factors are the independent variables that are part and partial of the food vendors' life interact to influence the food vendor to go for medical examination. The demographic characteristics are the general features of an individual such as age and gender which are thought to influence health care practices including seeking for medical examination. The individual factors included acquired personal attributes such as knowledge levels, job roles and ability to perceive risk which were measured by the researcher or reported by respondents. Institutional factors included those restrictions or motivators within KCCA and other administrative structures such as place of work that promoted or discouraged Medical examination practices. These included factors such as policy documents, enforcement and supervision practices. The interaction of these factors or direct influence of one's factor is thought to influence one's uptake of Medical Examination

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter presents literature from various sources on uptake of medical examination among food venders and related factors for uptake of medical examination in line with the specific objectives of the study. Various sources such as journals and reports from accredited sites have been cited.

2.1 Uptake of medical examination services among food venders

Street foods are commonly available worldwide. Street foods are ready-to-eat foods and/or beverages prepared and/or sold by vendors or food handlers in streets or other similar public places ([Food and Agriculture Organization, 2013](#)) for immediate consumption without further processing or preparation ([Rakha et al., 2022](#); [Samapundo, Climat, Xhaferi, & Devlieghere, 2015](#)). Street foods play an essential role in the economy of developed and developing countries ([Fusté-Forné, 2021](#); [Rakha et al., 2022](#)). Street food vendors include those who sell food and/or beverages from vehicles (carts, bicycles, trucks, etc.) or from plastic or cloths set out on the street, and street hawkers ([Food and Agriculture Organization, 2007](#)). In almost every country, medical examination by qualified medical personnel is perquisite before starting to vend street food to rule out possibility of transmission of food borne diseases. Although medical examination can identify risks and promote food hygiene, Medical examination of food venders is a challenging practice in many countries across the world, and especially in the developing world ([Danikuu, Azikala, & Baguo, 2015](#); [Kumar et al., 2019](#); [Rakha et al., 2022](#); [Samapundo et al., 2015](#))

Several studies have explored the uptake of medical examination globally and from their findings, there seem to be variations in uptake of medical examination among food handlers across regions. A study in India among food venders revealed gaps in medical examination practices with more than half of the respondents (59%) presenting with symptoms of infectious diseases which had not been reported ([Kumar et al., 2019](#)). Lack of examination of food venders carries inherent risk of infection to customers with various food borne diseases as observed previously ([da Silva et al., 2014](#)). However, another study in the same country in India found a higher uptake of medical examination at 80% similar to observed in Africa with the uptake of 76% among food handlers in Niger ([Musa & Akande, 2003](#)).

A study by Apania et al in Ghana found out that 11(52.4%) of respondents who participated in a study on medical examination had undergone medical screening, with most having been

screened only once a year ([Apania, Asare, & Denteh, 2019b](#)). The remaining 10 (47.6%) had not been screened at all, despite being directly involved in food handling. This lack of regular health screening poses a significant risk to consumer safety, as food vendors who are infected with transmittable diseases could potentially endanger public health. The study emphasizes that both the FAO and WHO recommend medical examinations for food handlers to mitigate these risks, indicating a gap in compliance with these health standards among food vendors in the Tamale Metropolis.

In east Africa, Medical examination, trends among food venders are not different from what has been seen in other regions. A study exploring determinants of medical examination in Entebbe Municipal Council found that majority (93.3%) food handlers were knowledgeable about medical examination although 78.9% reported having undergone medical examination, with 56.9% having been examined twice in the previous one year. ([Joviah & David, 2019](#)). This study indicates significant gaps in uptake of medical examination in an urban setting similar to that of Kampala region. The observed studies across regions are suggestive of variation in determinants of choice to go for medical examination prior to starting food vending across regions. These factors are thought to be related to several factors related to the individual vendor characteristics, institutional factors or demographic characteristics of individuals. Information on these classified factors is highly plausible since most studies have been conducted in similar setting to that of Uganda but in other countries. This calls for additional research to generate more evidence to interfere the problem under study in the Ugandan context.

2.1 Individual factors affecting uptake of medical examination

In a study examining food handlers in Pakistan, it was found that none of the respondents had undergone a medical examination prior to entering the food business. Although they failed to present health certificates, more than 80% of food handlers expressed a willingness to undergo medical examinations to help prevent the spread of foodborne diseases ([Ahmed et al., 2017](#)). In a related study conducted in the Philippines, 80% of vendors displayed medical health certificates issued by the Authorized University Health Service, suggesting that such practices could minimize outbreaks ([Patricia V. Azanza, 2000](#))

[Sani and Siow \(2014\)](#) , found gaps in both the absence of adequate food safety education and the ineffective application of established procedures in Malaysia . The same study also found that more than 80% of vendors expressed a willingness to engage in food safety training,

reflecting a broad desire to enhance their practices. The authors suggest that with appropriate support from local government bodies, the frequency of foodborne illnesses in the area could be significantly reduced. A comparable openness to health and safety training has also been documented among communities in Malaysia and the West Indies.

Among the individual factors, a study by Money et al observed that attitudes and practices towards medical examination and lack of food safety awareness and education were enhanced with higher levels of education and training ([Isaac Monney, Dominic Agyei, & Wellington Owusu, 2013a](#)).

In another study by Ahmed and colleagues, factors such as education attainment and length of experience in food vending significantly correlated well with food safety practices. However, the overall implementation of safety measures remains insufficient, indicating a systemic issue that needs addressing. Thus, a range of individual and institutional factors ultimately influences the uptake of medical examination, which the proposed study intends to investigate([Ahmed et al., 2017](#))

In another finding a study in Kuala Kangsar, Malaysia revealed gender and age difference in knowledge levels among food vendors. This study revealed that those between the ages of 36 and 45 had better food safety knowledge (20.0%) and attitudes (100.0%) than those between the ages of 18 to 25 and above 46. When comparing gender, females had better knowledge (18.0%) compared to males, which could as well translate into seeking behaviour for medical examination uptake. This study also revealed that those who had undergone food safety training had better knowledge and attitudes than those who had not ([Porusia, Sapavi, & Shaifuddin, 2023](#)).

In central Accra, Ghana, a study conducted to assess food hygiene standard practices among small scale food handlers in central Accra, Ghana” revealed that about 75% of the respondents were ignorant about hygiene and did not comply with the hygiene requirement by respective regulatory bodies. it was noted that most of the food handlers interviewed had good knowledge of food hygiene but this did not translate into good practice of food hygiene neither urge to seek for medical examination ([Otu, 2014](#)). In a similar study conducted in the Tamale Metropolitan area, only 70/150 vendors (46.7%) reported having undergone a medical examination and obtained a certificate. This finding is consistent with previous research, which indicated that only 40% of food vendors in Accra had similar medical certification ([Danikuu et al., 2015](#)). It was noted in both studies that most of the food handlers interviewed had some good knowledge of food hygiene but this did not translate into good

practice of food hygiene neither urge to seek for medical examination, which calls for further investigation. Meanwhile Muchai et al, after examining the influence the implementation of public health standards in the selected City Council markets found that frequency of Medical Examinations and the level of public knowledge regarding health standards significantly affected the uptake of medical examination among food vendor consistent with other studies in Ghana ([Muchai, 2012](#))

Studies among food vendors have also highlighted that the financial cost attached to medical examination is reported to prevent food vendors from undergoing medical examination. These studies mentioned that costs are unaffordable by food vendors, many of the food vendors cannot afford based on their income. It is therefore recommended that medical examination should be provided at subsidized costs to improve uptake of medical examination ([Apania et al., 2019a](#)) . Similar to this finding, studies in Tamale Ghana indicated that ignorance risks associated with food borne illness was compounded by the high costs which deterred food vendors from going for medical examination. This trend of events could be similar in the Ugandan setting although it necessitates additional investigation ([Danikuu et al., 2015](#)).

It was also observed that in Nigeria for many food vendors irrespective of years of experience, most respondents began food-vending business without basic mandatory training. The study observed that only 22.5% had laboratory medical examination of their status at the start of their business ([Aluko, Ojeremi, Olaleke, & Ajidagba, 2014](#)). There seem to be significant gaps at either individual level or at the level of authority who provide business licences and public health regulations. This will be investigated further in the current study.

2.2 Institutional factors affecting uptake of medical examination

Several studies have mentioned that Institutions that regulate public health practice have a critical role in ensuring food safety across different countries. For example, regarding institutional factors affecting medical examination, a study observed that systemic delays in availing medical examination results to food handlers incidentally had an effect on their attitudes and practices ([Isaac Monney, Dominic Agyei, & Wellington Owusu, 2013b](#)). This may imply non-compliance to future medical examinations basing on the fact that medical examination is recommended at least twice a year in most countries ([World Health Organisation, 2022](#))

A study in India to establish prevalence of microorganisms among food vendors found low levels of medical examination among food vendors. At the time of study, 59% of vendors had symptoms of infectious disease and had not been reported neither had they received typhoid vaccination. Most (80%) of the food handlers surveyed had undergone medical examination after joining, but there was no pre-placement examination. The remaining vendors who had not been tested were mainly attributed to casual attitude of food business operators ([Kumar et al., 2019](#)). This suggests laxity of policies and complacency to medical examination by business owners due to weak legislation.

[Muchai \(2012\)](#) Muchai (2012) Muchai (2012) Muchai (2012) Muchai (2012) [Muchai \(2012\)](#) Similar observations in Kenya in the selected City Council markets in Nairobi observed and recommended regular inspections of market premises are necessary to ensure compliance with health standards and awarding certificates to compliant vendors, which were found to be low ([Muchai, 2012](#)). This was mainly attributed to low awareness and education among food vendors regarding the importance of hygiene and health screenings, lack of regular inspections and monitoring by regulatory bodies as contributors to the inadequate health screening of food vendors. Additionally, it was observed that involvement of the City Council in enforcing health standards and providing necessary resources may be a moderating variable that affects implementation. Despite the emphasis on medical examinations, WHO and FAO argue that routine medical examinations do not prevent infections post-examination and can be costly for vendors ([Food and Agriculture Organization, 2013](#)) A study in Pakistan found out that, many food handlers had not undergone any medical examination before entering the food business. This lack of requirement leads to a significant gap in health safety protocols, which is a weakness in public health standards. Never the less this observation seems to be common across different regions of the world. In a study done in Rawalpindi, Malaysia, despite the lack of examinations, over 80% of food handlers expressed a willingness to undergo medical examinations to help prevent the spread of foodborne diseases. This indicates a recognition of the importance of health checks among food handlers and perhaps limited by some factors ([Ahmed et al., 2017](#)).

In other findings, low uptake of medical examinations was attributed to insufficient commitment from state authorities to enforce food hygiene regulations. The study observed that unlike institutional vendors, who are often required to present medical certificates, street vendors are not compelled to do so ([Danikuu et al., 2015](#)). In Kampala Uganda, studies on medical examination of food handlers have show gaps both in the food vendors and business

owners effort to comply to medical examination and on the side of authorities involved in ([Muyanja, Nayiga, Brenda, & Nasinyama, 2011](#)). The drivers of this complacency remain highly plausible. Besides, there is difference in regulation of formal and informal food vending businesses in terms of regulation, which requires further investigation in the current study

2.3 Summary of literature review

After a thorough literature review, most studies reported low rate of medical examinations among food handlers across different regions of the world. This was observed to present high risk of foodborne diseases, especially considering that street food vendors often operate in environments where hygiene practices are inadequate. Although most studies reported that factors for effective medical examinations for food handlers are primarily rooted in the lack of mandatory protocols, insufficient training, and implementation challenges, evidence on low uptake remains highly plausible especially where services of medical examination are brought closer and the community given adequate information. Uptake of medical examination and factors associated with uptake will be examined further in the current study.

CHAPTER THREE: METHODOLOGY.

3.0 Introduction

This chapter presents the methods and procedures that were undertaken in the course of conducting the study and specific methods and techniques that have been preferred in conducting this study.

3.1 Research design

The study designed was a cross-sectional design involving quantitative techniques. A cross-sectional study was used because of its ability to study the exposure and outcome at the same time in one interview which allows for collection of data in one interview and it is within the researcher's expertise. This is also cost effective and likely to generate accurate research findings

3.2 Area of study

The study was conducted in Central Division – one of the five administrative units of Kampala City; the Capital City of Uganda. Central Division was chosen due to its high population density and highest daily influx of people who are at risk of FBI. The study area of central division of Kampala city was selected because of reported high number of food vendors. The central division is located in Kampala business area in central Uganda and lies on Latitude 453508.49 °N and Longitude 34959.38 and, covers an estimated area of over 195km², with an approximate population of 88,100 people. There are over 600 businesses involved in business of food vending according to KCCA reports; the majority of these operating short of minimum public health standards specifically medically certified food handlers ([KCCA, 2023/2024](#))

3.3 Sources of Information

The study mainly obtained primary data from food vendors operating in Kampala Central region thorough administration of researcher-administered structured questionnaires.

3.4 Population and sampling techniques

3.4 Study population

The study population consisted of food business operators while the study unit comprised of food handlers working in randomly sampled eating-houses in Central Division, Kampala City.

3.4.1 Inclusion criteria

Eligible for inclusion included workers in food premises involved in different processes of food handling, preparation, cooking, serving and storage of food. These include cooks, waiters, waitresses, and food store managers.

Food vendor who has worked in food vending business job for 6 months or more

Respondents aged over 18 years and involved in any of the food handling processes from preparation to serving customers will be considered.

3.4.2 Exclusion criteria

Workers in food premises not directly involved in food handling activities including cashiers, cleaners, managers, and security personnel, mentally incapacitated, or recently arrived on the job within less than 6 months

3.5 Sample size and sampling procedure

Using the formula for cross-sectional studies ([Kish, 1965](#)); a prevalence (p) of medical examination of 50% was assumed to cater for maximum variation of the two comparable groups within the primary outcome of the study (food vendors with good uptake and poor uptake). A 95% confidence interval, and 5% level of precision, and α set at 0.05, the sample size will be calculated. Hence, Z value corresponding to 95% confidence interval = 1.96, p = 0.5, q = 1-p = 1- 0.5 = 0.5, and $\alpha = 0.05$

Therefore, $n = \frac{(Z^2 p * q)}{\alpha^2} , = + \frac{(1.96)^2 *(0.5)*(0.5)}{(0.05)^2} , n= 384$ Participants

Taking into account a possible non-response rate of 10%, the sample size was recalculated as follows; $n = \frac{384}{(1-0.10)}$ hence $\frac{384}{0.90} = 424$ Participants.

3.5.1 Sampling Techniques

With guidance of the division health inspector, the researcher obtained a list of registered food vendors business in each parish. An average of two participants were randomly selected per business; hence 212 food vending business yielded approximately 424 participants. Simple random sampling was used to select a proportionate sample of eligible food handlers from the sampling frame within each selected cluster. Multistage sampling procedure was used during the study. First, 10/20 Parishes in Kampala central division with high number of food vendors was purposively selected based on information provided by Health Inspection Unit of KCCA. Next, proportionate sampling was used to estimate the total number of food business operators to be sampled in each Parish. This depended on the total number of food businesses in the different Parishes as per information obtained from the revenue database of

KCCA. Thereafter, systematic random sampling was used to select the participants for the interview in each parish by selecting individuals from food business. Where there are more than five food handlers in one premise the researcher interviewed 2 food handlers in the premise preferably one male and one female where applicable to allow maximum variation in respondent sampling. Respondents aged over 18 years and involved in any of the food handling processes from preparation to serving customers were interviewed after seeking and obtaining written informed consent. Questionnaire Interviews were conducted in participants' convenient environment of their choice.

3.6 Variables and indicators

3.6.1 Dependent variable

The main outcome variable was uptake of medical examination among food handlers which was treated as dichotomous variable (binary outcome). The recommended standard for medical examination by public health standards is that individuals should undergo medical examination test at least twice a year. At the time of data collection for this study, individuals who had medical examination in the last six months were considered to have good uptake while those who had no test in the last six months were considered to have poor uptake.

3.6.2 Independent variables

These include individual factors such as knowledge, attitudes and practices and institutional factors such as technical capacity for medical examination and existing regulatory systems. We measured knowledge attitudes and practices using pre-determined multi-choice responses that were included in the questionnaire and treated as categorical classifications. The participants were requested to select a response that would best fit their response on a particular question concerning knowledge attitudes and their practices in line with uptake of medical examination. These responses were quantified as proportions. Similarly, institutional factors were treated as categorical variables and were measured using proportions.

3.7 Procedure/protocols for data collection

The researcher sought for ethical approval for this study from Uganda Christian University. This was presented to local authorities at KCCA department of Public Health and to Kampala Central Division administrative leadership to obtain administrative clearance. Trained research assistants approached selected participants, study aim explained and requested to participate. Data was then captured using hard copy Questionnaires and there after entered into kobo collect mobile data base.

3.8 Data collection instruments and equipment

This consisted of written down structured questions, which were mainly closed ended. This was based on variables evidenced in the literature review. The respondents were asked to respond to the questions in the questionnaires for those who can read and write. For those who could not read and write, the research assistants administered the questionnaires themselves using appropriate interview techniques. The questionnaire was translated into Luganda which is widely spoken and understood by majority of the respondents in Central region. Informed Consent was obtained from respondents prior to the start of data collection.

3.9 Quality/Error control

To ensure that collected data was relevant to the purpose of the study and objectives, the questionnaires were pretested to ten (10) food vendors outside the study area in neighbouring Mukono municipality with similar settings. This was done to find out whether the questions in the questionnaires would elicit the required responses and to determine their socio- cultural acceptability. The data collection tools were translated into Luganda, one of the predominant languages widely understood by majority of people in the area to ensure clear understanding of questions in the data capture tools. The translated Luganda tools were then back translated to English to ensure that the original message is maintained. The researcher tried to avoid the use of sensitive questions during interviews. Sensitive questions such as “do you have a business trading license?” were avoided and asked using an alternative approach to promote high response rates.

3.10 Data management and processing

Cleaned data was entered into Kobo collect app fitted with skip logics and filters, then after download data into CSV file and export to Stata version 15 SE for data cleaning and analysis. The do-files were generated and saved to inform any future changes to the data. Back up data files were uploaded on cloud, hard disk and stored in a password-protected computer.

3.11 Statistical analysis

Data was analyzed at three levels namely univariate, bivariate and multivariate analysis such as frequencies and proportions was used to summarize categorical variables while continuous data was expressed as means and standard deviations. Binary logistic regression was used to assess if there is significant difference in the uptake of medical examination according to the various individual and institutional determinants. All epidemiologically meaningful explanatory variables with p value < 0.2 in simpler models (bivariate) were added into a fully saturated multivariable poisson model and all variables that have p values <0.05 were

considered as statistically significant. These were reported using prevalence ratios at 95% confidence intervals.

3.12 Ethical considerations

Approval and permission to conduct the study was sought from the Research Ethics Committee of Uganda Christian University as well as KCCA. The researcher obtained ethical approval from the Uganda Christian University Research Ethics Committee who reviewed the study for scientific and ethical aspects. Participation in the study was voluntary, written informed consent was conducted in language understood by the participant, all consent procedures for illiterate participants was conducted in presence of an independent witness.

3.13 Methodological constraints encountered

The study encountered methodological challenges. One of these is that most of the findings were based on self-reported responses from the food vendors with potential for desirability bias. Most of the food vendors may have feared during interviews, due to sensitivity of the study on their business which could affect individual responses contributing to information bias. Efforts were made to explain purpose of research, avoid sensitive questions and assured participants of confidentiality

3.14 Dissemination

Study recommendations were shared with KCCA, Ministry of Health and other stakeholders and findings will also be published in a peer reviewed Journal. A copy of the research report will be availed to KCCA, and University faculty. The researcher will organize research dissemination meetings with food vendors to provide feedback. The researcher also plans to develop an abstract paper for submission at various conferences as part of sharing research findings to a wider community.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents findings of the research that was conducted in Kampala central division among food handlers. This consists of data collected through structured questionnaire which includes socio demographic characteristics, individual related factors and institutional related factors

4.1 Demographic characteristics of respondents

A total of 424 participants responded to the study. Most of these, 261(61.7%) were female, 235(60.0%) were unmarried. In terms of age, most of the respondents (202(47.6%) were in the age bracket of 18-24 years with a median age of 25 years (IQR:21-31). Most of the participants 184(43.6%) were protestants by religion while only 145(34.9%) had attained secondary education. more than half of the respondents 235(55.7%) were from central Uganda. More than half of the responds (55.7%) earned a monthly income of >200-000-300,000, 1QR (270,000-320,000) (Table 1)

Table 1: Demographic characteristics of study participants n=total number of responses and not 424 sample size. Some respondents opted out to answer some questions which was ethically respected

Participant variables	Frequency	Percentage (%)
Gender n=424 – Total = 423		
Female	261	61.7
Male	162	38.3
Marital Status – Total = 382		
Married	157	40.0
Unmarried	235	60.0
Age (years) Median =25, 1QR =21-31		
18-24	202	47.7
25-31	143	33.7
32 and above	79	18.6
Religion – Total = 422		
Catholic	93	22.0
Moslem	124	29.4
Protestant	184	43.6

SDA	21	5.0
Education Level – Total = 415		
None	61	14.7
Primary	116	28.0
Secondary	145	34.9
Tertiary	93	22.4
Region – Total = 422		
Northern Region	19	4.5
Central Region	235	55.7
Eastern Region	89	21.1
Western Region	79	18.7
Nationality – Total = 424		
Rwanda	3	0.7
Uganda	421	99.3
Monthly Income – Total = 413 Median = 300000,1QR (270,000-320,000)		
20,000-200,000	60	14.5
>200-000-300,000	238	57.6
>300,000	115	27.9

4.2 Uptake of medical examination in the last 6 months among respondents

More than half of the respondents (279(65.8%) reported to have undertaken a medical examination in the previous six months as a mandatory test requirement for food vendors (Fig 1)

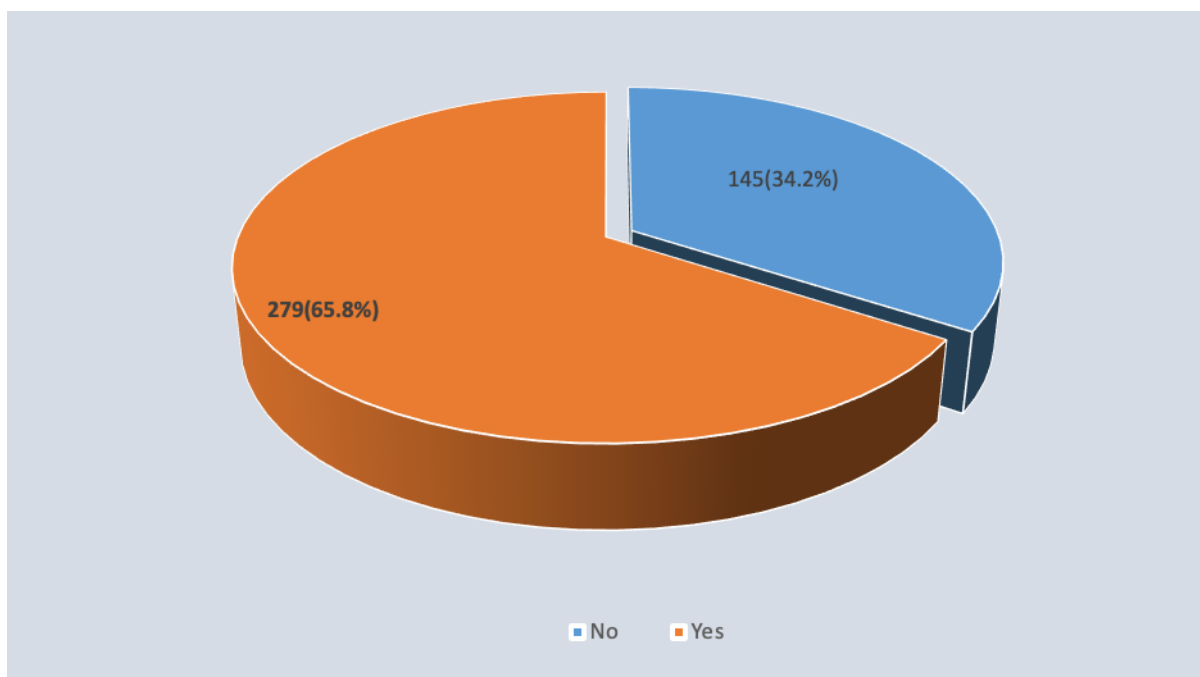


Figure 1: Uptake of medical examination in the last 6 months (but no certificate)

*Figure 2:: Uptake of medical examination in the last 6 months (but no certificate)*4.3 Uptake of medical examination in the last 6 previous months with Certification.

Less than half of the respondents (35.6%) reported to have undertaken a medical examination in the previous six months as a mandatory test requirement for food vendors and their certificates or receipts of payment for medical examination at KCCA was available (Fig 2)

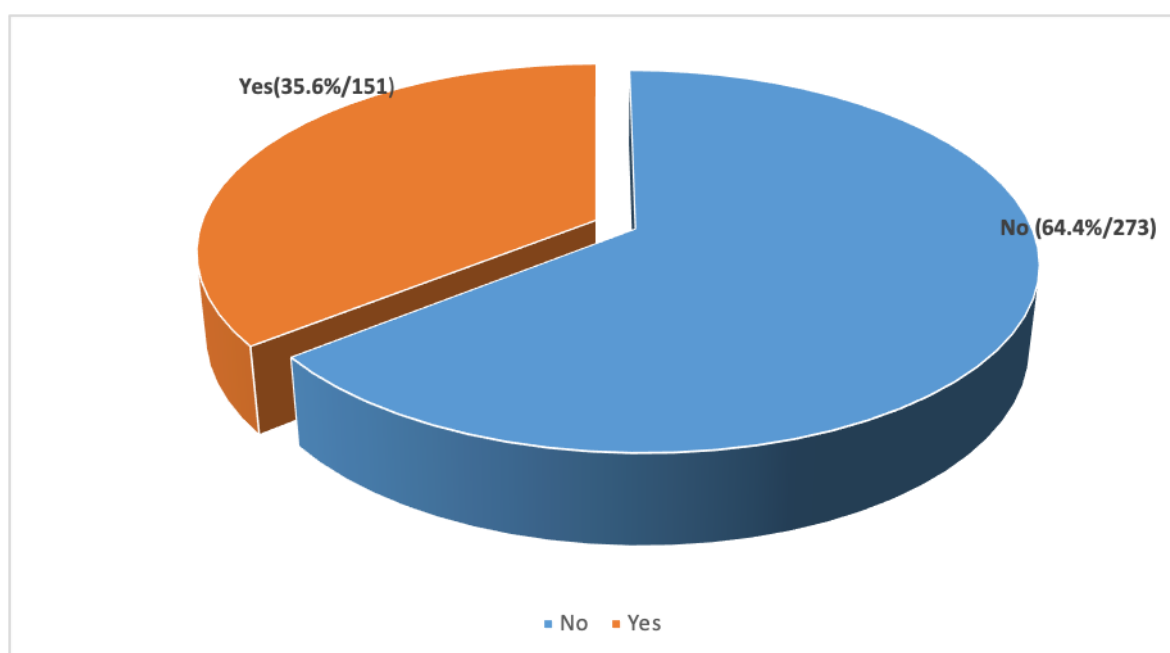


Figure 3:Uptake of medical examination in the last 6 previous months with Certification.4.4: Individual characteristics of respondents.In terms of individual characteristics most of the respondents **(237; 86.8%)** mentioned that they had undertaken a medical examination at least in the last six months while 341(80.6%) had done medical examination at least once in the last one year prior to the study. Most respondents 300(70.9%) were working as employees in restaurants. Most of the respondents were employed in small scale restaurants (<10 employers). Most of the respondents 181(42.9%) had been engaged in food vending business for <1 year and majority of them (357(84.6%) had no professional qualification in food vending business. Five respondents out of eight who had who had obtained professional food catering qualification had a certificate in catering services. About half of the respondents (211(50.4%) expressed their view on the risk of not undergoing medical examination as being of medium scale. Most reported daily duties by food vendors included cooking (177/42.0%) and Serving food and drinks (119/28.3%). About half of the respondents 251/59.9% had received safety training and most food handlers (312/74.1%) felt that Food handlers can be a source of disease outbreaks and medical examination was reported by 300/71.4% as a necessary requirement which should be done regularly. In terms of Participant view on reason to undergo M/E as food vender, most participants mentioned their reason to undergo medical examination (M/E) as being prevention of food handlers from spreading diseases. However, more than half of the respondents (254/60.2%) mentioned that the employer should pay for this service for their employees. Majority of the respondents 346/82.6%) reported to have paid 20,000 Uganda shillings to KCCA as cost of their M/E. In their own perspective, majority of the participants 361(87.6%) felt that M/E was not affordable and characterised by long procedures (195(49.5%)

About half of the respondents 213(50.3%) mentioned that their employer provides medical examination to employees. About 60.7% (255) respondents mentioned that it was true that registering a restaurant was not necessary for proper food handling practices. A total of 283(67.5%) of the respondents had paid for their M/E at KCCA for which 172(41.4% and 138/32.2% of respondents found this very costly and costly respectively (Table 2).

Table 2: Individual characteristics of participants n=total number of responses and not 424 sample size. Some respondents opted out to answer some questions which was ethically respected)

Participant variables	Frequency	Percentage (%)

Frequency of Medical Examinations in last 6 Months n= 424 – Total = 273		
Once	237	86.8
Twice	36	13.2
Frequency of Medical Examinations in last one Year – Total = 423		
Once	341	80.6
Twice	82	19.4
Employment status – Total = 423		
Business	123	29.1
Employee	300	70.9
Type of business – Total = 423		
Established Restaurants (>10 employers)	32	7.6
Mobile restaurants	15	3.5
Small scale restaurants (<10 employers)	376	88.9
Period of employment in Years – Total = 422		
1-<3	156	37.0
3-<5	61	14.4
<1	181	42.9
≥5	24	5.7
Professional qualification in food Vending – Total = 422		
No	357	84.6
Yes	65	15.4
Specific professional qualification related to food vending		
Catering services	5	62.5
Degree in another field	3	37.5
View on the risk of not undergoing medical examination – Total = 419		
High	39	9.3
Low	169	40.3
Medium	211	50.4

Daily duties at the food point – Total = 421		
Combination of any other duties	48	11.4
Cooking	177	42.0
Serving food and drinks	119	28.3
Washing dishes	77	18.3
Received any food safety training – Total = 419		
No	168	40.1
Yes	251	59.9
Food handlers can be a source of disease outbreaks – Total = 421		
No	109	25.9
Yes	312	74.1
Do you Think M/E should be regularly done – Total = 420		
Neutral	38	9.1
No	82	19.5
Yes	300	71.4
Participant view on reason to undergo M/E as food vender – Total = 413		
To prevent consumers and food handlers from food borne diseases	17	4.1
To prevent food handlers from spreading diseases	350	84.8
To protect food handlers from infection	46	11.1
Participant view who should pay for medical examination costs – Total = 422		
Employee	168	39.8
Employer	254	60.2
Cost of routine medical examination – Total = 419		
20,000	346	82.6
25,000-50,000	62	14.6
>50,000	11	2.8
Do you think M/E Cost is affordable – Total = 422		

No	361	87.6
Yes	51	12.4
Previous experience with Medical Examination – Total = 394		
Expensive procedure	72	18.3
Long procedure	195	49.5
Service is hard to access	127	32.2
Employer provide M/E for new employees – Total = 423		
No	210	49.7
Yes	213	50.3
Registering restaurants is not necessary for proper food handling practices – Total = 420		
False	165	39.3
True	255	60.7
Paid for routine medical examination as a food vender – Total = 419		
No	136	32.5
Yes	283	67.5
Found difficulty in paying for the service – Total = 416		
Costly	138	33.2
Not Costly	75	18.0
Others	31	7.4
Very Costly	172	41.4

4.5: Institutional factors

In terms of institutional factors most of the respondents 333/79.3% mentioned that they had been visited by a regulatory officer at work place in the last 6 months. More than half of the respondents 247/58.5% mentioned that there is no policy at their work place regarding medical examination. Most of the respondents 235/55.9% mentioned that none of their co-workers influenced them to go for medical examination. About half of the respondents 232(55.1%) mentioned that their employer asked for certificate of medical examination before employing them. Majority of the respondents 380 (90.0%) worked in Established

stationary restaurant. Most respondents 250(59.4%) reported that their businesses were licenced by KCCA (Table #).

Table 3: Showing Institutional factors

Participant variables	Frequency	Percentage (%)
Visited by a regulatory officer at work place in the last 6 months		
No	87	20.7
Yes	333	79.3
Policy at your work place regarding medical examination		
No	175	41.5
Yes	247	58.5
Influence of coworkers to go for medical examination		
Yes	185	44.1
No	235	55.9
Employer asked for certificate of medical examination		
No	189	44.9
Yes	232	55.1
Type of business		
Established stationary restaurant	380	90.0
Mobile Cart	8	1.9
Roadside food joint	34	8.1
Business Licensed by KCCA		
No	250	59.4
Yes	171	40.6

4.6 Association between demographic characteristics and uptake of medical examination among food handlers.

At bivariate analysis, among the socio-demographic factors, being Male (CPR 1.63, 95% CI: 1.27-2.10, $p < 0.001$), being Moslem by religion (CPR 0.54, 95% CI: 0.40-0.72, $p < 0.001$), Protestant (CPR 0.37, 95% CI: 0.27-0.51, $p < 0.001$), secondary level of education (CPR 0.38,

95% CI: 0.26-0.53, $p < 0.001$), tertiary level of education (CPR 0.26, 95% CI: 0.16-0.44, $p < 0.001$) and monthly income $> 300,000$ (CPR 2.47, 95% CI: 1.44-4.25, $p = 0.001$) were significantly associated with uptake of medical examination (Table 4).

At multivariate analysis, among the social demographic factors, Education level was statistically associated with uptake of medical examination. The proportion of respondents who had attained tertiary education and who had obtained medical examination services in the last six months was lower compared to the proportion of respondents who had no formal education and had obtained medical examination (aPR 0.55, 95%CI:0.30-0.99, p -value=0.048). (Table 6). This implies an increasing trend of non compliance to M/E among respondents with tertiary education.

Table 4: Modified Poisson regression results for the association between demographic characteristics and uptake of medical examination

Variable	Medical Examination done		Crude PR(UPR) 95% CI, $p \leq 0.05$	P Value	Adjusted PR(APR) 95% CI, $p \leq 0.05$	P Value
	No	Yes				
Gender						
Female	186(68.4)	75(49.7)	1			
Male	86(31.6)	76(50.3)	1.63(1.27-2.1)	<0.001	1.00(0.75-1.32)	0.996
Marital Status						
Married	96(37.9)	61(43.9)	1			
Unmarried	157(62.1)	78(56.1)	0.85(0.65-1.11)	0.249		
Age Cat						
18-24	126(46.5)	76(50.3)	1			
25-31	101(37.0)	42(27.8)	0.78(0.57-1.06)	0.118		
32+	46(16.8)	33(21.8)	1.11(0.80-1.52)	0.516		
Religion						
Catholic	35(12.9)	58(38.4)	1.		1	
Moslem	82(30.3)	42(27.8)	0.54(0.40-0.72)	<0.001	0.76(0.53-1.07)	0.139
Protestant	141(52.0)	43(28.5)	0.37(0.27-0.51)	<0.001	0.75(0.54-1.05)	0.090

SDA	13(4.8)	8(5.3)	0.61(0.34-1.08)	0.089	0.92(0.60-1.40)	0.686
Education level						
None	22(8.3)	39(26.2)	1		1	
Primary	57(21.4)	59(39.6)	0.79(0.61-1.03)	0.085	0.85(0.63-1.15)	0.295
Secondary	110(41.4)	35(23.5)	0.38(0.26-0.53)	<0.001	0.70(0.46-1.07)	0.101
Tertiary	77(28.9)	16(10.7)	0.26(0.16-0.44)	<0.001	0.55(0.30-0.99)	0.048*
Tribe						
Luo	13(4.8)	6(4.0)	1			
Muganda	154(56.6)	81(54.0)	1.09(0.55-2.17)	0.802		
Bagishu & Basoga	49(18.0)	40(26.7)	1.42(0.70-2.87)	0.324		
Banyankole , Banyoro	56(20.6)	23(15.3)	0.92(0.44-1.94)	0.831		
Monthly Income Outcome Cat						
20,000-200,000	48(18.0)	12(8.2)	1		1	
>200-000-300,000	161(60.3)	77(52.7)	1.62(0.94-2.77)	0.080	1.52(0.85-2.70)	0.151
>300,000	58(21.7)	57(39.0)	2.47(1.44-4.25)	0.001	1.38(0.75-2.54)	0.297

Significant variable (p-value <0.05),

4.7 Association between Individual factors and uptake of medical examination

At bivariate analysis, among the individual participant factors, employment status (CPR 0.57, 95% CI: 0.45- 0.73, $p<0.001$), Type of business being mobile restaurants (CPR 0.44, 95% CI: 0.21-0.94, $p<0.033$) or small-scale restaurants (<10 employers) (CPR 0.43, 95% CI: 0.33-0.55, $p<0.001$) were significantly associated with medical examination. Having a professional qualification in food vending (CPR 2.01, 95% CI: 1.57-2.58, $p<0.001$), Participant who viewed the risk of not undertaking Medical Examination as being low (CPR 4.52, 95% CI: 1.97-0.37, $p<0.001$), receiving a safety training on food safety (CPR 1.39, 95%

CI: 1.05-1.85, $p=0.022$), participants who viewed food handlers as a source of disease outbreaks (CPR 2.23, 95% CI: 1.47-3.40, $p<0.001$) demonstrated a positive association with M/E. Meanwhile, perception on participant view on who should pay for medical examination services (CPR 0.33, 95% CI: 0.25-0.44, $p<0.001$), previous experience with medical examination being a long procedure (CPR 0.64, 95% CI: 0.48-0.86, $p=0.003$), service being hard to access (CPR 0.36, 95% CI: 0.24-0.55, $p<0.001$) were negatively associated with uptake of medical examination services. Additionally, participant view on necessity of registering a restaurant for proper food handling to take place (CPR 1.33, 95% CI: 1.01-1.76, $p<0.044$), paying for medical examination as a food vendor (CPR 1.67, 95% CI: 1.20-2.03, $p<0.002$) and participant view on difficulty faced while accessing medical examination as being a costly service (CPR 2.54, 95% CI: 1.56-4.11, $p<0.001$) were associated with medical examination (Table 5)

Among individual factors, the proportion of respondents who believe that employer should pay medical examination who had done medical examination was lower than the proportion of respondents who believed that the employee should pay for medical examination (aPR 0.65, 95%CI:0.44-0.97, $p\text{-value}=0.035$). Table 6

Table 5: Unadjusted and adjusted modified Poisson regression findings for the association between Individual Participant factors and uptake of medical examination

Variable	M/E done		Crude PR(UPR) 95% CI	P value	Adjusted PR(APR) 95% CI	P value
	No	Yes				
Employment status						
Business owner	60(22.1)	63(41.7)	1		1	
Employee	212(77.9)	88(58.3)	0.57(0.45-0.73)	<0.001	1.03(0.75-1.41)	0.847
Type of business						
Established Restaurants (>10 employers)	8(2.9)	24(16.0)	1		1	
Mobile restaurants	10(3.7)	5(3.3)	0.44(0.21-0.94)	0.033	1.70(0.79-3.70)	0.175
Small scale restaurants (<10 employers)	255(93.4)	121(80.7)	0.43(0.33-0.55)	<0.001	0.73(0.50-1.06)	0.101
Period of employment in Years						

<1	112(41.2)	69(46.0)	1			
1-<3	107(39.3)	49(32.7)	0.82(0.61-1.11)	0.202		
3-<5	37(13.6)	24(16.0)	1.03(0.72-1.48)	0.865		
≥5	16(5.9)	8(5.3)	0.87(0.48-1.58)	0.659		
Professional qualification in food Vending						
No	28(90.8)	109(73.2)	1		1	
Yes	25(9.2)	40(26.8)	2.01(1.57-2.58)	<0.001	1.20(0.89-1.64)	0.232
View on the risk of not undergoing medical examination						
High	34(12.5)	5(3.4)	1		1	
Medium	166(61.3)	45(30.4)	1.66(0.70-3.93)	0.246	1.32(0.51-3.37)	0.558
Low	71(26.2)	98(66.2)	4.52(1.97-0.37)	<0.001	2.12(0.83-5.43)	0.117
Daily duties at the food point						
Combination of any other duties	28(10.3)	20(13.5)	1			
Cooking	126(46.2)	51(34.5)	0.69(0.46-1.04)	0.076		
Serving food and drinks	63(23.1)	56(37.8)	1.13(0.77-1.66)	0.536		
Washing dishes	56(20.5)	21(13.2)	0.65(0.40-1.07)	0.094		
Received any food safety training						
No	120(44.3)	48(32.4)	1		1	
Yes	151(55.7)	100(67.6)	1.39(1.05-1.85)	0.022	0.95(0.65-1.39)	0.794
Food handlers can be a source of disease outbreaks						
No	89(32.6)	20(13.5)	1		1	
Yes	184(67.4)	128(86.5)	2.23(1.47-3.40)	<0.001	1.39(0.84-2.30)	0.196
Do you Think M/E should be regularly done						

Neutral	36(13.2)	2(1.4)	1			
No	61(22.4)	21(14.2)	4.86(1.20-19.73)	0.027		
Yes	175(64.3)	125(84.5)	7.92(2.03-30.76)	0.003	*****	
Participant view on reason to undergo M/E as food vender						
To prevent consumers and food handlers from food borne diseases	8(3.0)	9(6.2)	1			
To prevent food handlers from spreading diseases	231(86.2)	112(82.1)	0.64(0.40-1.03)	0.066		
To protect food handlers from infection	29(10.8)	17(11.7)	0.69(0.39-1.25)	0.230		
Participant vie on who should pay for medical examination costs						
Employee	69(25.3)	99(66.4)	1		1	
Employer	204(74.7)	50(33.6)	0.33(0.25-0.44)	<0.001	0.65(0.44-0.97)	0.035
Cost of routine medical examination						
20,000	227(83.5)	119(80.9)	1			
25,000-50,000	36(13.2)	26(17.7)	1.21(0.88-1.69)	0.235		
>50,000	9(3.3)	2(1.4)	0.53(1.15-1.87)	0.323		
Do you think M/E Cost is affordable						
No	237(88.1)	124(86.7)	1			
Yes	32(11.9)	19(13.3)	1.08(0.74-1.59)	0.679		
Previous experience with Medical Examination						
Expensive procedure	33(12.6)	39(29.6)	1		1	

Long procedure	127(48.5)	68(51.5)	0.64(0.48-0.86)	0.003	0.85(0.61-1.19)	0.347
Service is hard to access	102(38.9)	25(18.9)	0.36(0.24-0.55)	<0.001	0.96(0.62-1.48)	0.854
Employer provide M/E for new employees						
No	127(46.7)	83(55.0)	1			
Yes	145(53.3)	68(45.0)	0.81(0.62-1.04)	0.105		
Registering restaurants is not necessary for proper food handling practices						
False	116(43.0)	49(32.67)	1		1	
True	154(57.0)	101(67.3)	1.33(1.01-1.76)	0.044	1.17(0.86-1.60)	0.321
Paid for routine medical examination as a food vender						
No	103(38.0)	33(22.3)	1		1	
Yes	168(62.0)	115(77.7)	1.67(1.20-2.03)	0.002	1.34(0.96-1.89)	0.084
Found difficulty in paying						
Not Costly	60(22.4)	15(10.1)	1		1	
Costly	68(25.4)	70(47.3)	2.54(1.56-4.11)	<0.001	1.08(0.66-0.76)	0.752
Very Costly	140(52.2)	63(42.6)	1.55(0.94-2.55)	0.083	1.05(0.63-1.75)	0.846

Significant variable (p -value <0.05), ***** *Dropped due to Collinearity*

4.8 Association between Institutional factors and uptake of medical examination

At bivariate analysis, among the institutional factors, participant who mentioned that they had been visited by a regulatory officer at work place in the last 6 months (CPR 2.3, 95% CI: 1.44-3.77, $p=0.001$), and participant business being of a licenced status by KCCA (CPR 3.10, 95% CI: 2.32-4.10, $p<0.001$) were significantly associated with higher uptake of medical examination (Table 6). On the other hand, Influence of co-workers to go for medical examination (CPR 0.65, 95% CI: 0.50-0.84, $p=0.001$), participant where the employer asked for certificate of medical examination (CPR 0.66, 95% CI: 0.51-0.85, $p<0.001$), Type of

business (CPR 0.50, 95% CI: 0.27-0.97, p=0.040) were associated with lower uptake of medical examination.

Among institutional factors respondents from businesses that were licenced by KCCA were more likely to go for medical examination compared to those from businesses which are not licenced by KCCA (aPR 1.79, 95%CI: 1. 22 -2.62, p-value=0.003) Table 6

Table 6: Modified Poisson regression results for the association between institutional factors and uptake of medical examination

Variable	M/E done		Crude PR(UPR) 95% CI	P Value	Adjusted PR(APR) 95% CI	P value
	No	Yes				
Visited by a regulatory officer at work place in the last 6 months						
No	72(26.6)	15(10.1)	1		1	
Yes	199(73.4)	134(89.9)	2.3(1.44-3.77)	0.001	1.24(0.72-2.15)	0.434
Policy at your work place regarding medical examination						
No	107(39.5)	68(45.0)	1			
Yes	164(60.5)	83(55.0)	0.86(0.67-1.12)	0.266		
Influence of coworkers to go for medical examination						
Yes	103(38.2)	82(54.7)	1		1	
No	167(61.8)	68(45.3)	0.65(0.50-	0.001	0.98(0.57-	0.943

			0.84)		1.67)	
Employer asked for certificate of medical examination						
No	106(39.1)	83(55.3)	1		1	
Yes	165(60.9)	67(44.7)	0.66(0.51-0.85)	0.001	0.92(0.55-1.56)	0.766
Type of business						
Established stationary restaurant	239(87.6)	141(94.6)	1		1	
Roadside food joint/mobile cart	34(12.4)	8(5.4)	0.5(0.27-0.97)	0.040	0.56(0.28-1.13)	0.106
Business Licensed by KCCA						
No	202(74.3)	48(32.2)	1		1	
Yes	70(25.7)	101(67.8)	3.1(2.32-4.10)	<0.001	1.79(1.22-2.62)	0.003

Significant variable (p-value <0.05)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Discussion of findings

5.1.1 Introduction

The study sought to determine the factors associated with uptake of medical examination among 424 food handlers in Central Division, Kampala City, Uganda. The study findings highlight low uptake of medical examination among food vendors which is partly attributed to regulatory efforts by KCCA.

5.1.2 Uptake of medical examination among food vendors

Routine medical examination is an important procedure which must be undertaken routinely by all food vendors to prevent occurrence of food borne diseases especially low-cost restaurants. The results indicate that only 35.6% of the respondents had undertaken medical examination in the previous six months with documented evidence available. This implies that nearly two-thirds of food vendors in Kampala Central Division do not comply with requirement to undergo medical examination as prescribed by public health guidelines due to poor attitudes towards the procedure. There was generally observed complacency for this procedure among respondents and most of them viewed the risk of not undertaking the procedure as being low or medium rating. The current study findings are similar to observations by Joviah et al in Entebbe Municipal Council, Uganda where 42% of respondents exhibited poor attitudes about this procedure ([Joviah & David, 2019](#)). Our findings are closely similar to those of those of studies conducted in the Tamale Metropolitan area, Ghana and Accra where only 46.7% and 40% of respondents respectively reported having undergone a medical examination and obtained a certificate ([Danikuu et al., 2015](#)). Our findings are therefore consistent with what is known on medical examination practices among food vendors is a challenging practice in the developing world ([Danikuu et al., 2015](#); [Kumar et al., 2019](#); [Rakha et al., 2022](#); [Samapundo et al., 2015](#)). Food vendors who are not medically examined cannot benefit in terms of reduced risk of food borne diseases and food contamination ([Lalit et al., 2015](#); [Nyenje et al., 2012](#)). Our finding was consistent with a similar study in Ghana where only 52% of respondents had undergone medical examination with most of the respondents having been screened only once a year ([Apania et al., 2019b](#)) and in Uganda where sub optimal uptake of medical examination services were reported ([Joviah & David, 2019](#)). The current findings are consistent with most that reported suboptimal medical examination uptake in low and middle income countries where results can be triangulated to Ugandan setting ([da Silva et al., 2014](#); [Joviah & David, 2019](#); [Kumar et al., 2019](#); [Prabhu & Shah,](#)

[2012](#); [Rakha et al., 2022](#)). This highlights that the problem of low uptake of medical examination is widely spread in different regions of the world. However, the current findings are inconsistent with results from studies from similar settings in Niger where higher uptake levels of medical examination at 80% was reported respectively ([Musa & Akande, 2003](#)). The higher uptake of medical examination in Niger was attributed to high knowledge among food vendors concerning food safety, good attitudes towards testing procedures and strict enforcement of compliance by enforcement officers. The low uptake of medical examination among food vendors in Kampala central division could be an indication of deficiency in knowledge specifically on risk –benefit analysis. This is further evidenced by the findings from the present study where most respondents (87.6%) perceived medical examination as an expensive venture where the risk about half of the respondents (211/50.4%) not undertaking medical examination being of medium risk to themselves and their customers. This therefore calls for more public health education among food vendors and increases enforcement and regulation of public health practice standards.

5.1.3 Socio-demographic factors associated with uptake of medical examination

A fifth of the respondents had attained tertiary level of education. It was specifically observed that, the proportion of respondents who had attained tertiary education and had undertaken a medical examination test in the previous six months was about half of the proportion of food handlers who had no formal education and had undertaken a medical examination test in the previous six months. This implies a low uptake of medical examination with attainment of tertiary education. The current study findings may be pointing to complacency specifically among the elites who are expected to be more knowledgeable in terms of public health and safety due to their better access to information and better access to technology such as smart phones and reading materials where they can obtain first-hand information. This finding could also be explained by the fact that most people with tertiary education may be employed as restaurant owners and not directly involved in direct services of customers leading to reluctance to undertake a medical examination. The observed findings differ from results obtained in a study by Money et al in Konongo, Ghana observed that attitudes and practices towards medical examination and lack of food safety awareness and education were enhanced with higher levels of education and training ([Monney et al., 2013a](#)). Higher level of education was associated with better uptake of medical examination which was attributed to better access to information. [Ahmed et](#)

study finding is consistent with previous studies in Uganda and Africa where, uptake of medical examinations was a major influencing factor that was related to insufficient commitment from state authorities to enforce food hygiene regulations due to laxity ([Aluko et al., 2014](#); [Joviah & David, 2019](#); [Muchai, 2012](#)). Consistent with current study, one study particularly observed that unlike institutional vendors, who are often required to present medical certificates, food vendors are not compelled to do so ([Danikuu et al., 2015](#)). This is evident in the present study where two thirds of respondents reported to have done a medical examination but only a third had a medical certificate or other forms of evidence available. A similar study in Kampala Uganda, on medical examination of food handlers showed gaps both in the food vendors and business owners effort to comply to medical examination and on the side of authorities involved in ([Muyanja et al., 2011](#)). When businesses are not registered by KCCA, the implication is that most regulations regarding their operation cannot be tracked effectively by KCCA due to lack of reference database. When this happens, the plan by employees and business owners to practice safe food handling practices will rely on their personal will to do so or from influence from colleagues which was also established to be low in the current study (44.1%). There is need for joint effort by KCCA and business owners to enforce business registration and business owners to enforce internal compliances to medical examination. This will improve uptake of medical examination by ripping from the benefits of business registration, Regular Impromptu checks by KCCA may also help to crackdown on unregistered restaurants and food points that may increase risks to non-compliance to food safety standards.

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The present study revealed low uptake of medical examination among food vendors in Kampala in the previous six months at the time of the study based on availability of a certificate or any other form of verifiable evidence such as receipts from KCCA. Despite this low uptake of medical examination by food vendors, at least more than half of respondents reported to have taken a medical examination in the last six months although no documentation was available to prove this. This highlights underlying gaps in the issuing of medical examination certificates by KCCA. Factors associated with uptake of medical examination among food vendors in Kampala Central division included having attained tertiary level of education, believing that the employer should pay for medical examination services for their employees and being a respondent from a business that had been licenced by KCCA. There is need for KCCA to enhance enforcement of medical examination among food vendors and to empower food vendors with information regarding medical examination importance to build their self-efficacy to make critical decisions regarding uptake of medical examination.

6.2 Recommendations

Food vendors and owners of Food vendor businesses

To ensure that every food vendor undertakes a medical examination prior to starting business as a food vendor and at least every six months during conduct of business, there is need for authorities at KCCA to strengthen supervision of food vendor businesses and to sensitise the food vendors on their responsibilities towards food safety and the importance of taking a medical examination test to promote compliance. This can be done through the public health department. Food vendors and owners of food vendor businesses need to clearly understand their personal responsibilities regarding food safety. In addition, KCCA needs to strengthen issuing of medical certificates since a number of employees who mentioned to have taken a medical examination were not issued with certificates.

Food consumers

Customers who obtain food services from restaurants and mobile places should be encouraged to eat food from hygienic and certified places by KCCA since this study has shown that registration with KCCA was associated with better uptake of medical examination services possibly due to supervision and quality checks by regulatory

officers. Eating from hygienic certified places by KCCA may limit outbreaks of foodborne diseases like typhoid.

Researchers

There is room for additional research on this topic especially qualitative investigation to examine some schools of thought that were identified in the current study. Secondly a more robust study involving respondents from several divisions in the Kampala city might enlist more accurate scientific evidence on uptake of medical examination among food vendors

6..3. Policy makers, KCCA and Ministry of Health

There should be a concerted effort to design and implement effective behaviour change campaigns and reinforcement of medical examination by KCCA in all divisions of Kampala. This should focus on development of Information, Education and Communication materials concerning medical examination and its importance and deployment of public health professionals to do spot checks in restaurants. The use of automated SMS reminders and WhatsApp can be of benefit as observed where most vendors who reported having been tested did not follow up with their certificates at KCCA.

6.4 Study limitations

This study revealed critical findings in terms of uptake of medical examination among food vendors in Central region which is representative of other divisions in Kampala City. This study raises critical important findings since it is one of the few studies on medical examination that have been conducted on medical examination up take in Kampala. The study used a cross-section study design which allowed collection of all required data in one visit among food vendors and thus registered a high response rate. The study however is not free from information and desirability biases where participants could have been forced to provide desired responses in consideration of KCCA being a regulating body for food business and known for law enforcement. However, effort was made by the research assistants to explain the purpose of the study and for the research assistants to introduce themselves before the study. All research assistants were encouraged to wear their Identity cards and also carry a copy of national Identity card with them. Furthermore, there could have been information bias as a result of translation into the local Luganda language which was minimized

through prior translation of tools and training of research assistants who collected the study data.

6.5 Suggestions for further research

This study has revealed critical findings such as the belief by food vendors that the employer should pay for their medical examination and the low issuing of medical examination certificates. These areas of concern seem to have undisclosed reasons which could form potential barriers to uptake of medical examination services. This area of study requires additional research specifically of qualitative design to explore potential barriers to uptake of medical examination that could have been missed during the quantitative investigation. This will aid in refining and designing effective and informed behaviour change programs in the future by KCCA.

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APPENDICES

APPENDIX 1: Informed Consent form for Participation in the Study (English Version)

UGANDA CHRISTIAN RESEARCH ETHICS COMMITTEE

INFORMED CONSENT FORM: ENGLISH

Title of study: Factors associated with uptake of medical examination among food handlers in Kampala central division, Kampala city.

Contact Person: Semakula Saziri, Email: sazir2006@gmail.com Telephone 0701385866

Investigator: Semakula Saziri

Supervisors: Dr. Solomon T. Wafula

Introduction

Dear participant, my name is I am part of the team headed by **Semakula Saziri**, a student of Uganda Christian University pursuing a Master of in Public Health degree currently conducting a research project in this area.

Purpose of the study: Factors associated with uptake of medical examination among food handlers in Kampala central division, Kampala city.

Background:

Routine medical examination of food venders, which include those involved in handling drinks, and food and at all stages including preparation, cooking food and serving customers is highly recommended in public health practice. The aim of this practice is to prevent transmission of food borne diseases that can hide in man as reservoir. Reports from KCCA department of public health indicate gaps in compliance to this routine medical examination. This can lead to serious outbreaks of food borne diseases in the city such as typhoid fever and Cholera outbreaks. Therefore, understanding the factors associated with uptake of medical examination among food handlers in Kampala Central Division, Kampala city could facilitate setting up targeted interventions focusing on helping food vendors to comply with this intervention.

Participants:

We intend to reach out to 426 Food vendors or entrepreneurs 18 years and above who do their business in Kampala Central Division. Your participation is very important for this

study. However, participation is completely on voluntary basis. You may wish to withdraw at any stage of the study. Your participation will be for a period of one day during which all the required information will be collected from you. We shall ensure that all required information is corrected in one meeting with you.

Clarifications:

The consent form or the questionnaire might contain some words that you may not understand very well. Please ask us to explain to you in case of any word that requires clarification.

Study procedures:

You will be asked by research assistants some questions about the status of your medical examination and questions on what motivated you or encouraged you to go for the examination. This study will not involve any other procedure apart from this explained.

Benefits:

You will benefit indirectly or directly from this study by aiding the process of generating information that will help health sector in providing better services with good safety standards. Participating in this study has no financial benefits or any form of compensation. We will provide a safe and private environment during data collection. The data collection team will be able to find you at your place or venue that is convenient to you to minimise movements.

Risks:

We do not anticipate any significant risks in this study. We may ask you some information which you may consider private but we will ensure maximum confidentiality.

Confidentiality:

All information obtained in this study will be coded to protect participants' identities. No names or other identifying information will be used when collecting, presenting or reporting data in this study. The investigator will safely keep all files and data collected during this study at the study office. All the information collected shall be accessed only by the study team. Once the data has been fully analysed and utilized, it will be destroyed. Uganda Christian Research Ethics Committee (REC) as an ethical entity that will regulate this study may have access to the information that identifies the research participant by name.

Protecting subject privacy during data collection

All interviews for participants will be conducted in the absence of a third party except where there is language barrier. You will be given an opportunity to select an impartial witness of your choice. All interviews will be conducted in quiet designated place.

Compensation for participation in the study:

Participants in this study will not be compensated for their participation in this study. All precautions will be taken to ensure that study participants are not physically or psychologically injured during participation in this study. However, those that may be injured as a result of participation in the study will be offered care at public health facilities or any government facility until they are completely cured or stabilized.

Questions about the study:

Questions should be directed to the principal investigator Semakula Saziri 0701385866 whose phone contacts are also availed in the first section of this informed consent form. Queries can be submitted via telephone call, written via email.

Questions about participants' rights:

As a research participant, queries about your rights can be addressed directly to chairperson Uganda Christian Research Ethics Committee.

Statement of voluntariness:

Participation in this study is voluntary. If you choose not to participate or withdraw your participation at any stage of the research, your data will be withdrawn from the study database.

Cost:

Participation in this study is at no financial cost. You are not required to pay any money to be part of this study

Sponsors and organizational affiliation of the researchers

This research project is solely funded by the principal investigator

Dissemination of results:

As a research participant, you will get feedback on the findings of the study through publication and reports. Any new information from the study that has health benefits to you will be made available to you through KCCA public health office

Ethical approval:

This research study will be approved by Uganda Christian Research Ethics Committee.

Declaration by the Participant

By signing below,

I agree to take part in the study entitled ‘Factors associated with uptake of medical examination among food handlers in Kampala central division, Kampala city’

- I have read or had this consent form read to me,
- I have had chance to ask questions and all my questions have been answered adequately,
- I understand that taking part in this study is voluntary and that I have not been pressured to participate,
- I may choose to withdraw consent or leave the study at any stage of the study,
- By signing this form, I do not give up any of my legal rights I hold as participant.

Signedat (Place)
by.....on the/...../..... (Date)

**Signed
(Investigator)...../...../..... (Date)**

Thumb print for those who cannot write

Date.....

APPENDIX 2:: STUDY QUESTIONNAIRE

Factors associated with uptake of medical examination among food handlers in Kampala central division, Kampala City

Contact Person: Semakula Saziri, Email: sazir2006@gmail.com

Telephone: +256782185880

Questionnaire code. XXXXXXXXXX

S/No	Questions	Response	Code#
SOCIO-DEMOGRAPHICS			
1.	Gender of the respondent	1= Male 2= Female	
2.	Marital status	1=Married 2=Unmarried	
3.	How old are you in completed years?		
4.	What is your religion?	1= Catholic 2=Protestant 3= Muslim 4= Pentecostal 5=SDA 6=Others	
5.	What is your highest level of education	1= None 2=Primary 3= Secondary 4=Tertiary	
6.	What is your Tribe?		
7.	What is your Nationality?		
8.	Where is your business located in terms of Parish?		
9.	What is your monthly income in Uganda Shillings?		
MEDICAL EXAMINATION			
10.	Have you undertaken a medical examination in the last six months as part of the requirements for	1=Yes 2=No	

11.	How many times have you undertaken medical examination	1=Once 2=Twice	
12.	How many times have you undertaken medical examination	1=Once 2=Twice	
13.	Do you have a certificate of medical examination?	1=Yes 2=No	
INDIVIDUAL FACTORS			
14.	What is your employment status?	1=Business owner	
15.	Type of business	1=Mobile restaurants 2=Small scale restaurants (<10 employers) 3= Established Restaurants (>10)	
16.	How long have you been employed in food vending business?	 (Months)(Years)	
17.	Do you have professional qualification related to food vending?	1= Yes 2=No	
18.	If yes specify		
19.	What is your view on the risk of not undergoing medical examination to you and your customers?	1=Low 2=Median 3=High	
20.	Main daily duties	1=Cooking 2=Serving food and drinks 3=Washing dishes 4=Specify combination of duties if more than one	

21.	Did you receive any food safety training?	1= Yes 2=No	
22.	Do you think food handlers can be a source of disease outbreaks?	1= Yes 2=No	
23.	Do you think medical examination should be regularly done on food handlers?	1= Yes 2=No 3=Neutral	
24.	Why do you think it is important to undergo medical examination as food vender?	1= To prevent consumers and food handlers from food borne diseases 2= To prevent food handlers from spreading diseases 3=To protect food handlers from infection	
25.	Participant view on who should pay for medical examination costs at the time of employment or during employment?	1= Employee 2= Employer	
26.	What is the cost of medical examination in Uganda shillings?		
27.	Do you think it is affordable?		
28.	How would you describe your previous experience with Medical Examination?	1=Expensive procedure 2=Long procedure 3=Service is hard to access	
INSTITUTIONAL FACTORS			
29.	Does your employer provide medical examination for new employees?	1= Yes 2=No	
30.	Registering restaurants is not necessary for proper food handling practices?	1=True 2=False	

31.	Have you ever paid for routine medical examination as a food vender?	1= Yes 2=No	
32.	Did you find difficulty in paying for the service in terms cost?	1= Very Costly 2=Costly 3=Not costly 4=Others	
33.	Has any regulatory officer visited you to check on compliance of health standards at your work place in the last 6 months?	1= Yes 2=No	
34.	Do you know or have a policy at your work place regarding medical examination?	1= Yes 2=No	
35.	Has any of your co-workers influenced you to go for medical examination?	1= Yes 2=No	
36.	Did your employer ask you for a certificate of medical examination when you were starting to work in this place?	1= Yes 2=No	
37.	What is the nature of your type of business?	1=Roadside food joint 2=Established stationary restaurant 3=Mobile Cart	
38.	Is your business licenced by KCCA?	1= Yes 2=No	

End of Questionnaire. Thank you for Participating

APPENDIX 3:STUDY QUESTIONNAIRE LUGANDA VERSION

Ensonga ezivirako abantu abakola mubilabo byemere okujumbira Okwekeza okwobuwaze okukolebwa kubakola mubilabo byemere mu gombolola eyo makati mu Kibuga Kampala

Otukirwako : Semakula Saziri, Endagirilo yokumutimbagano: sazir2006@gmail.com

Ennamba yessimu: +256782185880

Questionnaire code. XXXXXXXXXX

S/No	Ekibuuzo	Ekidibwamu	
	EBIKWATA KUBETABYE MUKUNONYEREZA		
1.	Ekikula kyoyo eyatabye mukunonyereza	1= Musajja 2= Mukazi	
2.	Ensengeka yobufumbo	1=Mufumbo 2=Ssimufumbo	
3.	Olina emyaka emeka ejijudde?		
4.	Oli wa ddini ki ?	1= Mukatuliki 2=Mu kurisitayo 3= Musilamu 4= Mulokole 5=Museveniside 6=Edinni endala yonna	
5.	Okusoma kwo	1= SSasoma 2=Primale 3= Siniya 4=Tertiary Amatendekero agawagulu	
6.	Egwangalyo?		
7.	Ova mu nsi ki?		
8.	Ekifo kyo wokolera kisangibwa wa?		
9.	Ofuna sente meka omweezi mu za Uganda?		
OKUKEBEREBWA			
10.	Wali wekebezako mumwaka Aguyise nga ekimu kubisanyizo	1=Yee 2=Nedda	

11.	Emirunda emeka gwewali wekebezako mumyeezi omukaaga egiyise nga ekimu kubisanyizo	1=Omulundi gumu 2=Emirundi Ebiri	
12.	Emirunda emeka gwewali wekebezako mumwaka oguyise nga ekimu kubisanyizo kyomulimugwo	1= Omulundi gumu 2=Twice	
13.			
14.	Olina Ebaluwa jebakuwa nga omaze okukeberegwa?	1=Yee 2=Nedda	
ENSONGA EZIKWATA KUBAKOZI NGA SSEKINOMU			
15.	Ebikwata ku mulimu gwokola?	1=Nanyini Business	
16.	Ekika kyekifo wokolera (Buzinensi)	1=Woteri etambuzibwa 2=Woteri entonotono (<10 Abakozi) 3= Woteri eyetetengeredde (>10 Abakozi)	
17.	Ommaze banga ki nga okola omulimu gwokutunda emmere ?	 (Myeezi)(Myaaka)	
18.	Olinayo okutendekebwa kwona kwewakugukamu nga kwekusa kukutunda emmere nebyok unywa.	1= Yee 2=Nedda	
19.	Obba yee lambulula		
20.	Wa endowozayo kubulabe obuli mubutekebeza eri obulamubwo era nobwabo ajja okukugulako	1=Bwawansi 2=Wkatikati 3=Buli wagulu	
21.	Emirimujo ejjabulilunaku	1=Kufumba 2=Kugabula mmere nebyokunywa 3=Kwooza masowani 4=Nkola emirimu ejisukka mugumu –	

22.	Wafuna okutendekebwa kwona nga ku kwata kububuyonjo mu meere?	1= Yee 2=Nedda	
23.	Olowooza abantu abatunda emere bayinza okuba ensibuko yobulwadde	1= Yee 2=Nedda	
24.	Olowooza nti okukebera abatunda emere kyalikulidwa buli luvanyuma	1= Yee 2=Nedda	
25.	Lwaki olowoza kyamugaso okwekebeza nga omutunzi wemere ?	1= To prevent consumers and food handlers from food borne diseases 2= Okuziyisa abatuunzi bemere okusasanya endwadde	
26.	Ani atekeddwa okusasulira Okwekebeza mukiseera nga oyingizibwa kumulimu nga omukozi	1= Mukozi 2= Mukozesa	
27.	Okwekeza kimalawo ssente meka mu za Uganda?		
28.	Olowoza ebisale bino bisasamu ?		
29.	Ngeri ki joyinza okutotola byewayitamu Omulundi ogwasembayo bwewagenda	1=Empereza yabuseera 2=Emitendeera miwanvu 3=Empereza nzibu okujifuna	
ENSONGA EZIKWATA KU BIFO WETUKOLERA			
30.	Mukamawo asasulira abakozi abapya okukeberegwa?	1= Yee 2=Nedda	
31.	Okuwandiisa ekilabo Kyemere si kyamuwendo bwetutuka kunkwata ye mere nebyokunywa enungi era egoberela amateeka gabasawo ?	1=Kituufu 2=Sikituufu	
32.	Wali osasulideko okwekeza kuno okukolebwa kwaabo abakola mubirabo byemere	1= Yee 2=Nedda	

33.	Wasanga obuzibu mukusasira okwekeza?	1= Kyabuseere nyo 2=Kyabuseere 3=SSi Kyabuseere 4=Ebirala lambulula	
34.	Mu myeezi mukaaga egiyisa waliwo omuntu yenna akwasisa empisa eyali akukyalideko okukebera kumutido gwebyobulimu awo kumulimu gwo?	1= Yee 2=Nedda	
35.	Mulinayo a enkola yonna mubuwandike ekwata ku kukwekebeza okwabakola mubirabo byemere?	1= Yee 2=Nedda	
36.	Olinanawo mukozimuno yenna eyali okukubiriza okugenda okwekeza okwabakola mubirabo byemere?	1= Yee 2=Nedda	
37.	Bwwali tonatandiko okukola mukifo kino , mukamawo yakusaba ebaluwa elaga nti wakeberekwa?	1= Yee 2=Nedda	
38.	Ekifo kyo wokolera kya ngeri ki?	1=Ntunda mere kukubo 2=Ekirabo kyemere ekyetongodde 3=Ntundira kukigaali	
39.	Ekifo kyo wokolera kyaweebwa olukusa aba mu KCCA?	1= Yee 2=Nedda	

Enkomerero yebibuuzo. Webale kwetaba mukunonyereza kuno

APPENDIX 4:WORK PLAN RESEARCH ACTIVITIES 2025

Activity	Responsibility	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Proposal development and approval	Researcher/ Supervisor									
Designing a research questionnaire	IRB Committee									
Application for ethical approval	Researcher									
Pretesting of research instruments	Researcher/ Supervisor									
Recruitment and training of Research Assistants	Researcher									
Data collection	Researcher									
Data entry and analysis	Researcher									
Report writing	Researcher									
Presentation of report and dissemination of results	Researcher									

APPENDIX 5: APPROVAL LETTER FROM UNIVERSITY



**UGANDA CHRISTIAN
UNIVERSITY**

A Centre of Excellence in the Heart of Africa

Office of the Vice Chancellor
Research Ethics Committee UG-026



2nd July 2025

SEMAKULA SAZIRI
Uganda Christian university
+256 701385866

UG-REC-026 APPROVAL NOTICE

To: Semakula Saziri; Principal Investigator

Re: UCU-REC Application titled: *"Factors Associated with Uptake of Medical Examination Among Food Handlers in Central Division, Kampala City, Uganda"*.

Application Number: UCUREC-2025-1752
Version: 4.1

Type: ☐ INITIAL REVIEW
☐ Protocol Amendment
☐ Letter of Amendment (LOA)
☐ Continuing Review
☐ Material Transfer Agreement
☐ Other, Specify:

I am pleased to inform you that the UG-REC-026; UCUREC under expedited review approved the above referenced application.
Approval of the research is for a period from 2nd July 2025 to 2nd July 2026.

This research is considered minimal risk category.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and additions to the protocol or the consent form must be submitted to the REC for re-review and approval prior to the activation of the changes. The REC application number assigned to the research should be cited in any correspondence.



Research and Ethics

P.O. Box 4, Mukono, Uganda, Plot 67-173, Bishop Tucker Road, Mukono Hill
Tel: +256 (0) 312 350 885 Fax: +256 (0) 4142 90 800 Email: rec@ucu.ac.ug Web: www.ucu.ac.ug
UCUREC is accredited by Uganda National Council for Science & Technology, FDA, and National Institutes for Health of the United States of America

APPENDIX 6: APPROVAL LETTER FROM THE RESEARCH ETHICS (COMMITTEE (IRB)



**UGANDA CHRISTIAN
UNIVERSITY**

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Office of the Vice Chancellor
Research Ethics Committee UG-026

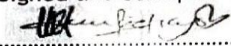


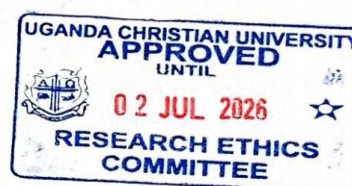
3. Reports of unanticipated problems involving risks to participants or other must be submitted to the REC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for REC review.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by subjects and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Regulations require review of an approved study not less than once per 12-month period. Therefore, a continuing review application must be submitted to the REC eight weeks prior to the above expiration date of 2nd July, 2026 in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. Your research details have been shared with the Executive secretary of Uganda National Council for Science and Technology (UNCST) and you are not required to get clearance since you are a Master's Degree research. Refer to UNCST Research registration and clearance Policy and guidelines (July 2016) in Uganda section 6(e).

The following is the list of all documents approved in this application by UG-REC _026:

	Document Title	Language	Version	Version Date
1.	Protocol	English	1.0	2025-06-17
2.	Budget	English	1.0	2025-06-17
3.	Study work plan	English	1.0	2025-06-17
4.	Questionnaires	English	1.0	2025-06-17
5.	Informed Consent form	English	1.0	2025-06-17

Signed and Stamped


Prof. Peter Waiswa,
UCUREC Chairperson,
pwaiswa@musph.ac.ug



Research and Ethics

P.O. Box 4, Mukono, Uganda, Plot 67-173, Bishop Tucker Road, Mukono Hill
Tel: +256 (0) 312 350 885 Fax: +256 (0) 4142 90 800 Email: rec@ucu.ac.ug Web: www.ucu.ac.ug
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APPENDIX 7: ADMINISTRATIVE CLEARANCE FROM KCCA.



DIRECTORATE OF PUBLIC HEALTH AND ENVIRONMENT

THE MANAGEMENT

Dear Sir/Madam,

RE: COLLECTION OF DATA ABOUT FACTORS ASSOCIATED WITH UPTAKE OF MEDICAL EXAMINATION AMONG FOOD HANDLERS IN KAMPALA CENTRAL DIVISION, KAMPALA CITY.

This is to introduce the research assistant before you on behalf of **Semakula Sazir** a student of at Uganda Christian University carrying out a study on **'Factors associated with uptake of medical examination among food handlers in Kampala central division, Kampala city.** This research will be carried out in Kampala Central Division in a period of 10days from 4th June 2025 public holidays considered.

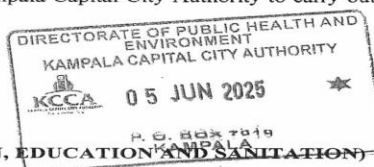
In consultation with the Directorate Public Health and Environment (DPHE)) of Kampala Capital City Authority, the above names student has been granted permission to carry out his research by KCCA as a requirement for the completion of his Masters Degree.

A Research Assistants will visit your Food handling premise once to collect information about 'Factors associated with uptake of medical examination among food handlers. Data collection takes about 10 minutes in total. Only one Waiter or Waitress ins needed to be interviewed. The data collection tool will be filled by the research assistant as answered by the given interviewee.

Permission has been granted by the Kampala Capital City Authority to carry out this research to help **Semakula Sazir** attain his Masters' Degree.


Henry Kaula

(MANAGER HEALTH INSPECTION, EDUCATION AND SANITATION)
(+256 752 755436)



P. O. Box 7010 Kampala- Uga
Plot 1-3 Apollo Kaggwa Rd
Tel: 0414 231 446 / 0204 660 0
Web: www.kcca.go.ug, Email: info@kcca.go.ug
f: facebook.com/kccaug, t: @KCCA