THE ROLE OF RISK MANAGEMENT MEASURES ON CUSTOMER RETENTION OF UNCLASSIFIED AFRICAN INDIGENOUS RESTAURANTS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

Statement of the Problem: Risk management measures involve proactively identifying, assessing, and controlling food-related threats to an African indigenous restaurant's assets, operations, earnings, and reputation. Customer retention refers to a restaurant's ability to encourage repeat visits.

Purpose of the Study: The purpose of the study was to examined how food safety resilience influences customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.

Research Methodology: A concurrent mixed-methods design was used to collect both qualitative and quantitative data. Systematic sampling selected restaurants, proportionate sampling targeted food handlers, simple random sampling selected supervisors and managers, and convenient sampling involved customers, totaling 766 respondents. Data were gathered through structured questionnaires, observation schedules, and interviews. Quantitative data were analyzed using mean, standard deviation, chi-square, Spearman correlation, and Kruskal-Wallis H tests, while qualitative data underwent content analysis with word frequency, text search, and Node matrix analyses.

Findings: Findings revealed a strong positive relationship between risk management and customer retention, with risk mitigation having the greatest impact compared to risk assessment and risk analysis.

Keywords: *Risk Management, Measures, Customer Retention, Unclassified, African Indigenous Restaurants, Nairobi City County*

INTRODUCTION

Effective food safety risk management is a fundamental component for the sustainable operation of unclassified African indigenous restaurants. It not only protects customers from foodborne illnesses but also safeguards the restaurant's reputation, supports compliance with both national and international regulatory standards, and enhances overall operational efficiency. In these restaurants, where diverse menus, high customer turnover, and intricate supply chains are common, the potential for contamination and food safety hazards is significantly heightened. Without robust risk management practices, even minor lapses in hygiene or supply handling can lead to severe health risks and financial losses. To address these challenges, unclassified African indigenous restaurants must adopt structured, proactive, and comprehensive risk management strategies. Implementing such measures not only minimizes the risk of foodborne outbreaks but also fosters customer trust, loyalty, and satisfaction. Customers are more likely to return to establishments where they feel confident about food safety, creating a positive cycle of repeat business and sustainable growth. Furthermore, these practices demonstrate the restaurant's commitment to public health and legal compliance, which can be particularly important in competitive urban environments like Nairobi City County, where consumer awareness and expectations are steadily increasing (Soon, 2020).

According to Zhou, Brereton, and Campbell (2024), integrating advanced technologies like Artificial Intelligence (AI) into Hazard Analysis and Critical Control Points (HACCP) systems provides exceptional precision in detecting, monitoring, and controlling hazards throughout the food handling process. AI-powered HACCP systems can analyze large volumes of data from kitchen sensors, inventory records, and storage facilities in real time, allowing early identification of temperature changes, contamination risks, or procedural deviations before they escalate into safety issues. Similarly, Acheson (2021) emphasized that effective food risk management involves a structured approach: identifying potential hazards by categorizing food safety threats, analyzing tasks and processes to assess risks such as cross-contamination from using the same chopping board for meat and vegetables, evaluating mitigation measures to reduce the impact of hazards, continuously monitoring weaknesses through task analysis and vulnerability assessments, and implementing corrective actions when gaps are discovered. This systematic process ensures that potential food safety threats are anticipated, managed, and minimized effectively.

In unclassified African indigenous restaurants, customer retention is closely tied to the trust that patrons develop over time, which is strongly influenced by consistent and visible food safety practices. In environments where informal operations may be common, maintaining high standards of hygiene and safety becomes a key factor in attracting repeat business. Customers often link food safety to the restaurant's overall professionalism and care for their well-being. Establishments that demonstrate a strong commitment to hazard prevention, cleanliness, and transparency tend to build higher levels of loyalty. Research shows that diners are more likely to return to restaurants perceived as prioritizing safe food handling, proper storage, and contamination prevention, as these practices not only reduce the risk of foodborne illnesses but also enhance overall dining confidence (Soon, 2020).

STATEMENT OF THE PROBLEM

Consumers are increasingly drawn to local traditional foods because they are perceived as fresher, healthier, more nutritious, and uniquely flavorful. However, unclassified African indigenous restaurants often serve these ethnic meals under unsafe conditions (Halim-Lim, Mohamed, & Sukki, 2023). This has contributed to a rise in foodborne disease (FBD) outbreaks, with restaurants playing a significant role in their transmission. The growing risk is driven by factors such as more complex food supply chains, the accelerating impacts of climate change, expanded global food trade, the introduction of novel food sources and technologies, the move toward circular economies, and the rapid expansion of urban agriculture (Mu, Kleter, Bouzembrak, & Dupouy, 2024). These evolving challenges make ensuring food safety in traditional cuisine settings increasingly critical.

RESEARCH HYPOTHESIS

H_{01}: There is no significant relationship between risk management measures and customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.

THE CONCEPTUAL FRAMEWORK

Independent variable		Dependent variable
Risk management measures • Risk assessment • Risk analysis • Risk mitigation	→	**Customer retention** • Contamination-free meals

Figure 1: Conceptual Framework

LITERATURE REVIEW

Risk Management Measures

According to Halim-Lim, Mohamed, and Sukki (2023), restaurants are under increasing pressure from customers to strengthen their food safety risk management practices. This has pushed establishments to adopt higher levels of risk aversion by anticipating uncertainties and implementing food safety resilience measures, structured approaches that guide cautious, preventative actions to reduce food-related hazards. Examples include maintaining adequate storage facilities to prevent cross-contamination and using nano-sensors to detect harmful bacteria such as E. coli.

Despite these efforts, new challenges continue to emerge due to factors such as increasingly complex food supply chains, the accelerating effects of climate change, expanded global food trade, the introduction of novel food sources and technologies, the shift toward circular economies, and the rapid growth of urban agriculture (Mu, Kleter, Bouzembrak, & Dupouy, 2024). Addressing these evolving risks requires robust tools and strategies for early detection and risk identification, which enhance a restaurant's ability to prevent, mitigate, and manage emerging food hazards (FAO, 2022). The World Health Organization (WHO) Global Strategy for Food Safety highlights the importance of national food safety systems adopting holistic, proactive, and forward-thinking approaches. Effective food safety resilience measures should be capable of identifying emerging

trends and key drivers of new hazards in real time, often through the use of technologies like Artificial Intelligence (AI) (World Health Organization, 2023).

Further, Acheson (2021) emphasizes a systematic approach to managing food risks. This involves identifying hazards by categorizing potential threats, analyzing food production and service processes to evaluate risks such as cross-contamination from using the same chopping board for meat and vegetables assessing mitigation measures to minimize negative impacts, continuously monitoring for weaknesses through task and vulnerability analyses, and implementing corrective actions whenever gaps are discovered. Together, these practices form a comprehensive framework for building resilient and safe food service operations.

Customer Retention

Consumers are becoming increasingly aware of food safety risks and expect unclassified African indigenous restaurants to maintain high standards to protect their health. This growing awareness has transformed food safety into a key factor influencing customer choices and loyalty. According to the 2022 Food Marketing Institute (FMI) report, 78% of consumers ranked food safety resilience measures among their top priorities when deciding whether to repurchase from a food establishment (FMI, 2022). This underscores that customers not only value taste and price but also the restaurant's ability to consistently deliver safe meals. In the context of African indigenous restaurants, customer retention is heavily linked to trust in the brand's capacity to uphold food safety standards. Establishments that demonstrate consistent, reliable food safety practices tend to foster stronger customer loyalty, as consumers feel confident that their health is protected. For example, research by Smith, Johnson, and Lee (2021) highlights that companies that effectively manage food recalls and communicate transparently about their food safety measures are more likely to maintain positive relationships with consumers. This is particularly relevant for unclassified African indigenous restaurants, where operational informality can sometimes compromise hygiene standards. Moreover, studies indicate that transparent communication about food safety practices not only reassures existing customers but can also attract new patrons who prioritize health-conscious dining (Soon, 2020; Halim-Lim, Mohamed, & Sukki, 2023). In essence, food safety resilience serves as a strategic tool for customer retention, linking operational diligence with brand trust and long-term business sustainability. The ability to consistently protect customers through proactive safety measures positions African indigenous restaurants as reliable

and professional, which strengthens both reputation and loyalty in competitive urban markets like Nairobi.

Perceived Risk Theory

This theory, developed by Bauer in 1960 (Ali & Ali, 2022), explains why consumers continue to frequent certain food establishments. In the context of unclassified African indigenous restaurants, patrons are more likely to return to restaurants that consistently provide safe meals because they want to avoid the risk of foodborne diseases (FBDs). Consumers perceive their decision to choose eateries with strong food safety practices as a protective measure against potential health threats, viewing it as a way to prevent the unwanted outcome of falling ill from unsafe food (Wassmann, Siegrist, & Hartmann, 2021).

METHODOLOGY

The study employed a concurrent mixed-methods design to collect quantitative and qualitative data simultaneously through questionnaires, observation checklists, and in-depth interviews, providing comprehensive understanding from multiple perspectives (Bell, Warren, & Schmidt, 2022). The target population consisted of 147 unclassified African indigenous restaurants in Nairobi City County, selected due to the area's highest GDP losses from foodborne disease outbreaks (Kenya National Bureau of Statistics, 2022; Mwangi, 2018). Systematic sampling selected 49 restaurants by choosing every third establishment from a county list, proportionate sampling chose food handlers based on staff distribution, and simple random sampling selected one manager per restaurant, yielding 766 total respondents calculated using Yamane's formula for managers and food handlers (275 food handlers, 107 managers) and Cochran's formula for customers (384 customers) (Privitera, 2022; Mugenda & Mugenda, 2019; Creswell & Plano Clark, 2018). Primary data were collected through two sets of structured questionnaires administered to food handlers and customers, observation checklists assessing food safety resilience measures, and interview guides for managers, with all instruments pretested in three restaurants representing 10% of the population. Content validity was established through pretesting and alignment with study objectives, while reliability was confirmed through Cronbach's alpha values between 0.879 and 0.952 for quantitative instruments and Cohen's Kappa coefficient of 0.879 for qualitative instruments, both indicating high reliability (Cole, 2023). Data analysis employed descriptive

statistics to summarize patterns, correlation analysis to measure relationship strength and direction, chi-square tests to explore associations, and Kruskal-Wallis H tests to determine significant differences in numerical data means, while qualitative data underwent content analysis using word frequency queries, word clouds, and Node matrix analysis to interpret narrative information and uncover variable relationships.

RESULTS AND DISCUSSIONS

The study achieved an overall response rate of 63%, with 480 completed questionnaires out of 659 distributed (73%) and 5 successful manager interviews out of 107 targeted (5%). The questionnaire response rate exceeded the recommended 60% threshold (Creswell & Plano Clark, 2018), with non-responses attributed to uncooperative participants and incomplete submissions. The low manager interview participation resulted from privacy concerns, distrust, and fears about data disclosure to public health authorities or tourism regulators. Nevertheless, conducting 5 to 20 in-depth interviews is generally sufficient for qualitative data adequacy (Mugenda, 2017).

Risk Management Measures Predictor Variables

The researcher aimed to determine the strength and direction of the relationship between risk management measures and customer retention using Spearman correlation analysis. The results are presented in Table 1:

Table 1: Correlation for Risk Management Measures predictors

Correlations			Risk assessment	Risk analysis	Risk mitigation	Customer retention
Spearman's rho	Risk assessment	Correlation Coefficient	1.000	.434[**]	.550[**]	.441[**]
		Sig. (2-tailed)	.	.000	.000	.000
		N	480	480	480	480
	Risk analysis	Correlation Coefficient	.434[**]	1.000	.662[**]	.678[**]
		Sig. (2-tailed)	.000	.	.000	.000
		N	480	480	480	480
	Risk mitigation	Correlation Coefficient	.550[**]	.662[**]	1.000	.690[**]
		Sig. (2-tailed)	.000	.000	.	.000
		N	480	480	480	480
	Customer retention	Correlation Coefficient	.441[**]	.678[**]	.690[**]	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	480	480	480	480
**. Correlation is significant at the 0.01 level (2-tailed).						

The study found positive and significant relationships between risk management measures and customer retention in unclassified African indigenous restaurants in Nairobi City County. Risk assessment showed a weak positive correlation (Spearman's $\rho = 0.441$, $p < 0.05$), indicating a 19% increase in customer retention with a unit increase in risk assessment. Risk analysis had a moderately strong positive correlation ($\rho = 0.678$, $p < 0.05$), translating to a 46% increase in customer retention. Risk mitigation showed the strongest relationship ($\rho = 0.690$, $p < 0.05$), implying a 48% increase in customer retention. Overall, risk mitigation has the greatest impact on customer retention compared to the other measures.

Quantitative Analysis on The Role of Risk Management Measures on Customer Retention

Spearman correlation analysis was conducted to examine whether risk management measures have a significant impact on customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya. The results are presented in Table 2.

Table 2: Correlation for Risk Management Measures

Correlation			Risk Management Measures	Customer retention
Spearman's rho	Risk Management Measures	Correlation Coefficient	1.000	.648**
		Sig. (2-tailed)	.	.000
		N	480	480
	Customer retention	Correlation Coefficient	.648**	1.000
		Sig. (2-tailed)	.000	.
		N	480	480
**. Correlation is significant at the 0.01 level (2-tailed).				

There is a moderately strong, positive, and significant relationship between risk management measures and customer retention in unclassified African indigenous restaurants in Nairobi City County, with a Spearman's correlation coefficient of 0.648 ($p < 0.05$). This indicates that effective risk management positively influences customer retention. This finding aligns with Mu, Kleter, Bouzembrak and Dupouy (2024), who emphasized the importance of using technologies such as artificial intelligence (AI), big data, and the Internet of Things as early warning and risk

identification tools. These technologies help restaurants detect emerging food safety risks and provide timely alerts, enhancing food safety resilience and supporting customer retention.

Qualitative Analysis of The Role of Risk Management Measures on Customer Retention

Further qualitative analysis using Text Search Query was conducted to explore how risk management measures influence customer retention in unclassified African indigenous restaurants in Nairobi City County. The findings are presented in Figure 2.
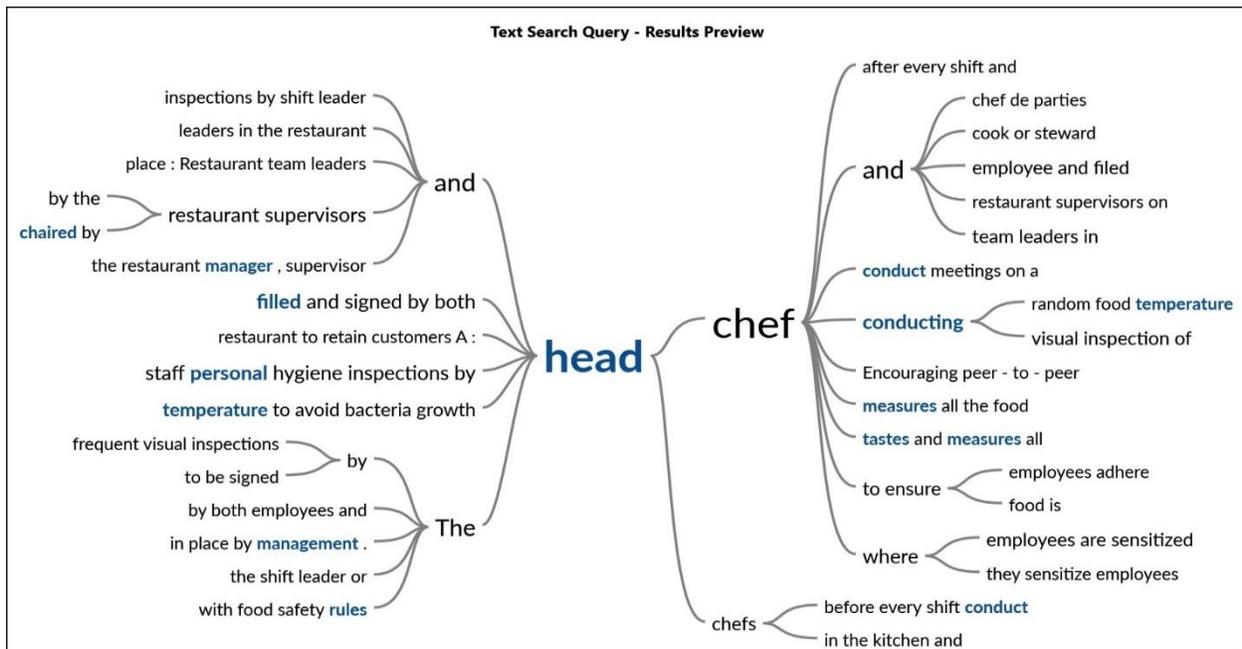

Figure 2: Word Tree Text Search Query on Risk Management Measures and Customer Retention

Word Tree analysis (Figure 2), shows that risk management measures played a critical role in influencing customer retention. The results from text search query indicated that unclassified African indigenous restaurants which utilized risk management measures for instance head chefs and supervisors conduct frequent hygiene inspections, filing fully filled and signed cleaning and temperature control checklists and head chefs and supervisors conduct random food temperature inspections to food served is at correct temperatures retained customers. The results align with the Spearman correlation analysis, confirming that risk management measures positively impact customer retention in unclassified African indigenous restaurants in Nairobi City County.

Table 3: Summary of Hypothesis Testing

Null Hypothesis	Test done	Verdict	Results
$H0_1$: Risk management measures has no significant relationship with customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.	$H0_1$, P-value 0.001<0.05	**(HA_1) was accepted** ($H0_1$) was rejected	There is a significant relationship between risk management measures and customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.
HA_1: Risk management measures has a significant relationship with customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.	$H0_1$, P-value 0.001<0.05	**(HA_1) was accepted** ($H0_1$) was rejected	There is a significant relationship between risk management and customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.

DISCUSSION OF FINDINGS

The study found a strong, positive, and significant relationship between risk management measures and customer retention in unclassified African indigenous restaurants in Nairobi City County, indicating that these measures significantly enhance customer loyalty and leading to the rejection of the null hypothesis. Qualitative analysis using Text Search Query supported these findings, showing that restaurants applied risk management practices such as frequent hygiene inspections by head chefs and supervisors, properly completed cleaning and temperature checklists, and random food temperature checks to retain customers. Additionally, Spearman correlation analysis revealed that among the predictors of risk management, risk mitigation had the greatest impact on customer retention compared to risk assessment and risk analysis.

CONCLUSIONS

The study revealed that risk management measures significantly and positively influence customer retention in unclassified African indigenous restaurants in Nairobi City County ($p = 0.000 < 0.05$). Spearman correlation analysis further showed that among the measures, risk mitigation had the strongest impact on retaining customers, more so than risk assessment or risk analysis.

RECOMMENDATIONS

The study provided recommendations for restaurant practitioners, managers, and decision-makers based on its key findings. It showed that effective risk management measures enhance customer retention by reducing health risks linked to unsafe food. Therefore, restaurant management should adopt modern technologies that comply with HACCP, ISO 22000, and good manufacturing and transportation practices. Tools such as smart cameras and nano-sensors can help identify and monitor food hazards in real time, forming the basis for effective risk mitigation strategies. Managers should particularly focus on hazard-based risk mitigation measures, as these were found to have the greatest impact on retaining customers.

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