

Journal of Hospitality and Tourism Management



ISSN Online 2706 - 6592

 **Stratford**
Peer Reviewed Journals & books

Analysis of Food Management Practices and Safe Provision in Unclassified Restaurants in Nairobi City County, Kenya

**Doreen Ikala Musakala, Dr. Monica Akinyi Wandolo & Dr.
Vincent Nyamari Maranga**

ISSN: 2706-6592

Analysis of Food Management Practices and Safe Provision in Unclassified Restaurants in Nairobi City County, Kenya

^{*1}Doreen Ikala Musakala, ²Dr. Monica Akinyi Wandolo & ³Dr. Vincent Nyamari Maranga

¹Master's Student, School of Hospitality, Tourism and Leisure Studies-Kenyatta University

^{2,3}Lecturer, Department of Hospitality and Tourism Management-Kenyatta University

*E-mail of corresponding author: doriikala@gmail.com

How to cite this article: Musakala, D. I., Wandolo, M. A. & Maranga, V. N. (2022). Analysis of Food Management Practices and Safe Provision in Unclassified Restaurants in Nairobi City County, Kenya. *Journal of Hospitality & Tourism Management*, 5(1), 44-62. <https://doi.org/10.53819/81018102t4046>

Abstract

The aim of the research was to establish how food safety practices influence safe food provision by unclassified restaurants in Nairobi City County. The Particular goals of the study were to: assess the influence of food handling practices on safe food provision, observe the role of food hygiene training on safe food provision, determine the effect of food legislation compliance on safe food provision and establish the role of management in ensuring that safety standards are achieved on safe food provision by unclassified restaurants in Nairobi City County. Descriptive survey design was employed as the blue print to guide the study. The study population was 124 unclassified restaurants in Nairobi Central Business District. Questionnaires were used in data collection, an in-depth interview guide and observation checklist. Quantitative data were analyzed through means, standard deviation, inferential models and presented in form of tables and figures. The study established that food handling practices on safe food provision by unclassified restaurants was statistically significant ($\chi=8.988$; p value of $.003<0.05$), food hygiene training and safe food provision by unclassified restaurants have a significant association ($\chi= 5.094$, p value of $.019<0.05$, food legislation compliance and safe food provision by unclassified restaurants have a significant association as supported ($\chi=4.544$; p value of $.025<0.05$) while the role of management and safe food provision by unclassified restaurants have a significant association ($\chi=11.107$, p value of $.001<0.05$). This paper concludes that food handling practices, food hygiene training, food legislation compliance and role of management impacts the safe food provision by unclassified restaurants. The study recommends for the need to periodically train restaurant workers on proper food handling practices. There is need for restaurant management to provide workers with sufficient clean dress code. The restaurant management needs to organize periodic training programs in form of short workshops, seminars and conferences with key stakeholders in the hospitality sector and food safety authorities.

<https://doi.org/10.53819/81018102t4046>

Keywords: *Food management practices, food handling practices, food hygiene training, food legislation compliance, safe provision, unclassified restaurants.*

1.0 Background to the Study

Restaurants refer to food outlets offering food and drinks to customers designated areas. Restaurants provide food to millions of people away from home. However, provision of safe food in most of unclassified restaurants particularly in Nairobi City County (NCC) is a problem. Most unclassified restaurants lack clear guidelines on food safety management practices rendering safety of food served to customers questionable. Moreover, food safety remains a major concern facing the food sector worldwide (Food and Agriculture Organization [FAO], 2018).

Food management practices that include handling practices, food hygiene training, legislation compliance procedures and the role of management play a significant part in food safety provision (Riggio, Wang, Kniel, & Gibson, 2019). Training related to food safety including food safety training and legal issues enhances awareness related to food issues (Seaman, 2010). Training experience that is effective leads to improved sanitation awareness and safety as well as enhanced procedures of sanitation and safety.

Although contamination of food can happen at any place of the chain of production, personnel dealing with food play a very important role in making sure that food safety all through the production of food and chain of storage by sticking to hygienic activities related to food handling and good personal hygiene (Odundo, Okemo & Chege, 2018). Food handlers involved in the food preparation process and food contact surfaces, including those who are involved in harvesting, slaughter, processing, storage food preparation and transportation determine level of food hygiene served to customers (Auad, Ginani, Stedefeldt & Zandonadi, 2019). Hand washing procedures, proper cleaning of utensils, thoroughly sanitizing food preparation and storage areas, waste management, adequate supply of clean water and appropriate staff changing facilities, are some of the items on the food hygiene observation checklists which will determine whether restaurants observe the provision of safe food (Adebitan, 2011).

World Health Organization (WHO) highlights the basic procedures of handling food to make sure that the food provided is not harmful. It provides procedures of ensuring that food remain safe and include cooking, keeping food clean and separating raw and cooked to the correct internal temperatures, keeping food at safe temperatures; and applying raw materials that are portable (Jeinie, Sharif, Saad & Nor, 2016). Moreover, the HACCP framework provides procedures of storing, handling, cooking and cleaning by synthesis and biological control, physical as well as chemical hazards from production of raw materials, procurement and handling, to manufacturing, from farm to fork (Tian, 2017).

The developed European and Western countries rank top in the provision of safe food. According to the Global Food Safety Index Report (2018) Canada ranks first at 86.8%, France second at 86.5% and Finland third at 86.0%. The Canadian Food Inspection Agency (CFIA) is actively involved in inspecting the nature of food provided to Canadian citizens. Ireland despite ranking top in terms of food safety, it still faces problems related to improper handling, preparation, storage and inadequate knowledge on food safety practices (Moreb, Priyadarshini & Jaiswal, 2017).

In developing countries of Asia and Africa, provision of safe food remains a major problem in most of the countries. In Asia region, lack of hygiene and sanitation and low awareness of good

<https://doi.org/10.53819/81018102t4046>

food management practices is a threat to food safety and a major cause of food-borne diseases (FAO, 2018). In Bangladesh, despite food safety being a priority issue to the government to attain the national goals of food and nutrition security, provision of safe food in various food premises and home remain a major problem (FAO, 2018). Nonetheless, South Korea, Israel, Japan and Singapore rank top in terms of quality and safety of food in Asia (Mahmoud, 2019).

In Kenya, provision of sufficient and safe food is one of Kenya's Big 4 Agenda and Vision 2030. However, Kenya still ranks lower at 87th in terms of food safety and quality according to Global Food Security Index (2018). Kenya scored 45.8% in terms of food quality and safety ranking behind Tunisia 61.9%, South Africa 58.7% and Egypt 56.7% (Global Food Security Index, 2018). In Nairobi City County, most food provision outlets, hotels and restaurants lack or do not follow clear food safety guidelines (Mwangi, 2018). According Malavi, Abong and Muzhingi (2017) many restaurants fail to observe food safety regulations and proper food handling procedures. As a result, cases of food illness resulting from consumption of unsafe food and water are a major problem among restaurants in Nairobi CBD (WHO, 2018).

1.1 Statement of the Problem

Hygiene is described by three aspects and includes food, staff and environment. However, highest levels of hygiene practices are not attained by most hotel outlets as recommended by various food legislation bodies and practices, including WHO, HACCP and DPH Kenya. Ideally, food consumed in restaurants should be impeccable observing high safety standards and handling procedures. Maintaining safe food starts at the farm where it is produced, transported in safe couriers, stored in safe environment with proper range of temperatures, cooked in clean environment, handled and served in clean utensils.

Moreover, the persons handling food and serving to the customers must observe highest level of food safety guidelines that include wearing clean protective clothing including apron and garments at the beginning of each shift and changing them regularly when necessary. Most unclassified restaurants may not have appropriate uniforms for staff, a place set aside for staff to take a shower and change in to clean uniform when need be, and may have undergone minimum food safety training or none at all. It for these reasons that this research was carried out in order to bring awareness to the unclassified restaurant management on what is exactly expected and required of them in order to provide safe food.

However, the provision of safe food in most unclassified restaurants in Nairobi City County remains a problem. Most restaurants lack clean food management facilities adequate such as food storage facilities, food preparation and production facilities such as colour coded chopping boards, and food servicing trays (WHO, 2015; Kenya Hotel Industry, 2019). Tourism regulatory Authority is responsible for classifying hotels in Kenya. The classification of restaurants as classified or unclassified is based on quality of hotel service deliveries. Following the huge numbers of customers served, service utensils in most cases are inadequate hence replenishing clean service utensils and equipment as fast as required is a challenge posing a high risk of re-using plates and spoons without washing with clean hot detergent water as recommended by food hygiene practices (Perez & Manzano, 2017).

In addition, service team may be inadequate in terms of training. There is an assumption that most restaurants do not employ food trained professionals but opt for semi-skilled hotel labor that is perceived to be cheap. Therefore most of the food production and service brigade may lack or have very little knowledge on food safety from the most junior to senior staff (Kenya Hotel Industry

<https://doi.org/10.53819/81018102t4046>

report, 2019). More emphasis is put on mass production without none or little attention to the conditions under which food is prepared and served (Amoke, 2014).

1.2 Research Objectives

- i. To assess the influence of food handling practices on safe food provision by unclassified restaurants in Nairobi City County.
- ii. To examine the role of food hygiene training on safe food provision by unclassified restaurants in Nairobi City County.
- iii. To determine the effect of food legislation compliance on safe food provision by unclassified restaurants in Nairobi City County.
- iv. To establish the role of management in ensuring that safety standards are achieved on safe food provision by unclassified restaurants in Nairobi City County.
- v. To determine the intervening role of food safety standards on food management practices and safe food provision by unclassified restaurants.

1.3 Research hypotheses

H₀₁: There is no significant relationship between food handling practices and safe food provision by unclassified restaurants in Nairobi City County.

H₀₂: There is no significant relationship between food hygiene training and safe food provision by unclassified restaurants in Nairobi City County.

H₀₃: There is no significant relationship between food legislation compliance and safe food provision by unclassified restaurants in Nairobi City County.

H₀₄: There is no significant relationship between management role and safe food provisions by unclassified restaurants in Nairobi City County.

H₀₅: Food safety standards does not significantly intervene the relationship between food management practices and safe food provision by unclassified restaurants.

2.1 Theoretical Review

The research was guided by HACCP Framework. Hazard Evaluation and Critical Control Point (HACCP) is a tool of monitoring used in numerous food service establishments to inspect food security globally (McClusky, 2004). The HACCP system assists drivers of food businesses check out how food is taken care of and introduces treatments to make food produced is risk-free to eat. HACCP-based food safety programs have actually been approved and implemented as a successful ways of handling risks associated with food safety (Soman & Raman, 2016).

Principles of Food Health, as outlined in HACCP framework (stopping infecting food with microorganisms, separating raw as well as prepared foods, cooking foods for the suitable size of time and also at the ideal temperature as well as saving food at the appropriate temperature and using secure water) identifies specific hazards as well as measures for their control to make sure the food safety. Hazard evaluation is important to any type of food safety monitoring system, because performing a threat analysis aids in arranging the understanding called for to develop an effective mix of control measures.

2.2 Conceptual Framework

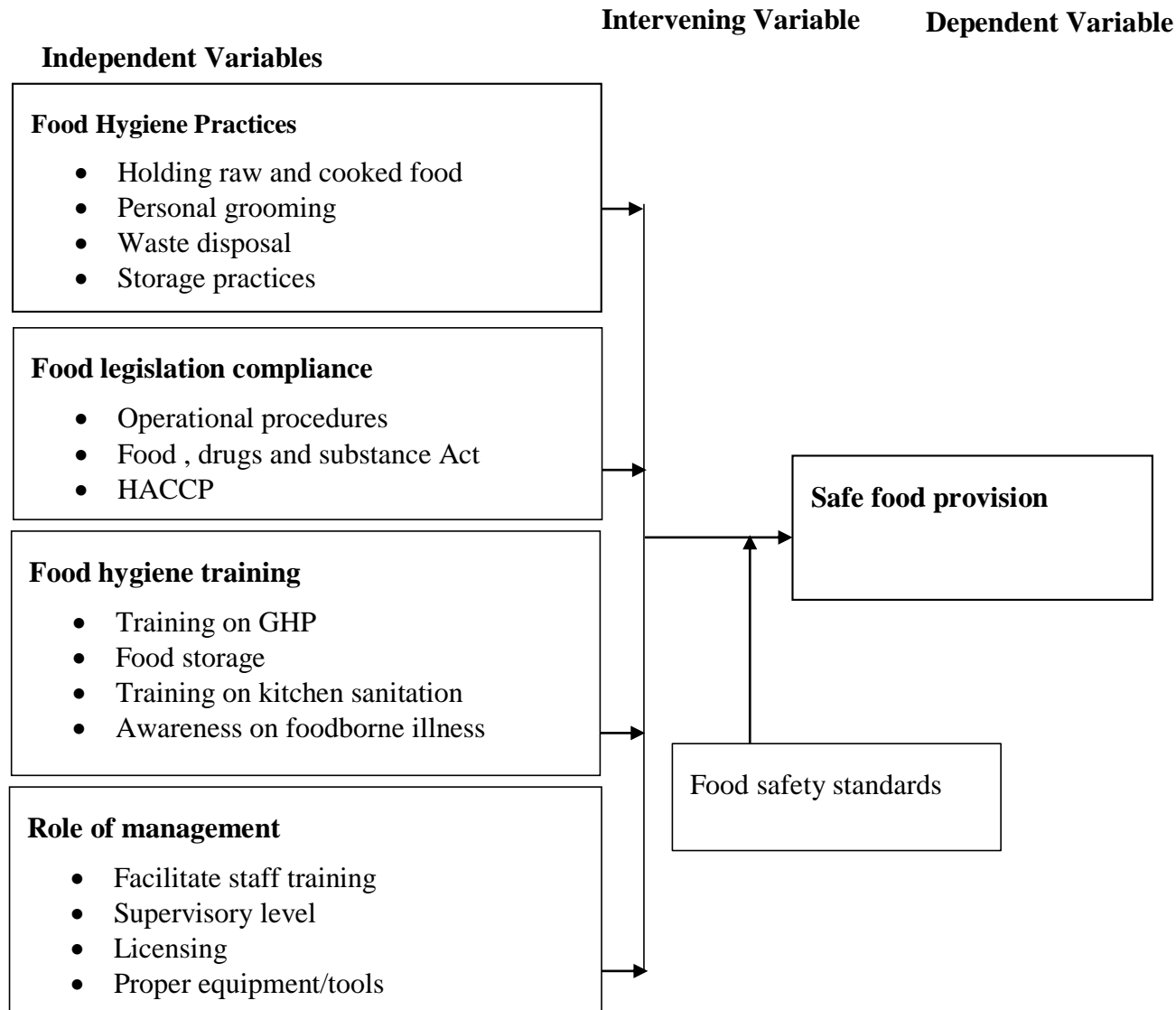


Figure 1: Conceptual Framework

Source: Source: Mohamady *et al.*, (2012) and HACCP Framework (1960)

2.3 Empirical Review

2.3.1 Proper Food Handling Measures and safe food provision

Mwangi (2018) studied food handlers' health methods as factors of customers' choice of selected African aboriginal restaurants' in Nairobi City County, Kenya by taking on a cross-sectional detailed study. The study revealed an insignificant linkage between customers' choice of restaurants and food handlers' practices. However, the research did not link handlers' hygiene practices and provision of safe food hence the need to conduct the study.

Wafukho, Rotich and Cheloti (2021) carried out a research study on personal and ecological health procedures on food safety and security conformity in selected public colleges in Kenya. Descriptive as well as explanatory research study designs were made use of to lead the research study. Self-administered sets of questions and also interview routine was utilized to collect primary data from food handlers and also senior supervisors respectively. Numerous straight regression results show that there exists a significant positive partnership between individual hygiene measures, ecological hygiene measures as well as food safety and security compliance in selected public colleges in Kenya.

Lema, Abuhay, Kindie, Dagne and Guadu (2020) examined food health method and its components among food trainers at University of Gondar, Northwest Ethiopia, 2019. Univariate as well as multivariable binary logistic regression analyses were used to examine the organization of covariates with the food safety and security method. The research showed that there must be continuous encouraging guidance to raise the skills of food trainers to comply with better food hygiene method. Food hygiene training should be offered specifically to women food handlers.

2.3.2 Food Hygienic Training and Safe Food Provision

Food hygienic training entails creating food safety and handling awareness in form of training programmes, workshops among other platforms. Food handlers who have undergone safety of food training yield higher food safety knowledge scores (Ghezzi, 2017). However, the study only focused on food hygiene training with little focus on the outcome which is food safety provision.

Malavi, Abong, Muzhingi (2017) investigated the safety of food attitude, attitude and practices of orange fleshed sweet potato puree handlers in Kenya shows that training has a significant impact on a majority of handlers. In the study, a cross-sectional study design method was applied. However, the study focused on orange fleshed sweet potato puree handlers whose line of business operation is slightly different from restaurants hence the need to conduct this study.

Wahdan, Gad, Habib and Elshazly (2019) determined the effect of an educational program on food safety methods in cooking as well as handling treatments in governmental hospitals of an Egyptian governorate. Data were collected making use of an interviewing survey as well as a check list. Mutivariate logistic regression evaluation revealed that hospital type and scientific history were substantial forecasters for food hygiene techniques score.

In Uganda, Ssebatta (2016) investigated knowledge and practices of food security amongst food trainers in the chosen primary schools in Makindye Department, Kampala. A detailed cross sectional research was accomplished in Makindye division, 10 primary schools involving 103 food handlers. Food safety; formal training, level of knowledge and use of protective coverings were found to be significantly associated with food safety.

2.3.3 Food Legislation compliance and safe food provision

An examination of safety of food in Brazilian restaurants that are popular and public observed that food safety policies related no correlation with self-reported practices and knowledge of food safety and according to handlers of food practices as well as knowledge (Souza, Azevedo & Jucá, 2018). However, the study focused on restaurants in Brazil whose operating environment and food legislation guidelines might be different from those in Kenya hence the need to conduct this study. By practical use of the HACCP system of management in the hotel catering industry, the number of bacteria greatly decreased and the rate of pass of tableware disinfection increased remarkably in the food processing links of the hotel, while consumers' satisfaction improved

<https://doi.org/10.53819/81018102t4046>

greatly according to the investigation of safety management based on hotel management as well as quality of food (Shi, 2017). Therefore, the HACCP management system had great applicability in enhancing safety of hotels and the quality of food.

Oduol (2020) researched the duty of food monitoring systems on food safety in 5-star ranked hotels in Nairobi City Region. The research study took on cross-sectional study style. Nairobi City Area has a variety of categorized hotels located conveniently along with the research reviewed 5-star resorts Information were gathered making use of sets of questions, interview schedule and additionally monitoring list. It was furthermore developed that conformity to food protection system had positive and statistically considerable link with food safety and security. Even more, execution of food safety and security system had a positive and additionally statistically significant connection with stipulation of secure food in Nairobi City County.

Mutua (2021) took a look at the role of food administration systems on food security in resorts. The paper made use of a work desk research study testimonial approach where proper empirical literature was reviewed to identify key motifs and to extract recognizing areas. The research study determined that application of typical food safety and security systems, conformity to food safety and security and safety system in addition to execution of food safety system influence the terms of secure food in resorts.

2.3.4 Role of Restaurant Management in safe food provision

Management factors, supervision and enforcement of FSM rules by food outlet management and physical environment of the kitchen are important in allowing people handling food to regulate food safety according to a study exploring the determinants of safety of food management in chosen hotels in Eldoret Town, Kenya (Onyango, 2016). The research used both the explanatory research designs and descriptive. However, the study did not illustrate the role of management in enhancing food safety. Management must be alert in making sure that conformity with activities that protect health of the public given that department of health inspections of restaurants of fast-food may not be enough to make sure that there is compliance with safety of food and regulations, according to studies done on Food Safety in Fast Food Restaurants, (Dundes & Swann, 2018).

Nyamari (2013) evaluated conformity to food safety standards among food trainers in chosen hospitals in Kenya. This research utilized a quasi-experimental study style. The following were recognized in all FGDs; absence of food security training, poor working conditions, fast turn over, lack of sufficient equipment, absence of water, absence of acknowledgment by the health center administration and insufficient supervision as the significant barriers influencing non-compliance to food security criteria.

Ndu and Asiegbu (2021) conducted a study on Food hygiene management and safe food production in Port Harcourt. The cross-sectional research of the quasi-experimental design was taken advantage of to gather the info. 175 individuals returned their collection of inquiries duplicates. The results revealed that the measurements of food health surveillance had considerable as well as strong straight connection with safe food production. For that reason, it was ended that food health management is favorably as well as also dramatically associated with safe food production in fast solution dining facilities in Port Harcourt.

3.0 Research Methodology

The research applied the descriptive survey design. Descriptive-survey research applies surveys to collect data about different fields that aim to understand the extent to which different conditions

<https://doi.org/10.53819/81018102t4046>

can be obtained among these subjects (Yee, 2016). The research was done in Nairobi City County, Kenya. Nairobi City County which has a population of 4.39 million people (KNBS, 2019). Due to the population in the city, there are many established food service outlets to cater for the large population, some of which may lack proper guidelines in handling food to ensure that safe food is provided.

The study population was 124 unclassified restaurants at Nairobi Central Business District. The study purposively selected 40 unclassified restaurants distributed across the streets within the CBD. This means that at least a restaurant from each street was selected. The unit of analysis was 1 restaurant manager, 2 restaurant supervisors, 3 cooks and 3 waiters from each of the restaurant. Thus the target population was $[(40*1) + (2*40) + (3*40) + (3*40)] = 360$ respondents. Restaurant managers and supervisors are appropriate as they are largely involved in overseeing food management practices. Cooks and waiters are also resourceful since they handle food during cooking, preparation, storing and serving on daily basis. Yamane (1967) formula as supported by Adam (2020) was used to obtain their sample size of 189 participants.

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

Where; n= sample size, N=Population, e = level of precision
 $n=360 / (1+360 (0.05)^2) = 189$ participants

The sample size was 189 participants including 21 restaurant managers, 42 supervisors, 63 cooks and 63 waiters. These participants were selected because they are involved in food handling practices thus very resourceful in the providing necessary information. Data collection was done through sets of questionnaires and an in-depth interview guide. The collected quantitative data was analyzed with the aid of software called SPSS. The analysis involved both descriptive and inferential analysis. On the other hand, content analysis was used to analysis qualitative data which involved identifying, analyzing and interpreting patterns of meaning within qualitative data and reporting them in prose form. The qualitative results were triangulated with quantitative results from the structured questions of the questionnaire. Descriptive statistics involves describing the population through standard deviation and measures of central tendency that mean scores. The study employed t-test and chi square tests as forms of inferential. T-test were used to establish if there is a remarkable difference between unclassified restaurants that observe particular food safety management practices and those that do not. Chi square test as one of the inferential statistics was employed to establish the association between food management practices and safe food provision by unclassified restaurants in Nairobi City County.

4.0 Findings and Discussions

The number of questionnaires distributed to restaurants' employees was 189. A total of 157 questionnaires were returned, representing a return rate of 83.1 percent. Demographic information revealed that majority 62% of workers in the hotel industry were females. Only 38% of the respondents were males. The study found that most 35% of the respondents were aged 26-30 years. It was also established that 21% were aged 21-25 years. A substantial 10.8% of the respondents were aged 31-35 years. With regards to education qualifications, most (45.2%) of the respondents had attained diploma educational qualification. It was also established that 30.6% were undergraduate, 14.0% post graduate while 10.2% were certificate holders. Most (33.8%) of the restaurant workers had 4-5 years work experience, 26.1% had been working for 2-3 years, while 18.5% of the restaurant workers had been working for 6-8 years.

<https://doi.org/10.53819/81018102t4046>

4.1 Descriptive statistics

Food handling practices

The researcher assessed the influence food handling practices have on safe food provision by unclassified restaurants and the outcomes were as depicted by Tables 1 and 2.

Table 1: Food handling practices

Food handling practices	SD	D	NAD	A	SA	Mean	Std Dev
Personal hygiene practices							
Hand washing every time after visiting the washrooms	11.5%	21.7%	2.5%	38.9%	25.5%	3.6	1.4
Hand washing before and after handling foods	11.5%	17.8%	1.3%	47.1%	22.3%	3.7	1.3
Using gloves while handling salads	14.6%	19.7%	1.9%	37.6%	26.1%	3.5	1.4
Cleaning the working areas after and before food preparation	17.8%	20.4%	1.3%	36.3%	24.2%	3.5	1.5
Adhering to policy of clean as you go after handling every item	19.1%	19.1%	1.9%	36.3%	23.6%	3.5	1.5
Food Hygiene practices							
Storage of Red and white meats in separate fridge/freezers/cold rooms	12.7%	16.6%	1.3%	39.5%	29.9%	3.6	1.4
Thawing freezers are used to thaw frozen meats	15.9%	19.7%	2.5%	33.8%	28.0%	3.5	1.5
Raw and cooked foods are stores in fridge/freezers for not more than 5 days	17.8%	20.4%	0.6%	35.0%	26.1%	3.5	1.5
Cooked foods are reheated at 76.7o C to prevent food contamination	15.3%	21.7%	1.9%	36.9%	24.2%	3.6	1.4
Frozen foods for cooking are thawed using running water or microwave	16.6%	18.5%	3.2%	36.3%	25.5%	3.5	1.5

Key: SD-Strongly disagree, 2-Disagree, NAD-Neither agree or disagree, 4-Agree and SA-strongly agree

Focusing at personal hygiene practices, majority of respondents agreed that they washed hands every time after visiting the washrooms as indicated by mean response of 3.5 and standard deviation of 1.4. Most respondents also indicated that they washed hands before and after handling foods (mean response of 3.7 and Std. Dev. of 1.3). Also, most of the respondents were agreed that they use gloves while handling salads (mean response of 3.5, Std Dev of 1.4), clean the working areas after and before food preparation (mean of 3.5 and standard deviation of 1.5) and adhere to policy of clean as they go after handling every item as shown by mean response of 3.5 and standard deviation of 1.5. The results imply that personal hygiene practices remain one of primary aspect of food safety.

Regarding food hygiene practices, most of respondents agreed that the restaurants store red and white meats in in separate fridge/freezers/cold rooms as shown by mean response of 3.6 and standard deviation of 1.4. Most of the respondents also indicated that thawing freezers are used to thaw frozen meats as shown by mean of 3.5 and standard deviation of 1.5. Further, majority of respondents agreed that raw and cooked foods are stores in fridge/freezers for the correct number of days (mean of 3.5 and standard deviation of 1.4), cooked foods are reheated at 76.7o C to prevent food contamination (mean of 3.6 and std dev of 1.4) and that frozen foods for cooking are thawed

<https://doi.org/10.53819/81018102t4046>

using running water or microwave (mean of 3.5 and standard deviation of 1.5). Table 2 shows more descriptive results regarding food handling practices focusing on equipment hygiene practices and environmental hygiene practices.

Table 2: Food handling practices

Food handling practices	SD	D	NAD	A	SA	Mean	Std dev
Equipment hygiene practices							
Food commodities are gotten from reputable suppliers	12.7%	12.7%	1.3%	39.5%	33.8%	3.7	1.4
Adhering to the policy on the use of chopping boards as per the colour codes	16.6%	18.5%	2.5%	36.9%	25.5%	3.5	1.5
There is monitoring of fridge/freezers/cold rooms temperatures daily	13.4%	19.1%	1.9%	40.1%	25.5%	3.5	1.4
All kitchen and stores staff are provided with uniforms and shoes	12.7%	20.4%	2.5%	43.9%	20.4%	3.6	1.4
Safety protective gears/tools/equipment	14.6%	21.7%	0.0%	36.3%	27.4%	3.5	1.5
The temperatures of frozen foods are checked before receiving in stores	16.6%	19.1%	3.2%	35.7%	25.5%	3.6	1.5
Proper cleaning and sanitization of utensils is done daily	15.3%	21.0%	4.5%	35.0%	24.2%	3.6	1.4
There is proper cleaning of the food storage area before storing new products	18.5%	22.9%	2.5%	37.6%	18.5%	3.5	1.4
There is adequate facilities for the welfare of employees	12.1%	15.9%	1.3%	45.2%	25.5%	3.6	1.3
Environmental hygiene practices							
Fumigation of premises is done after every 3– 6 months	15.3%	15.9%	3.2%	38.2%	27.4%	3.6	1.4
Minimizing the entry of rodents, insects and birds in the Premises	15.9%	21.7%	2.5%	32.5%	27.4%	3.5	1.5
Daily removal of waste and rubbish to prevent harborage by pests and insects	39.5%	22.9%	2.5%	16.6%	18.5%	2.4	1.3

Key: SD-Strongly disagree, 2-Disagree, NAD-Neither agree or disagree, 4-Agree and SA-strongly agree

It was also established that most of the respondents were agreeing that food commodities are gotten from reputable suppliers as shown by mean of 3.7 and standard deviation of 1.4. Most of the respondents also agreed that they adhere to the policy on the use of chopping boards as per the colour codes (mean of 3.5 and standard deviation of 1.5). Also the respondents were agreeing that there is monitoring of fridge/freezers/cold rooms temperatures daily (mean of 3.5 and std dev of 1.4), all kitchen and stores staff are provided with uniforms and shoes (mean of 3.6 and std dev of 1.4), safety protective gears/tools/equipment (mean of 3.5 and std dev of 1.5), the temperatures of frozen foods are checked before receiving in stores (mean of 3.6 and std dev of 1.5) and that when a staff is sick or have cut they are always given a sick off (mean of 3.5 and std dev of 1.5). Further, the respondents agreed that proper cleaning and sanitization of utensils is done daily (mean of 3.6

<https://doi.org/10.53819/81018102t4046>

and std dev of 1.4), there is proper cleaning of the food storage area before storing new products (mean of 3.5 and std dev of 1.4) and that there is adequate facilities for the welfare of employees (mean of 3.6 and std dev of 1.3). The results imply that the hygiene of equipment used in preparing, handling and serving food inform the level of food safety.

Cross tabulation results showed that food handling practices resulted to safe food provision by unclassified restaurants. The influence of food handling practices on safe food provision by unclassified restaurants was statistically significant as supported by a chi square of 8.988 and a reported p value of $.003 < 0.05$. This implies that food handling practices significantly influences safe food provision by unclassified restaurants.

H₀₁: There is no significant relationship between food handling practices and safe food provision by unclassified restaurants in Nairobi City County.

The p value calculated was $.003 < 0.05$. The results thus imply that food handling practices significantly influences safe food provision by unclassified restaurants. The null hypothesis was rejected and alternative hypothesis accepted that there is significant relationship between food handling practices and safe food provision by unclassified restaurants.

Food hygiene training

Focusing at personal hygiene practices, majority of respondents indicated that they were trained to low extent about hand washing every time after visiting the washrooms as indicated by mean response of 2.4 and standard deviation of 1.4. Most respondents also indicated that they were trained to low extent about hand washing before and after handling foods (mean response of 2.4 and Std Dev of 1.4). Also, most of the respondents indicated that they were trained to low extent regarding using gloves while handling salads (mean response of 2.4, Std. Dev. of 1.4) and adhering to policy of clean as you go after handling every item as shown by mean response of 2.3 and standard deviation of 1.4. The results imply that the restaurant workers were not adequately trained on personal hygiene practices remain one of primary aspect of food safety.

Regarding food hygiene practices, most of respondents indicated that they were trained to low extent on storage of red and white meats in in separate fridge/freezers/cold rooms as shown by mean response of 2.4 and standard deviation of 1.3. Most of the respondents also indicated that they were not adequately trained about use of thawing freezers to thaw frozen meats as shown by mean of 2.4 and standard deviation of 1.4. Further, majority of respondents indicated training of raw and cooked foods are stores in fridge/freezers for the correct number of days was low (mean of 2.3 and standard deviation of 1.4), training on preheating of cooked foods at 76.7o C to prevent food contamination (mean of 2.2 and std dev of 1.4) and training on procedures of thawing foods using running cold water or microwave (mean of 2.4 and standard deviation of 1.5). The results indicate that employees of unclassified restaurants are not adequately trained on food hygiene practices.

It was also established that most of the restaurant workers were not adequately trained on the importance of sourcing/purchasing food commodities from reputable suppliers as shown by mean of 2.2 and standard deviation of 1.4. It was also established that training on policy adherence on the use of chopping boards as per the colour codes was low (mean of 2.1 and standard deviation of 1.4). Also the respondents indicated that training regarding monitoring of fridge/freezers/cold rooms temperatures daily was low (mean of 2.2 and std dev of 1.4), importance of wearing clean staff uniforms (mean of 2.3 and std dev of 1.4), correct use of safety protective

gears/tools/equipment (mean of 2.4 and std dev of 1.4), importance of checking temperatures of frozen before receiving in stores (mean of 2.5 and std dev of 1.5) and importance of seeking sick off when one is sick of injured (mean of 3.1 and std dev of 1.5) were trained to low extent. Further, restaurant workers were trained to low extent on proper cleaning and sanitization of utensils is done daily (mean of 2.4 and std dev of 1.4), proper cleaning of the food storage area before storing new products (mean of 2.5 and std dev of 1.3) and importance of checking food expiry dates and first in, last out stores issues procedures (mean of 2.3 and std. dev. of 1.4). The results imply that training on the hygiene of equipment remains poor in unclassified hotel restaurants.

Further, it was established that training importance of fumigation of premises is done after every 3 – 6 months was to low extent as indicated by mean response of 2.2 and standard deviation of 1.5. Further, training on prevention of entry of rodents, insects and birds in the premises was low (mean response of 2.1 and Std. Dev. of 1.5) while training on daily removal of waste and rubbish was also low as indicated by mean response of 2.4 and standard deviation of 1.3. The results imply that training of workers in unclassified restaurants regarding environmental hygiene practices remains low in unclassified restaurants.

Chi square test was employed to determine the association between food hygiene training and safe food provision by unclassified restaurants. The hypothesis was evaluated utilizing p worth calculated. The acceptance/rejection criterion is that, if the p worth > 0.05 , we stop working to deny the $H_0 < 0.05$, the H_0 is rejected. The null hypothesis (H_0) was that there is no significant partnership between food hygiene training and safe food provision by unclassified restaurants in Nairobi City County. The Chi square test results showed that food hygiene training and safe food provision by unclassified restaurants have a significant association. The influence of food hygiene training on safe food provision by unclassified restaurants was statistically significant as supported by a chi square of 5.094 and a reported p value of $.019 < 0.05$. The results imply that food hygiene training significantly influences safe food provision by unclassified restaurants.

H₀: There is no significant relationship between food hygiene training and safe food provision by unclassified restaurants in Nairobi City County.

The p value calculated was $.019 < 0.05$. The results thus imply that food hygiene training significantly influences safe food provision by unclassified restaurants. The null hypothesis was rejected and alternative hypothesis accepted that there is significant relationship between food hygiene training and safe food provision by unclassified restaurants.

Food legislation compliance

The study found that majority 65.6% of restaurant workers did not observe operational food safety procedures are observed by all hotel staff with only 34.4% observeing. The restaurant is not periodically assessed and licensed by the Food, drugs and substance Act are as indicated by 64.3% of the respondents. Only 35.7% of the restaurants were periodically assessed and licensed by the Food, drugs and substance Act. Regarding, registration of restaurants and licensing by the Department of Public Health, majority of the restaurants 57.3% did not abide by these while 42.7% abide by it. Likewise, majority 60.5% of the respondents indicated that the restaurants are not licensed and registered by National Food Safety Authority while 39.5% of the restaurants were licensed and registered by National Food Safety Authority.

It was also established that food safety surveillance in the restaurant are not implemented according to the specific legal provision as indicated by 66.9% of the respondents. Only 33.1% of the

restaurants food safety surveillance in the restaurant are implemented according to the specific legal provision. The study results also indicated that there are no clear procedures for verification to confirm that food safety handling procedures are observed as indicated by 61.8% of the respondents while 38.2% of the restaurants had clear procedures for verification to confirm that food safety handling procedures are observed. Further, it was indicated that 66.9% of the restaurants did not have proper documentation concerning all food safety procedures and records in this restaurant while only 33.1% had.

Chi square test was employed to determine the relationship between food legislation compliance and safe food provision by unclassified restaurants. The hypothesis was examined using p-value determined. The acceptance/rejection requirement is that, if the p-value > 0.05 , we stop working to reject the H_0 , the H_0 is turned down. The null hypothesis (H_0) was that there is no considerable relationship between food legislation compliance and safe food provision by unclassified restaurants in Nairobi City County. It was established that food legislation compliance and safe food provision by unclassified restaurants have a significant association. The influence of food legislation compliance on safe food provision by unclassified restaurants was statistically significant as supported by a chi square of 4.544 and a reported p value of $.025 < 0.05$. The implication of this is that the food legislation compliance by unclassified restaurants have significant influence on safe food provision by the restaurants.

H₀₃: There is no significant relationship between food legislation compliance and safe food provision by unclassified restaurants in Nairobi City County.

The p value calculated was $.025 < 0.05$. The results thus imply that food legislation compliance significantly influences safe food provision by unclassified restaurants. The null hypothesis was rejected and alternative hypothesis accepted that there is significant relationship between food legislation compliance and safe food provision by unclassified restaurants.

Role of Management in the provision of safe food in the restaurant

Majority 60.5% of restaurants did not periodically organizes food safety training programmes in conjunction with industry experts for their staff. Only 39.5% of the management of the restaurants periodically organizes food safety training programmes. Most of the restaurants 52.9% were committed enforcing food safety policies, guidelines and procedures while 47.1% were not committed enforcing food safety policies, guidelines and procedures. It was also established that 45.9% of restaurants management ensured that food preparation, and production, storage are in line with food safety standards stipulated in HACCP framework while 54.1% did not. Further, 51.6% of the respondents indicated that hotel supervisors are actively involved in supervisory tasks of ensuring that waiters and chefs observe food safety guidelines while 48.4% indicated that hotel supervisors are not actively involved in supervisory tasks of ensuring that waiters and chefs observe food safety guidelines. The study established that most of restaurants managements did not periodically liaises with food safety and regulatory bodies for renewed licensing and that the management procures safety equipment for their employees in time. It was also established that the most staff did not have the needed equipment and or tools to follow food safety procedures.

Chi square test was employed to determine the role of management in ensuring that safety standards are achieved on safe food provision by unclassified restaurants in Nairobi City County. The hypothesis was checked utilizing p worth calculated. The acceptance/rejection criterion is that, if the p worth > 0.05 , we do not reject the H_4 , the H_0 is rejected. The null hypothesis (H_4) was that there is no substantial partnership in between management role and safe food provisions

<https://doi.org/10.53819/81018102t4046>

by unclassified restaurants in Nairobi City County. The study found that role of management and safe food provisions by unclassified restaurants have a significant association. The influence of role of management on safe food provision by unclassified restaurants was statistically significant as supported by a chi square of 11.107 and a reported p value of $.001 < 0.05$. The results imply that role of management influences safe food provision by unclassified restaurants.

H₀₄: There is no significant relationship between management role and safe food provisions by unclassified restaurants in Nairobi City County.

The p value calculated was $.001 < 0.05$. The results thus imply that role of management significantly influences safe food provision by unclassified restaurants. The null hypothesis was rejected and alternative hypothesis accepted that there is significant relationship between role of management and safe food provision by unclassified restaurants.

Safe food provision by unclassified restaurants

Most 52.2% of the respondents indicated that food is received from approved suppliers while 47.8% indicated that food is not received from approved suppliers. Slightly more than 50%, indicated that good food Hygiene Practices are followed at every step in the production process. Storage conditions followed of all food was observed by 54.8% of the restaurants while 45.2% did not. The study also found that 54.8% ensured the protection from contamination - away from chemicals and physical contaminants while 45.2% did not. 48.4% of restaurants indicated food is cooked, kept & maintained at the appropriate internal temperature while 51.6% did not. Regarding reports of food poisoning have been reported in this restaurant, the cases had been reported by 56.1% of the restaurants while 43.9% had not.

4.2 Paired T-Test

T-test was used to establish if there is a remarkable difference between unclassified restaurants that observe particular food safety management practices and those that do not. Table 3 shows the Paired T-Test results.

Table 3: Paired T-Test results

	Paired Differences					t	df	Sig.	
	Mean	Std. Dev.	Mean	Std. Error	95% Interval Difference Lower Upper				
Pair 1	Food handling practices – Safe food provision by unclassified restaurants	.134	.508	.041	.054	.214	3.302	156	.001
Pair 2	Food hygiene training - Safe food provision by unclassified restaurants	.121	.498	.040	.042	.200	3.044	156	.003
Pair 3	Food legislation compliance - Safe food provision by unclassified restaurants	.076	.446	.036	.006	.147	2.146	156	.033
Pair 4	Role of management – Food Safety Safe food provision by unclassified restaurants	.108	.605	.048	.013	.204	2.241	156	.026

<https://doi.org/10.53819/81018102t4046>

Table 3 documents the paired t test findings comprising the mean, standard deviation, standard error mean, lower and upper confidence intervals of the difference, t-value and significance p value. Food handling practices had a positive and significant association with safe food provision by unclassified restaurants ($.001 < 0.05$). The results imply that there is statistically significant variation in the provision of safe food by unclassified restaurants based on the way food is handled in the restaurant. Food hygiene training had a positive and significant association with safe food provision by unclassified restaurants ($.003 < 0.05$). The results imply that there is statistically significant change in the provision safe of food by unclassified restaurants whenever food hygiene training is provided to restaurant workers among the unclassified restaurants. In addition, it was established that there is significant difference in the level of food safety provided by unclassified restaurants based on the level of food legislation compliance ($.033 < 0.05$).

The t-test results also indicated that role of management had a positive and significant association with safe food provision by unclassified restaurants ($.026 < 0.05$). The results imply that restaurant management play significant role in the provision of safe food by unclassified restaurants. Restaurants provide food to millions of people away from home. However, provision of safe food in most of unclassified restaurants particularly in Nairobi City County is a problem. Most unclassified restaurants lack clear guidelines on food safety management practices rendering safety of food served to customers questionable. Besides, these restaurants lack proper facilities to enhance food safety which include food storage facilities, appropriate food preparation and production equipment and service tools. In the ideal situation, food consumed in restaurants need to be impeccable observing high safety standards and handling procedures as prescribed by restaurant management and food safety regulations.

5.0 Conclusion

The study found that food handling practices influences safe food provision by unclassified restaurants. A conclusion is made that food handling practices impacts the safe food provision by unclassified restaurants. Handling of food start from the kitchen when it is being prepared till when it is served to customers. Handling of food has to be guided by acceptable food handling procedures like washing hands, wearing dress code, covering the hair and using well cleaned dishes to serve food. Food handling involve washing hands and surfaces before handling food, separating food stuff, cooking food to correct temperatures and storing food in clean and correct temperatures. WHO highlights the basic procedures of handling food to make sure that the food provided is not harmful. It provides procedures of ensuring that food remain safe and include cooking, keeping food clean and separating raw and cooked to the correct internal temperatures, keeping food at safe temperatures; and applying raw materials that are portable.

The study found that food hygiene training has significant impact on the safe food provision by unclassified restaurants. The study thus concludes that training restaurant employees on issues related to food safety provisions is important. Training related to food safety including food safety training and legal issues enhances awareness related to issues of food issues. Training programs are important for boosting the expertise of food trainers. Food handlers are expected to have substantial expertise and also abilities for dealing with foods hygienically. Training produces recognition among the restaurant employees food security. Knowledgeable qualified and also experienced dining establishment workers require to adhere to proper procedures when dealing with food. Essentially, if food dealing with workers are trained on correct food managing methods, there is high likelihood of offering secure food to customers. Appropriate food health training and

enactment of risk-free food handling methods found out throughout training were essential elements in the provision of secure food in restaurants.

The role of management in ensuring that safety standards are achieved on safe food provision by unclassified restaurants is essential. Food handlers are not able to apply the appropriate food safety behaviors in the lack of sufficient administration assistance. The arrangement of centers such as sufficient and also comfortably located hand laundry basins is a management function and findings recommend that, as a priority, management must make sure that they are not adding to the absence of execution of the appropriate food safety behaviors of food handlers as a result of falling short to provide the essential resources. This support would need proper plans concerning food security, the provision of training and infrastructure as well as imposing the correct behaviors by line management, as a minimum.

The management play significant role in organizing food safety training events, acquisition of food safety equipment, dress code for hotel workers and implementation of food safety guidelines. The study thus concludes restaurant management carries the task of ensuring that workers comply with food safety regulations and necessary facilities that help enhance the provision of safe food in hotels are provided. These include, sufficient water supply, provision of detergents, and separation of hotel units among other tasks bestowed on the management.

6.0 Recommendations

The study found that food handling practices influences safe food provision by unclassified restaurants. Excellent personal health as well as food handling practices are very important for protecting against the transmission of microorganisms from food handlers to the customers. Food trainers play a crucial duty in guaranteeing stringent adherence to food safety concepts throughout the entire procedure. Handling of food has to be guided by acceptable food handling procedures like washing hands, wearing dress code, covering the hair and using well cleaned dishes to serve food. The study recommends for the need to periodically trained restaurant workers on proper food handling practices. There is need for restaurant management to provide workers with sufficient clean dress code. In addition, there is need for close monitoring on how food is prepared and stored in the restaurant.

The study found that food hygiene training has significant impact on the safe food provision by unclassified restaurants. Training creates awareness among the restaurant workers food safety. The restaurant managements need to organize periodic training programmes in form of short workshops, seminars and conferences with key stakeholders in the hospitality sector and food safety authorities. These training programmes will help emphasize more on safe food provisions among restaurant workers. Vital to carrying out risk-free food handling is that food trainers obtain training on individual hygiene and also cleanliness, cooking and saving food at ideal temperature levels, and also other secure food managing methods.

There is need for dining establishments to reinforce, sustain, and also organize regular training programs for resort staff members as well as existing food suppliers in addition to re-training of trainers to outfit them sufficiently with understanding as well as abilities to enable them effectively facilitate training programs for food vendors. Food hygiene training is consequently crucial in food security and also is an important part of the danger evaluation vital control factor principle. Furthermore, training ought to be supported by daily supervision of food safety controls, monitoring commitment and also a work environment that sustains the implementation of the proper behaviors.

<https://doi.org/10.53819/81018102t4046>

There is need for the management of unclassified restaurants to implement any existing food safety guidelines and procedures. When a food security plan remains in area as well as embraced, this gives space for proper accompanying regulation. The regulations must be updated, based upon science; give spell out plainly the duties as well as commitments of each concerned company, and also most importantly be enforced. Food safety regulations needs regular, scheduled ongoing training, as well as updating of understanding for food control police officers, police, consumers and all stakeholders.

Management plays an effective role in facilitating food safety management systems. The management play significant role in organizing food safety training events, acquisition of food safety equipment, dress code for hotel workers and implementation of food safety guidelines. Restaurant management carries great responsibility in enhancing food safety in the hotel industry. There is need for restaurant management to work closely with restaurant employees with aim of enhancing safe food provisions in the hotel industry. There must be constant helpful guidance to elevate the skills of food handlers to adhere to far better food hygiene technique. A robust food safety and also food hygiene training programme for all degrees of the organisation is necessary in making sure adequate expertise of food security dangers and also correct practices. There is need for food authorities to enhance the assessment of restaurants to ensure that there are in compliance with acceptable food safety standard. The government may strengthen her bodies in charge of food safety including DPH in the Ministry of Public Health by compelling them to conduct periodic assessment of restaurants so as to ensure that food standards of food safety are observed.

REFERENCES

- Adam, A. (2020). Sample Size Determination in Survey Research. *Journal of Scientific Research and Reports*, 26, 90-97. 10.9734/JSRR/2020/v26i530263. <https://doi.org/10.9734/jsrr/2020/v26i530263>
- Adebitan, E. O. H. (2011). *Assessing Compliance with Food Hygiene Requirements among Urban and Sub-urban classified hotels In Bauchi State, Nigeria* (Doctoral dissertation, Kenyatta University).
- Auad, I. L., Ginani, C. V., Stedefeldt, E., Yoshio, N. E., Nunes, C. S., A., & Zandonadi, P.R. (2019). Food Safety Knowledge, Attitudes, and Practices of Brazilian Food Truck Food Handlers. *Nutrients*, 11(8), 1-19. <https://doi.org/10.3390/nu11081784>
- Dundes, L., & Swann, T. (2018). Food safety in fast food restaurants. *Journal of Human Resources in Hospitality & Tourism*, 7(2), 153-161. <https://doi.org/10.1080/15332840802156881>
- FAO (Food and Agriculture Organization of the United Nations) (2018). Regional overview of food security and nutrition in Africa 2016. The challenges of building resilience to shocks and stresses. (Available from <http://www.fao.org/3/a-i6813e.pdf>) (Accessed 30 September 2019)
- Ghezzi, S. (2017). An assessment of food safety practices and training of food truck employees: Initiating a specialized food safety training manual. Auburn University
- Husain, N. R. N., Muda, W. M. W., Jamil, N. I. N., Hanafi, N. N. N., & Rahman, R. A. (2016). Effect of food safety training on food handlers' knowledge and practices: A randomized <https://doi.org/10.53819/81018102t4046>

- controlled trial. *British Food Journal*, 118(4), 795 – 808. <https://doi.org/10.1108/BFJ-08-2015-0294>
- Jeinie, M. H., Sharif, M. S. M., Saad, M., & Nor, N. M. (2016). Food Safety and Hygiene Practice among Hotel in Malaysia: Qualitative Approach. *Environment-Behaviour Proceedings Journal*, 1(3), 150-155. <https://doi.org/10.21834/e-bpj.v1i3.360>
- Kenya Hotel Industry report (2019). Food safety guidelines.
- Lema, K., Abuhay, N., Kindie, W., Dagne, H., & Guadu, T. (2020). Food hygiene practice and its determinants among food handlers at University of Gondar, Northwest Ethiopia, 2019. *International Journal of General Medicine*, 13, 1129. <https://doi.org/10.2147/IJGM.S262767>
- Mahmoud, B. (2019). Food Quality and Safety in the Global Food Security Index. Available at <https://agrilinks.org/post/food-quality-and-safety-global-food-security-index-0#:~:text=The%2025%20highest%20food%20quality,Switzerland%2C%20Germany%2C%20Singapore%20and%20Russia.>
- Malavi, D.N.; Abong, G.O.; Muzhingi, T. (2017). Food safety knowledge, attitude and practices of orange fleshed sweetpotato puree handlers in Kenya. *Food Science and Quality Management*. ISSN 2224-6088. 67:54-63.
- McClusky, K. W. (2004). Implementing hazard analysis critical control points. *Journal of the Academy of Nutrition and Dietetics*, 104(11), 1699-1700. <https://doi.org/10.1016/j.jada.2004.09.004>
- Mohamady, M., Essam, M., & El Kashlan, A. (2012). A proposed Food Safety Management Framework for Catering Services. Recent Researches in Energy, Environment and Sustainable Development, Academy for Science and Technology 661 Al Horrya Street, Janeklis, Alexandria.
- Moreb, N. A., Priyadarshini, A., & Jaiswal, A. K. (2017). Knowledge of food safety and food handling practices amongst food handlers in the Republic of Ireland. *Food Control*, 80(10), 341-349. <https://doi.org/10.1016/j.foodcont.2017.05.020>
- Mutua, A. (2021). Role Of Food Management Systems On Food Safety In Hotels. *Journal of Food Sciences*, 2(1), 37-50. <https://doi.org/10.47941/jfs.624>
- Mwangi, P. N. (2018). *Food Handlers' Hygiene Practices as Determinants of Customers' Choice of Selected African Indigenous Restaurants' In Nairobi City County, Kenya* (Doctoral dissertation, Kenyatta University).
- Ndu, E. C., & Asiegbu, U. A. (2021). Food Hygiene Management and Safe Food Production: An Operational Analysis of Quick Service Restaurants in Port Harcourt. *International Journal of Business and Management Review*, 9(1), 78-93.
- Nyamari, J. A. C. K. I. M. (2013). Evaluation of compliance to food safety standards amongst food handlers in selected hospitals in Kenya. *Unpublished Doctoral thesis. Kenyatta.*
- Odundo, A., Okemo, P., & Chege, P. (2018). An Assessment of Food Safety Practices among Street Vendors in Mombasa, Kenya.

- Oduol, R. W. (2020). *Role of Food Management Systems on Food Safety in 5-Star Rated Hotels in Nairobi City County, Kenya* (Masters Dissertation, Kenyatta University).
- Oloo, J. E. O. (2010). Food safety and quality management in Kenya: An overview of the roles played by various stakeholders. *African Journal of Food, Agriculture, Nutrition and Development*, 10(11). <https://doi.org/10.4314/ajfand.v10i11.64283>
- Onyango, D. A. O. (2016). *Determinants of food safety management in selected hotels in Eldoret town, Kenya* (Doctoral dissertation, Moi University).
- Perez, A. M., & Manzano, A. I. (2017). Food Safety and Sanitary Practices of Selected Hotels in Batangas Province, Philippines: Basis of Proposed Enhancement Measures. *Asia Pacific Journal of Multidisciplinary Research*, 5(1), 111-121.
- Riggio, G. M., Wang, Q., Kniel, K. E., & Gibson, K. E. (2019). Microgreens—A review of food safety considerations along the farm to fork continuum. *International journal of food microbiology*, 290(2), 76-85. <https://doi.org/10.1016/j.ijfoodmicro.2018.09.027>
- Seaman, P. (2010). Food hygiene training: Introducing the food hygiene training model. *Food Control*, 21(4), 381-387. <https://doi.org/10.1016/j.foodcont.2009.08.005>
- Soman, R., & Raman, M. (2016). HACCP system—hazard analysis and assessment, based on ISO 22000: 2005 methodology. *Food Control*, 69(11), 191-195. <https://doi.org/10.1016/j.foodcont.2016.05.001>
- Souza, C. V. S. D., Azevedo, P. R. M. D., & Seabra, L. M. A. J. (2018). Food safety in Brazilian popular public restaurants: Food handlers' knowledge and practices. *Journal of food safety*, 38(5), 1-9. <https://doi.org/10.1111/jfs.12512>
- Ssebatta, F. (2016). *Knowledge and Practices of Food Safety Among Food Handlers in the Selected Primary Schools in Makindye Division, Kampala* (Doctoral dissertation, International Health Sciences University.).
- Tian, F. (2017). A supply chain traceability system for food safety based on HACCP, blockchain & Internet of things. In *2017 International Conference on Service Systems and Service Management* (pp. 1-6). IEEE. <https://doi.org/10.1109/ICSSSM.2017.7996119>
- Veal, A. J. (2017). *Research methods for leisure and tourism*. Pearson UK.
- Wafukho, B. M., Rotich, D. Cheloti, I. M. (2021). Personal and environmental hygiene measures on food safety compliance in selected public universities in Kenya. *International Academic Journal of Social Sciences and Education*, 2(2), 306-331.
- Wahdan, I. H., Gad, Z. M., Habib, I. M., & Elshazly, O. A. (2019). Effect of an educational program on food safety practices in food preparation and handling procedures in governmental hospitals of an Egyptian governorate. *Journal of High Institute of Public Health*, 49(2), 90-96. <https://doi.org/10.21608/jhiph.2019.49261>
- WHO (World Health Organization) (2015). WHO estimates of the global burden of foodborne diseases? Geneva, Switzerland: WHO. (Available from http://www.who.int/foodsafety/publications/foodborne_disease/fergreport/en/) (Accessed 29 September 2019).