MAKERERE UNIVERSITY

A REVIEW OF FOOD SAFETY AND HYGIENE PRACTICES AMONG MARKET VENDORS IN KAMPALA

BY

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A RESEARCH REPORT SUBMITTED TO THE DEPARTMENT OF TOURISM IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN TOURISM AND HOSPITALITY MANAGEMENT OF MAKERERE UNIVERSITY

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DECLARATION

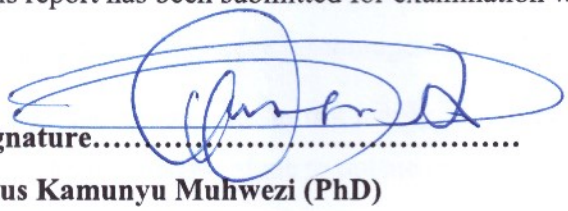
I, **Nakaliri Waldat** declare that this report is my own unaided work. It is being submitted in partial fulfillment of the award of the degree of Bachelor of Science in Tourism and Hospitality Management of Makerere University. The research has not been submitted before for any degree or examination to any university or institution of higher learning.

Signature..... **Date**.....th/16/October/2026.

Nakaliri Waldat

APPROVAL

This report has been submitted for examination with approval from the University supervisor.



Signature..... **Date**...15/10/2026....

Deus Kamunyu Muhwezi (PhD)

DEDICATION

This work is dedicated to my beloved mother Ms. Nampeera Hadijah for her unconditional love, sacrifices, guidance, encouragement and unwavering support throughout my education.

Special dedication goes to my family, relatives and friends whose love, encouragement and support have motivated me to pursue my academic goals.

Finally, I dedicate this report to all those striving for excellence in promoting food safety and hygiene within Uganda's markets.

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LIST OF ACRONYMS/ABBREVIATIONS

FAO	Food and Agriculture Organization
KCCA	Kampala Capital City Authority
NEMA	National Environment Management Authority
NAFDAC	National Agency for Food and Drug Administration and Control (Nigeria)
SON	Standards Organization of Nigeria
WHO	World Health Organization
SARS	Severe Acute Respiratory Syndrome
SPSS	Statistical Package for the Social Sciences
CVI	Content Validity Index
UBOS	Uganda Bureau of Statistics
DALYs	Disability-Adjusted Life Years
GSA	Ghana Standard Authority

ABSTRACT

Food safety is an important public health concern because contaminated food can cause foodborne diseases (WHO, 2022). This study assessed food safety and hygiene practices among market vendors in Kampala. Specifically, the study established the vending systems used and their influence on food safety and hygiene practices, assessed vendor's compliance with established food safety and hygiene practices and identified challenges affecting implementation of best practices. A cross-sectional design using quantitative and qualitative approaches was employed. Data were collected from 86 market vendors (58 from Kalerwe and 28 from Wandegeya) using structured questionnaires, interviews with 2 market leaders and non-participant observations. Quantitative data were analyzed using frequencies and percentages while qualitative data complementing the findings. The Findings showed that vending systems influenced food safety and hygiene practices among the vendors. A total of (75.5%) of respondents reported that their vending systems affected food safety while only (29.1%) had access to clean water and (23.3%) had waste disposal facilities. Regarding Compliance, (90.7%) washed their hands before handling food, (87.2%) used clean utensils and (81.4%) covered food during display. However, only (33.7%) used gloves. Major challenges included inadequate access to clean water (83.7%), poor infrastructure (79.1%), lack of food safety training (75.6%). The study concluded that food safety and hygiene practices among market vendors in Kampala were constrained by inadequate infrastructure, limited access to clean water, overcrowding, insufficient training and weak enforcement of food safety regulations. The study recommended improved provision of clean water, sanitation and waste disposal facilities, regular food safety training for vendors, better market infrastructure and strengthened enforcement of food safety regulations by KCCA and other relevant authorities.

Keywords: Food Safety, Hygiene practices, Market vendors, Vending systems, Compliance, Kalerwe, Wandegeya

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Food safety refers to the assurance that food will not cause harm to the consumer when it is prepared and consumed according to its intended use while food hygiene refers to the conditions and measures necessary to ensure the safety of food from production to consumption (WHO, 2022). Unsafe food containing harmful levels of bacteria, viruses, parasites or chemical and physical substances remains a serious threat to public health globally. This makes food safety a major public health concern, particularly in urban markets where poor food-handling practices and inadequate sanitary conditions may increase the risk of contamination (Mohammad *et al*., 2018).

According to the World Health Organization (2022), an estimated 600 million people almost one in every ten globally, fall ill each year after consuming contaminated food leading to about 420,000 deaths and 33 million disability-adjusted life years lost annually (Havelaar *et al.*, 2015). Similarly, the WHO estimates that foodborne Diseases cause 600 million cases per year, with the highest per-capita burden borne by children under five and by populations in low- and middle-income countries. Unsafe food causes over US$110 billion in annual economic losses, especially in low- and middle-income countries (WHO, 2022 & Grace, 2015).

According to Food and Agriculture Organization (2022) food safety is a shared responsibility that must be integrated across all stages of the food chain from production and processing to distribution and consumption. Ndondo (2023) notes that FAO's strategic priorities on food safety focus on strengthening national food control systems, improving food safety governance and enhancing scientific advice to member states. Despite progress in developed regions, Foodborne Diseases still affect 600 million people annually indicating that food safety remains an unfinished global agenda (WHO, 2022 & Havelaar *et al.*, 2015).

In Africa, open and street food markets play a critical role in providing affordable meals and employment opportunities to millions of people. Mensha et al. (2012) report that up to 70% of urban residents in sub-Saharan Africa consume food from street vendors at least once a day and that street-vended foods are frequently implicated in foodborne disease outbreaks. However, challenges persist in maintaining hygiene standards. Cudjoe et al. (2022) found that in Ghana and Nigeria food safety remains a growing concern due to weak enforcement of

food laws, poor hygiene practices and limited public awareness, NAFDAC and SON unable to prevent the sale of contaminated food in local markets. Similarly, Al Banna et al. (2021) found that inadequate food safety knowledge and practices among food handlers in developing countries increase contamination risk. A study in South Africa by Du Plessis et al. (2021), demonstrated that microbial contamination of fresh vegetables occurs at multiple points, highlighting risks in informal vending environments.

A study done by Fasse et al. (2015) observed that food safety standards in Tanzania's domestic markets remain weak and largely inaccessible to small-scale traders while, Hoffmann et al. (2023) reported that Kenya faced weak coordination among government agencies, limited financial resources and a large informal food sector that makes consistent enforcement difficult. Kanu and Turay (2024) found comparable constraints among food vendors in Sierra Leone where low compliance was driven by inadequate infrastructure and limited training.

In Uganda, informal markets play a crucial role in supplying fresh produce, fruits, vegetables and ready-to-eat foods to urban populations particularly in cities like Kampala. Turyahikayo et al. (2020) report that Kampala Street food vendors operate under unsanitary conditions with limited access to clean water and sanitation facilities. Similarly, Muyanja et al. (2011) established poor hygiene practices among street food vendors in Uganda including inadequate handwashing and improper food storage. Otim et al. (2021) further found out that vegetables sold in Ugandan markets contain high levels of heavy metals due to improper handling and storage practices.

Kansiime et al. (2020) highlighted that gender disparities further limit access to resources and training for women and youth who dominate the informal food sector. These markets therefore face significant challenges that compromise food safety. Many lack basic infrastructure such as refrigeration, clean water and adequate sanitation facilities which increases the risk of contamination while weak enforcement of food safety regulations and limited institutional coordination further hinder safe food handling (Muyanja *et al.*, 2011 & Turyahikayo *et al*., 2020).

1.2 Problem Statement

Food safety and hygiene practices among market vendors remain a major public health concern in Kampala where food is prepared and sold under varying and largely unregulated conditions. Kalerwe and Wandegeya markets operate under different systems yet there is limited evidence on their influence on hygiene practices, vendor compliance with food safety standards and implementation challenges. This evidence gap makes it difficult to design targeted interventions and may expose consumers to foodborne diseases and potential economic losses. This study therefore assessed food safety and hygiene practices among market vendors in Kampala.

1.3 Objectives of the Study

1.3.1 Main Objective

The main objective is to assess the food safety and hygiene practices among market vendors.

1.3.2 Specific objectives

(i) To establish the vending systems used in Kampala markets and how they influence food safety and hygiene practices among food vendors.

(ii) To assess the level of compliance of food vendors with established food safety and hygiene standards.

(iii) To establish the challenges in implementing best practices in food safety and hygiene among vendors.

1.4 Research Questions

(i) What are the food safety and hygiene practices among market vendors in Kampala?

(ii) What influence do these vending systems have on food safety and hygiene practices among food vendors?

(iii) What is the level of compliance of food vendors with established food safety and hygiene standards?

(iv) What challenges do market vendors face in implementing best practices in food safety and hygiene?

1.5 Scope of the Study

The study was conducted in Kampala, Uganda focusing on Kalerwe and Wandegeya markets with 58 and 28 respondents respectively. The literature review covered the period from 2018 and 2025 while the actual study was conducted from December 2025 to August 2026. The study assessed food safety and hygiene practices among market vendors focusing on vending systems used, compliance with food safety and hygiene standards and implementation challenges.

1.6 Significance of the Study

This study is significant because it provides market vendors with practical insights into how effective food handling and hygiene practices can reduce risks of contamination enhance the safety of food sold and improve consumer trust. By identifying gaps in knowledge, awareness and practices the study provides a basis for improving vendor training, supervision and compliance with food safety policies which can enhance their business reputation and economic performance.

The findings are also valuable to policymakers and local authorities including the Ministry of Health and KCCA as they provide evidence-based information on food safety practices and hygiene challenges in major markets. This information can support the design and implementation of targeted regulations, interventions and training programs that promote safer food handling practices reduce public health risks and ensure compliance with food safety standards.

For consumers and the general public, the study has potential indirect benefits as safer and better handled food can reduce the risk of foodborne illnesses increase confidence in market products and encourage healthier consumption habits contributing to overall community health and well-being. Academics and researchers may also benefit from this study as it contributes to the body of knowledge on urban food safety and hygiene in Uganda, particularly in market settings. The study can serve as a foundation for future research on interventions, policy effectiveness and sustainable food safety practices in similar contexts.

Finally, the study highlights the economic and social importance of improving food safety and hygiene standards in Kampala’s markets as improved practices can help reduce public health costs, enhance vendor profitability and support sustainable urban development.

CHAPTER TWO

LITERATURE REVIEW

2.1 Vending Systems and Their Influence on Food Safety and Hygiene Practices

Vending systems refer to the methods through which food is prepared, displayed and sold to consumers. These include mobile vending, fixed stalls, open-air markets and street food vending each with implications for food safety and hygiene practices (FAO, 2020). Globally, food vending systems vary according to urbanization and regulation. In many developed countries, food vending is often carried out in regulated environments with clean water, proper waste disposal systems etc. However, in developing countries, a large proportion of food vending takes place in informal settings such as open markets and roadside stalls (FAO, 2020; Mensah *et al*., 2012).

In Africa, street food vending is a source of income and food supply in urban areas. Research shows many vendors operate in open-air environments where food is exposed to dust, flies and other contaminants and that inadequate access to clean water and poor waste management are challenges (Mensah *et al*., 2012). However, Mensah et al. (2012) identify open-air exposure and poor sanitation infrastructure as contamination risk factors. Koumassa et al. (2025) by contrast argue that vendor knowledge and hygiene practices are determinants of street-vended food quality and safety since trained vendors can environmentally risk through safe handling.

Werkneh et al. (2023) examined food safety knowledge and practices among street food vendors in Ethiopia. Their findings show that knowledge did not always translate into good food safety practices, suggesting that resources and enforcement rather than awareness are the constraints. Rahman et al. (2021) provide evidence from Dhaka where 70% of street food vendors lacked access to safe water and 60% did not use gloves or aprons indicating that environmental and behavioral risks operate.

Similarly, Desye et al. (2023) found that 62% of street food vendors had good food safety knowledge while only 51% demonstrated good food safety practices across low- and middle-income countries in their review. This suggests that safe food handling requires not only knowledge but also adequate training, access to necessary resources and proper enforcement of food safety standards to promote consistent hygiene practices among street food vendors.

In Uganda and particularly in Kampala, food vending systems are largely informal, with vendors operating in markets along streets and in temporary stalls. Turyahikayo et al. (2020) report that many street food vendors in Kampala operate without access to clean water,

handwashing stations and proper waste disposal mechanisms findings consistent with Muyanja et al. (2011), who observed poor hygiene practices among Kampala Street food vendors. In contrast, studies of regulated vending in the region such as supermarket-driven standards in Tanzania.

A study done by *Fasse* et al. (2015) shows better hygiene outcomes, supporting the view that the vending system itself shapes food safety through differences in sanitation and food-handling conditions. Otim et al. (2021) add that contamination of vegetables in Ugandan markets is exacerbated by the way vendors store and display produce across different vending systems increasing the risk of exposure to contaminants and compromising food quality.

2.2 Compliance with Food Safety and Hygiene Standards

Food safety and hygiene standards are established to ensure that food is handled, prepared and stored in ways that minimizes the risk of contamination and foodborne illnesses (WHO, 2022). Compliance with these standards is crucial for protecting public health and maintaining consumer confidence in food products (Mensah *et al.,* 2012). Evidence from developing countries shows that compliance with food safety standards is often low due to a lack of awareness, limited resources and weak enforcement mechanisms (Mensah *et al*., 2012).

However, there are disagreements among authors on the driver of non-compliance. For example, Grace (2015) argues that weak enforcement and institutional gaps are the main reasons for non-compliance in informal markets, explaining that regulations exist on paper but are rarely applied to small-scale vendors so that non-compliant practices persist without consequence. Cudjoe et al. (2022) support this institutional view with evidence from Ghana and Nigeria where the presence of regulatory bodies such as National Agency for Food and Drug Administration and Control (NAFDAC), Standards Organization of Nigeria (SON) and the Ghana Standards Authority (GSA) has not prevented the sale of contaminated food because enforcement efforts are inconsistent.

By contrast, Al Banna et al. (2021) found that vendor knowledge was a strong predictor of safe food-handling practices among meat handlers in Bangladesh, implying that education rather than enforcement is a decisive factor. To the contrary, Werkneh et al. (2023) found poor practice among knowledgeable street vendors in Ethiopia, which implies that knowledge alone does not produce compliance without resources and enforcement. Kanu and Turay (2024) similarly, reported that compliance among vendors in Sierra Leone improved with training combined with infrastructural support rather than either measure.

Studies also show that compliance levels can be improved through targeted interventions such as vendor training, provision of infrastructure and regular inspections (Kanu & Turay, 2024; Barton *et al*., 2025). In Uganda, Muyanja et al. (2011) & Turyahikayo et al. (2020) found that although most street food vendors in Kampala were aware of hygiene requirements, actual compliance remained low highlighting the persistent gap between food safety knowledge and actual hygiene practices among vendors.

A study done in South Africa shows the same pattern among street vendors where compliance with food hygiene regulations was undermined by inadequate facilities rather than lack of awareness. This demonstrates that providing adequate vending facilities is essential for translating food safety knowledge into proper hygiene practices (Mukwevho, 2018). Taken together, these findings suggest that sustained compliance requires education, resources and enforcement.

2.3 Challenges in Implementing Best Practices

Market vendors in developing countries face numerous interconnected challenges in implementing best practices in food safety and hygiene. Many markets lack basic infrastructure such as clean water, sanitation facilities and waste disposal systems, making it difficult for vendors to maintain proper hygiene practices (FAO, 2020 & Mensah *et al.,* 2012). Vendors also often operate with limited financial resources, which restricts their ability to invest in proper equipment, protective clothing or training (Mensah *et al.,* 2012 & Kanu & Turay, 2024).

In addition, inadequate enforcement of food safety regulations allows non-compliant practices to persist, as vendors may not face consequences for unsafe practices (Grace, 2015 & Christiana Cudjoe *et al*., 2022). Many vendors have not received formal training on food safety and hygiene practices leading to gaps in knowledge and awareness (Al Banna *et al.*, 2021 & Werkneh *et al*., 2023), while the pressure to serve customers quickly during peak hours can lead vendors to prioritize speed over hygiene (Koumassa *et al.,* 2025). Crowded market conditions further make it difficult for vendors to maintain clean and sanitary workspaces (Mensah *et al.,* 2012).

To the contrary Grace (2015) and Cudjoe et al. (2022) argue that weak enforcement and institutional gaps are the root cause, since regulations exist but are not applied in informal markets. By contrast Koumassa et al. (2025) identify vendor-level factors such as knowledge, attitudes and hygiene practices as the primary determinants of street food safety, while Werkneh et al. (2023) found that even knowledgeable vendors fail to practice safely when

resources are lacking, implying that infrastructure and resources rather than awareness alone are the binding constraints.

Barton et al. (2025) established that food safety knowledge among street vendors in Guyana did not translate into safe practices without enabling facilities. Inadequate infrastructure particularly lack of clean water and waste disposal facilities were established to be the most critical challenges facing Kampala vendors (Muyanja et al., 2011; Turyahikayo et al., 2020). Kansiime et al. (2020) add that gender disparities limit women's and youth vendors' access to resources and training. Kanu and Turay (2024) agree that a combination of infrastructure development, vendor education, resource provision and strengthened enforcement is required to address these challenges comprehensively.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Area

The study was conducted in Kampala, Uganda focusing on Wandegeya and Kalerwe markets. Kampala is the capital and largest city of Uganda and a major commercial centre. The two markets were selected because they are busy urban markets with diverse food vending activities and food safety and hygiene concerns

3.2 Research Design

A cross-sectional research design was employed. The study adopted both quantitative and qualitative approaches. Quantitative data were collected using structured questionnaires to assess vending systems, compliance with food safety and hygiene standards and implementation challenges. Qualitative data were collected through interviews and non-participant observations to obtain deeper information on vendors' practices and challenges related to food safety and hygiene.

3.3 Study Population

The study population consisted of food vendors operating in Kalerwe and Wandegeya markets in Kampala. It included vendors selling fruits, vegetables, cooked meals and ready-to-eat foods. The population was estimated based on market records and preliminary surveys conducted in the study area.

3.4 Sampling Techniques

A combination of stratified and purposive sampling was used in this study. Stratified sampling was employed to ensure representation across different types of vendors such as those selling ready-to-eat foods, fruits, vegetables and cooked meals within the selected markets. This helped capture variations in vending systems, levels of compliance with food safety and hygiene standards and challenges faced by vendors. Purposive sampling was used to select 2 market leaders 1 from Kalerwe and 1 from Wandegeya who are knowledgeable about food safety practices, regulatory compliance and market operations. These respondents provided in-depth information to support the study objectives.

3.5 Sample Size

The study involved 86 food vendors comprising 58 vendors from Kalerwe Market and 28 vendors from Wandegeya Market. The Krejcie and Morgan (1970) sample size determination

table was consulted during the planning of the study. However, the recommended sample size was not achieved due to limitations in time and resources. In addition, two market leaders, one from each market were interviewed to provide supplementary information on food safety and hygiene practices.

3.6 Data Collection Methods

3.6.1 Questionnaire

Structured questionnaires were administered to food vendors to collect quantitative data related to the study objectives. The questionnaire captured information on the types of vending systems used, the level of compliance with established food safety and hygiene standards and the challenges faced by vendors in implementing best practices. Both closed-ended and open-ended questions were included. Closed-ended questions facilitated statistical analysis, while open-ended questions allowed respondents to provide detailed explanations regarding their practices, compliance levels and challenges encountered in maintaining food safety and hygiene.

3.6.2 Interviews

Semi-structured interviews were conducted with 2 market leaders 1 from Kalerwe and 1 from Wandegeya. These interviews provided in-depth qualitative insights into vending systems, compliance with food safety and hygiene standards and challenges affecting the implementation of best practices. An interview guide was used to ensure consistency while allowing flexibility for probing, clarification and collection of detailed responses related to enforcement, vendor practices and market conditions.

3.6.3 Observation

Non-participant observation was conducted in the selected markets to assess actual food handling practices and environmental conditions. An observation checklist was used to systematically record information on vending systems, hygiene practices, food storage conditions and compliance with food safety standards. This method enabled the researcher to verify the accuracy of the information provided by respondents and to capture real-time practices such as food preparation, utensil cleanliness, hand hygiene and food display.

3.7 Data Analysis

3.7.1 Quantitative Data

Quantitative data collected from the questionnaires was analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. The collected data was first coded, entered into SPSS and cleaned to identify and correct errors, missing values and inconsistencies before analysis. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the data and describe food safety and hygiene practices among market vendors.

The analysis focused on variables such as the types of vending systems used, food handling practices, levels of compliance with established food safety and hygiene standards and challenges faced by vendors in implementing best practices. The findings were presented using tables, charts and graphs to enhance interpretation and provide a clear understanding of the patterns and trends identified from the data.

3.7.2 Qualitative Data

Qualitative data obtained from 2 interviews and non-participant observations was analyzed using thematic analysis. The interview responses and observation notes were organized, coded and categorized into themes that relate to the study objectives. The analysis involved identifying key themes related to vending systems used by market vendors, food safety and hygiene practices, compliance with established food safety standards and challenges affecting the implementation of best practices. The information obtained from the two-market leaders was interpreted to provide deeper explanations and support the quantitative findings obtained from the questionnaires. The results were presented in narrative form, supported by relevant quotations from respondents where necessary.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Demographic Data

The demographic data of the respondents were examined in terms of gender, age, education level and marital status. These characteristics provided background information about the 86 food vendors who participated in the study.

Table 1: Demographic Characteristics of Respondents (N=86)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	36	41.9
	Female	50	58.1
Age	18-25 years	24	27.9
	26-35 years	30	34.9
	36-45 years	20	23.3
	46-55 years	8	9.3
	56 years and above	4	4.7
Education Level	No formal education	6	7.0
	Primary	30	34.9
	Secondary	38	44.2
	Tertiary	12	14.0
Marital Status	Single	45	52.3
	Married	35	40.7
	other	6	7.0

The findings show that the highest number of respondents were youth (age 18 – 35 years) and women. Women constituted the highest proportion of respondents 58.1% while males accounted for 41.9%. Regarding education, secondary education was the most common level 44.2% while respondents with no formal education accounted for the lowest proportion 7.0%. Single respondents formed the largest marital status category 52.3%, while those in the other marital status category accounted for the lowest proportion 7.0%.

4.2 Vending Systems and their Influence on Food Safety and Hygiene Practices.

The first objective of this study was to establish the vending systems used in Kampala markets and how they influence food safety and hygiene practices among food vendors. The findings are presented in **Table 2.**

Table 2: Vending Systems Characteristics (N = 86).

Vending System Characteristics	Yes (%)	No (%)
Access to clean water	29.1	70.9
Waste disposal facilities	23.3	76.7
Shelter from dust/ flies	52.3	47.7
System affects food safety	75.5	24.4
Overcrowding affects hygiene	81.4	18.6
Operate in crowded area	87.2	12.8
Satisfied with system	46.5	53.5

The findings showed that operating in crowded areas had the highest proportion of "Yes" responses 87.2%, followed by overcrowding affecting hygiene 81.4%. Waste disposal facilities recorded the lowest proportion of "Yes" responses 23.3% followed by access to clean water 29.1%. These findings highlight concerns about overcrowding and the availability of basic facilities among the vendors surveyed.

4.3 Compliance with Food Safety and Hygiene Practices

The second objective of this study was to assess the level of compliance of food vendors with established food safety and hygiene standards. The findings are presented in **Table 3.**

Table 3: Compliance with Food Safety and Hygiene Practices (N=86)

Practice	Yes (%)	No (%)
Wash hands before handling food	90.7	9.3
Wash hands after handling money	70.0	30.0
Wear apron/protective clothing	58.1	41.9
Cover food during display	81.4	18.6
Store food safely	75.6	24.4
Separate raw and cooked food	70.0	30.0
Use clean utensils always	87.2	12.8
Clean vending area daily	75.6	24.4
Dispose of waste properly	58.1	41.9
Aware of food safety rules	81.4	18.6
Attended training on food safety	40.7	59.3
Follow KCCA guidelines	52.3	47.7
Use gloves	33.7	66.3

The findings show that washing hands before handling food had the highest proportion of "Yes" responses 90.7%, followed by using clean utensils 87.2%. The use of gloves when handling food recorded the lowest proportion of "Yes" responses 33.7%, followed by attendance at food safety training 40.7%. These findings indicate that while many vendors reported practicing basic food hygiene, gaps remained in the use of protective equipment and participation in food safety training.

4.4 Challenges Affecting Food Safety and Hygiene Practices

The third objective of this study was to establish the challenges faced by food vendors in implementing food safety and hygiene practices. The findings are presented in Table 4**.**

Table 4: Challenges Affecting Food Safety and Hygiene Practices (N = 86)

Challenge	Yes (%)	No (%)
Lack of clean water	83.7	16.3
Lack of money	75.6	24.4
Poor infrastructure	79.1	20.9
High customer demand	72.1	27.9
Lack of training	75.6	24.4
Weak enforcement	74.4	25.6
Overcrowding	81.4	18.6

The findings showed that lack of clean water was the most commonly reported challenge affecting 83.7% of respondents followed by overcrowding 81.4%. High customer demand was the least commonly reported challenge 72.1%, followed by weak enforcement of food safety regulations 74.4%. These findings highlight the importance of improving access to clean water and addressing overcrowding in order to support better food safety and hygiene practices among market vendors.

4.5 Key Observation Findings

The observations conducted in Kalerwe and Wandegeya markets revealed differences in vendors' food-handling practices. Most vendors were observed wearing aprons although some did not wear them. No vendors were observed wearing gloves during food handling. Handwashing was observed among some vendors in Wandegeya Market whereas no handwashing was observed during the observation period in Kalerwe Market. In Kalerwe Market, large freezers were observed for food storage including vegetables.

Waste disposal conditions also differed between the two markets. In Kalerwe Market, a designated waste disposal area was observed but it contained a large amount of rubbish. In Wandegeya Market, the designated waste disposal room was empty at the time of observation. These findings highlighted differences in waste management and food-handling practices between the two markets demonstrating the importance of maintaining clean vending environments, proper food storage and consistent personal hygiene practices.

CHAPTER FIVE

DISCUSSION

5.1 Vending Systems and Their Influence on Food Safety

The findings of this study showed that the vending systems used may influence food safety and hygiene practices among market vendors in Kampala. The majority of vendors 87.2% operated in crowded areas which may have affected their ability to maintain proper hygiene. Overcrowding was identified as a major challenge with 81.4% of respondents indicating that it affected hygiene practices. This finding is consistent with previous studies such as those by FAO (2020) which highlighted the difficulties of maintaining food safety in crowded and informal market settings.

The study found that only 29.1% of vendors had access to clean water through their vending systems while only 23.3% had waste disposal facilities. These figures were concerning because access to clean water and proper waste disposal are fundamental requirements for food safety. The lack of these basic facilities may increase the risk of food contamination and the spread of foodborne illnesses (WHO, 2019).

Additionally, 52.3% of vendors reported that their vending systems provided shelter from dust and flies. While this was a positive finding, it also meant that nearly half of the vendors 47.7% operated without such protection from environmental contaminants. This finding was consistent with the observations made during the study where food was frequently seen exposed to dust and flies particularly at open-air stall (Muyanja *et al*., 2011).

5.2 Compliance with Food Safety and Hygiene Practices

The study's findings on compliance with food safety and hygiene practices presented a mixed picture. On the positive side, a high percentage of vendors 90.7% reported washing their hands before handling food and 87.2% reported using clean utensils. These practices are critical for preventing foodborne illnesses and are important components of food hygiene (WHO, 2015). However, there were areas where compliance was lacking. Only 33.7% of vendors reported using gloves when handling food while 58.1% wearing aprons or protective clothing. These findings highlighted gaps in the reported use of protective equipment which may increase the risk of food contamination (Rutaro *et al*., 2024).

Another area of concern was handwashing after handling money with only 70.0% of vendors reporting that they washed their hands after handling money. Money can carry pathogens and failing to wash hands after handling it may allow contaminants to be transferred to food

(Muhumuza *et al.*, 2018). This finding highlighted the need for targeted education on the importance of consistent handwashing practices. The study also found that 81.4% of vendors were aware of food safety rules whereas only 40.7% had attended training on food safety. This discrepancy suggested that awareness of food safety rules was more common than participation in formal training. This finding can be compared with previous studies examining the relationship between food safety knowledge and compliance (Muyanja *et al.*, 2011 & Mensah *et al*., 2012).

5.3 Challenges Affecting Food Safety and Hygiene Practices

The findings on challenges affecting food safety and hygiene practices highlighted the barriers that vendors faced in maintaining hygiene. The most commonly reported challenge was lack of clean water which was reported by 83.7% of vendors. This is a critical issue because clean water is essential for handwashing, food preparation and cleaning utensils (Muyanja *et al*., 2011). Poor infrastructure was another challenge reported by 79.1% of vendors. This may involve difficulties with sanitation facilities, waste disposal systems and adequate food storage facilities. The study's observational findings also indicated that some vendors operated in unsanitary conditions and lacked adequate infrastructure.

Lack of training was reported by 75.6% of vendors as a challenge affecting hygiene practices. This finding was consistent with the low proportion of vendors who had attended food safety training 40.7%. Training is essential for equipping vendors with the knowledge and skills to implement good food safety and hygiene practices (Galiwango *et al*., 2026). Weak enforcement of food safety rules was reported by 74.4% of vendors as a challenge. This finding can be compared with previous research on enforcement of food safety regulations in informal markets (Grace, 2015).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

Based on the findings of this study, the following conclusions can be drawn;

The vending systems in Kampala's markets have influence on food safety and hygiene practices. The majority of vendors operated in crowded areas while only had access to clean water and had waste disposal facilities. These findings highlight challenges in maintaining proper hygiene within the vending environments studied.

Compliance with food safety and hygiene practices varied across practices assessed. While majority vendors reported washing their hands before handling food and using clean utensils fewer reported using. In addition, an average number wore aprons or protective clothing while majority washed their hands after handling money. These findings show gaps in some food safety and hygiene practices.

Vendors face several interconnected challenges which include lack of clean water, poor infrastructure, lack of training, weak enforcement of food safety rules. These findings showed that vendors face both infrastructural and institutional challenges in implementing food safety and hygiene practices. The study also found that majority vendors were aware of food safety rules but had limited training opportunities in food handling and safety. This means that the gaps which exist are due to inadequate training. Therefore, awareness alone may not be sufficient to ensure consistent food safety and hygiene practices where vendors face limitations in facilities and resources.

6.2 Recommendations.

Market vendors should improve their food safety and hygiene practices through consistent handwashing before handling food and after handling money, the use of protective clothing such as aprons, proper covering of food during display and separation of raw and cooked foods. Vendors should also clean their vending areas regularly and dispose of waste properly. Continuous food safety and hygiene training should be provided to vendors to strengthen their knowledge and practical skills in safe food handling, storage and prevention of food contamination.

Kampala Capital City Authority (KCCA), the Ministry of Health and market management should improve market infrastructure by ensuring the availability of clean water, adequate

handwashing and sanitation facilities, proper drainage and designated waste disposal areas. They should also provide and maintain appropriate food storage equipment including refrigerators and freezers where necessary to support the safe storage of perishable foods. Regular market inspections, continuous vendor training and effective enforcement of food safety regulations should be strengthened to improve compliance with hygiene standards. Market authorities should also ensure that existing facilities and equipment are properly maintained and used for their intended purposes.

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APPENDIX A: QUESTIONNAIRE FOR FOOD VENDORS

RESEARCH QUESTIONNAIRE

Dear Sir/Madam,

I am Nakaliri Waldat a third-year student at Makerere University pursuing a Bachelor of Science in Tourism and Hospitality Management. As part of the requirements for my degree, I am carrying out a study on the topic **"A Review of Food Safety and Hygiene Practices among Market Vendors in Kampala".** You have been designated to participate in this study exercise and I declare to you that this research is purely academic and your contribution is vital your response will be treated with the highest level of confidentiality

Please answer the following questions by ticking (✓) the appropriate box or writing down your answer in the space provided.

SECTION A: BACKGROUND INFORMATION

1. Gender Tick (✓)

Male ☐

Female ☐

2. Age category Tick (✓)

18–25 years ☐

26–35 years ☐

36–45 years ☐

46–55 years ☐

56 years and above ☐

3. Education level Tick (✓)

No formal education ☐
Primary☐
Secondary ☐
Tertiary ☐

4. Marital status Tick (✓)
Single ☐
Married ☐
Other ☐

5. Type of vending Tick (✓)
Fruits/vegetables ☐
Cooked food ☐
Ready-to-eat food ☐
Mixed ☐

6. Years in vending business Tick (✓)
Less than 1 year ☐
1–5 years ☐
6–10 years ☐
10 years and above ☐

7. Main location of vending Tick (✓)
Stall ☐
Mobile ☐

Open market space ☐

8. What type of vending system do you operate under? Tick (✓)
Fixed stall ☐
Mobile vending ☐
Open-air stall ☐
Roadside ☐

SECTION B: VENDING SYSTEM

9. What vending system practices are used in your business?

Vending system characteristics	**Yes**	**No**
Does your vending system provide access to clean water		
Does your vending system provide waste disposal facilities		
Does your vending system provide shelter from dust /flies		
Does your vending system affect food safety practices		
Does overcrowding affect hygiene practices		
Do you operate in a crowded area		
Are you satisfied with your vending system		

Table 5: Vending System Practices

SECTION C: COMPLIANCE WITH FOOD SAFETY AND HYGIENE PRACTICES.

What food safety and hygiene practices do you follow during your vending activities?

Compliance with food safety and hygiene practices	**Yes**	**No**
Do you wash hands before handling food		
Do you wash hands after handling money		
Do you use gloves when handling food		
Do you wear an apron/ protective clothing		
Do you Cover food during display		
Do you store food safely		
Do you separate raw and cooked food		
Do you use clean utensils always		
Do you clean your vending area daily		
Do you dispose of waste properly		
Are you aware of food safety rules		
Have you ever attended training on food safety		
Do you follow guidelines from authorities e.g., KCCA		

Table 6: Compliance with Food Safety and Hygiene Practices

SECTION D: CHALLENGES AFFECTING FOOD SAFETY AND HYGIENE PRACTICES

What challenges do you face in maintaining food safety and hygiene practices?

Challenges affecting food safety and hygiene practices	**Yes**	**No**
Lack of clean water affects hygiene practices		
Lack of money affects hygiene practices		
Poor infrastructure affects hygiene practices		
High customer demand affects hygiene practices		
Lack of training affects hygiene practices		
Weak enforcement of rules affects hygiene practices		
Overcrowding makes hygiene difficult		

Table 7: Challenges affecting Food Safety and Hygiene Practices

APPENDIX B: INTERVIEW GUIDE (MARKET LEADERS &EXPERIENCED VENDORS)

Please provide your responses to the following questions.

Interview Questions	**Responses/Remarks**
What types of vending systems are commonly used in this market.	
How do these vending systems influence food safety and hygiene practices among vendors?	
In your opinion, how would you describe the general hygiene conditions in this market.	
What are the most common food safety practices observed among vendors	
What challenges do vendors face in maintaining proper hygiene during food handling	
How does the availability of infrastructure (water, sanitation, waste disposal) affect hygiene practices	
What role does market overcrowding play in food safety practices	
How does customer demand influence vendors' hygiene practices	
Are vendors trained on food safety and hygiene practices? If yes, how often	
What is the level of enforcement of food safety regulations in this market	
How effective are inspections by authorities such as KCCA in promoting hygiene compliance	
What are the main reasons for non-compliance among some vendors	
What improvements would you suggest to enhance food safety in this market	
How do vending systems affect the ability of vendors to follow hygiene guidelines	

What support do vendors need to improve compliance with food safety standards	
What role do market leaders play in enforcing hygiene standards	
What changes have you observed over time regarding food safety practices in this market	

Table 8: Interview Guide Questions for Market Leaders

APPENDIX C: OBSERVATION CHECKLIST

A. Vending environment

Observation item	Good	Fair	Poor
Overall cleanliness of the vending area			
Overall hygiene level			
Waste disposal system			

Table 9: Vending Environment Assessment

B. Food handling practices

Observation item	Yes	No
Proper food storage facilities available		
Food covered during display		
Use of gloves/aprons		
Hand washing observed		

Table 10: Food Handling Practices Assessment

C. Storage conditions

Observation item	Yes	No
Proper food storage facilities available		
Food exposed to dust / flies		

Table 11: Storage Conditions Assessment

APPENDIX D: PHOTOGRAPHS OF THE STUDY MARKETS



Figure 1:Wandegeya Market the South Wing market building with roadside vendors.



Figure 2: Wandegeya Market indoor vending stalls with fresh produce.



Figure 3:Kalerwe Market: open-air vending stalls with fresh produce on display



Figure 4: Kalerwe Market fruit and vegetable vending under makeshift tarp shelters

"Thank you for your patience and coperation"