
FOOD SAFETY RESILIENCE MEASURES ON CUSTOMER RETENTION IN UNCLASSIFIED AFRICAN INDIGENOUS RESTAURANTS IN NAIROBI CITY COUNTY

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ABSTRACT

Statement of the Problem: Food safety resilience measures are strategies and processes that help restaurants quickly identify weaknesses, implement interventions, and withstand future food hazard crises. Customer retention refers to a restaurant's ability to encourage repeat visits.

Purpose of the Study: This study examined how food safety resilience measures influence customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.

Methodology: Using a concurrent mixed-methods design, the study collected both quantitative and qualitative data. Systematic sampling selected the restaurants, proportionate sampling chose food handlers, simple random sampling picked supervisors and managers, and convenience sampling targeted customers, totaling 766 respondents. Quantitative data were gathered through structured questionnaires and observation schedules, while interviews with managers provided qualitative insights. Analysis included central tendency tests, chi-square tests, Spearman correlation, and Kruskal-Wallis H tests for quantitative data, and content analysis with word frequency, text search, and Node matrix analysis for qualitative data.

Results: Findings showed that food safety resilience measures significantly impact customer retention, with food safety awareness having the strongest influence.

Recommendations: The study recommends that restaurant practitioners and policymakers fully implement food safety resilience measures, particularly focusing on raising food safety awareness among staff and customers to promote safe food practices.

Keywords: *Food Safety, Resilience Measures, Customer Retention, Unclassified, African Indigenous Restaurants, Nairobi City County*

INTRODUCTION

Current global trends indicate a growing consumer preference for safe ethnic food products. In the United States, for example, 80% of consumers eat at least one ethnic meal each month. This demonstrates the rising popularity of indigenous cuisines such as Mexican, Chinese, and African across the world. However, the surge in demand for these foods has been accompanied by an increase in food-borne illnesses, largely due to weak and inflexible food safety resilience measures that contribute to poor food handling practices in indigenous restaurants (Halim-Lim, Mohamed, & Sukki, 2023). Moreover, Halim-Lim, Mohamed, and Sukki (2023) note that restaurants are a leading source of food-borne diseases (FBDs), caused by bacteria, parasites, chemical contaminants, viruses, and allergens, with food handlers serving as the primary agents of transmission. Therefore, it is essential for indigenous restaurants to adopt strong and effective food safety resilience strategies to promote proper food handling and reduce FBD outbreaks, thereby protecting and retaining their customers.

Food safety resilience measures are crucial for unclassified African indigenous restaurants because they help maintain smooth operations, protect public health, and strengthen customer trust. These restaurants often compete in challenging and sometimes resource-constrained settings, making strong safety systems essential for long-term sustainability and customer retention. Comprehensive risk management strategies such as implementing Hazard Analysis and Critical Control Points (HACCP) allow unclassified African indigenous restaurants to systematically identify, assess, and control potential hazards throughout the entire food production chain, from sourcing ingredients to serving meals. Additionally, displaying visible indicators of food safety, such as hygiene certificates, clean food preparation areas, and properly labelled storage spaces, helps reassure customers of the restaurant's commitment to maintaining high health and safety standards (FDA, 2022).

Customer loyalty in unclassified African indigenous restaurants largely depends on the level of trust built through consistent application of effective food safety resilience practices. In environments where informal operational systems may be common, visibly maintaining strict hygiene and safety standards becomes a strong competitive advantage that encourages customers to return. Patrons often view food safety as a reflection of a restaurant's professionalism and dedication to their well-being; therefore, establishments that demonstrate reliable hazard control,

cleanliness, and transparency tend to achieve higher customer loyalty. Studies show that consumers are more likely to revisit restaurants they believe prioritize safe food handling, proper storage, and contamination prevention, as these practices minimize the risk of foodborne illnesses and boost their confidence in the dining experience (Soon, 2020). Furthermore, unclassified African indigenous restaurants can strengthen brand trust by clearly communicating their safety efforts, such as displaying sanitation certifications and highlighting staff training initiatives (National Restaurant Association, 2023).

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, many unclassified African indigenous restaurants continue to serve unsafe ethnic dishes (Halim-Lim, Mohamed, & Sukki, 2023). This challenge is compounded by rising food-borne disease (FBD) outbreaks, with the restaurant sector being a significant source of transmission due to inadequate and inflexible food safety resilience practices (Boutros & Roberts, 2023).

RESEARCH HYPOTHESIS

H₀₁: There is no significant relationship between food safety resilience measures and customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya.

THE CONCEPTUAL FRAMEWORK

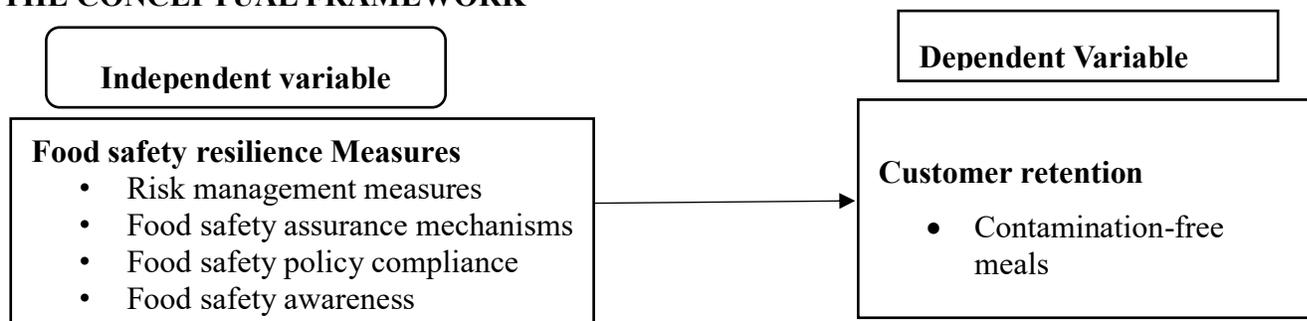


Figure 1: Conceptual Framework

LITERATURE REVIEW

Food Safety Resilience Measures

Businesses that prioritize strong food safety resilience measures often benefit from higher customer satisfaction and greater repeat patronage. PwC (2021) found that 43% of consumers

would stop purchasing from a brand after just one negative food-safety-related experience. On the other hand, companies that take responsibility and clearly demonstrate effective safety practices are more likely to maintain their customer base—even in the aftermath of a foodborne illness incident. A brand’s reputation, strengthened through solid food safety systems, openness, and credible third-party certifications, plays a critical role in keeping customers loyal. When consumers trust that a brand consistently delivers safe products, they are more inclined to stay committed and recommend it to others.

As a result, many unclassified African indigenous restaurants are beginning to embrace food safety resilience measures that help them serve safe, flavorful meals in a cost-effective, timely, and customer-friendly manner (Tahir, 2024). These measures include practices such as “clean as you go”, regular inspections, staff training, safety audits, and food testing initiatives carried out by regulatory agencies to ensure equipment, surfaces, and workspaces remain germ-free. Despite these efforts, Mosota (2023) notes that foodborne disease outbreaks continue to occur worldwide due to contaminated meals from restaurants and poor hygiene practices that fail to meet the international food safety standards set by the Codex Alimentarius Commission (CAC). Imtiaz et al. (2020) further emphasize the need for unclassified African indigenous restaurants to be both proactive and adaptable by developing tailored food safety resilience strategies that can withstand future challenges and strengthen customer trust. Ultimately, these restaurants must anchor their safety resilience efforts around three key groups customers, managers, and employees who all play direct or indirect roles in food preparation. By doing so, they can reduce foodborne illness risks, meet regulatory expectations, and protect their reputation while retaining their customers.

Customer retention

Consumers today are more informed about food safety risks, and they expect unclassified African indigenous restaurants to take full responsibility for keeping their food safe. The Food Marketing Institute (FMI) reported in 2022 that 78% of customers view strong food safety resilience measures as a key factor when deciding whether to buy from the same place again (FMI, 2022). In these restaurants, customer loyalty is closely tied to trust specifically, the confidence customers have in the restaurant’s ability to consistently serve safe meals. Brands that show reliable food safety practices tend to earn and maintain this loyalty. For instance, businesses that handle food recalls

responsibly and openly communicate their safety measures often build stronger, longer-lasting relationships with their customers (Smith, Johnson, & Lee, 2021).

Protection Motivation Theory

This theory, originally developed by Rogers in 1975 (Harris, Taylor, & DiPietro, 2021), suggests that both personal and environmental factors can motivate or discourage unclassified African indigenous restaurants from adopting food safety practices to reduce foodborne disease outbreaks (Rezende, Gosling, & Castro, 2024). It further explains that when customers sense a potential foodborne illness risk, they first evaluate the threat's severity and likelihood of affecting them before deciding what action to take.

METHODOLOGY

The study adopted a concurrent mixed-method research design to gather quantitative and qualitative data simultaneously, examining the research problem from multiple angles for richer understanding. The target population comprised 147 unclassified African indigenous restaurants in Nairobi City County, selected because the county has suffered the highest GDP loss from foodborne diseases. Systematic sampling selected 49 restaurants, proportionate sampling chose food handlers based on staff distribution across sub-counties, and simple random sampling selected one manager per restaurant, yielding a total sample of 766 respondents calculated using Yamane's formula for managers and food handlers (275 food handlers and 107 managers) and Cochran's formula for customers (384 customers). Primary data were collected through structured questionnaires administered to food handlers and customers, observation checklists evaluating food safety practices, and interview guides for managers, with all instruments pretested in three restaurants representing 10% of the target population. Content validity was assessed through pretesting and alignment with study objectives under supervisors' guidance, while reliability was confirmed through Cronbach's alpha values ranging from 0.879 to 0.952 for quantitative instruments and Cohen's Kappa coefficient of 0.82 for qualitative instruments. Data analysis employed descriptive statistics, Spearman correlation, chi-square tests, and Kruskal-Wallis H tests for quantitative data, while qualitative data underwent content analysis using word frequency queries, word clouds, and Node matrix analysis to explore relationships between variables.

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, with non-responses attributed to lack of cooperation and incomplete submissions. The low manager interview participation resulted from privacy concerns, distrust, and fears about data security regarding potential repercussions from public health authorities or the Ministry of Tourism. Despite the 95% manager non-response rate, the 5 completed interviews fall within acceptable qualitative research guidelines of 5 to 20 in-depth interviews for adequate data saturation (Mugenda, 2017; Creswell & Plano Clark, 2018).

Food Safety Resilience Measures Predictor Variables

The researcher examined whether predictors of food safety resilience measures significantly influence customer retention by conducting a Kruskal-Wallis H Test on risk management measures, food safety assurance mechanisms, food safety policy compliance, and food safety awareness, with results presented in Table 1.

Table 1: Kruskal-Wallis H Test for Food Safety Resilience Measures predictors

Variables	Risk Management Measures	Food safety Assurance mechanisms	Food safety policy compliance	Food Safety Awareness
Kruskal-Wallis H	242.496	242.407	138.630	71.295
df	3	4	3	1
Asymp. Sig.	.000	.000	.000	.000

There is a statistically significant relationship between customer retention and several factors in unclassified African indigenous restaurants in Nairobi City County: risk management measures ($\chi^2 = 242.496$, $p < 0.05$), food safety assurance mechanisms ($\chi^2 = 242.407$, $p < 0.05$), food safety policy compliance ($\chi^2 = 71.295$, $p < 0.05$), and food safety awareness ($\chi^2 = 138.630$, $p < 0.05$). This indicates that these factors collectively have a positive impact on retaining customers.

The Spearman correlation test was conducted to examine whether food safety resilience measures have a significant relationship with customer retention in unclassified African indigenous restaurants in Nairobi City County, Kenya. The results are presented in Table 2:

Table 2: Correlations Analysis

			Food Safety Resilience Measures	Customer retention
Spearman's rho	Food Safety Resilience Measures	Correlation Coefficient	1.000	.566**
		Sig. (2-tailed)	.	.000
		N	480	480
	Customer retention	Correlation Coefficient	.566**	1.000
		Sig. (2-tailed)	.000	.
		N	480	480

There is a weak but positive and statistically significant relationship between food safety resilience measures and customer retention in unclassified African indigenous restaurants in Nairobi City County. Spearman’s correlation coefficient is 0.566, falling within the 0.4–0.6 range, with a p-value of 0.000 (<0.05). This indicates that food safety resilience measures have a positive effect on customer retention. Additionally, Kruskal-Wallis H tests were conducted to determine whether significant differences exist between food safety resilience measures and customer retention, with the results presented in Tables 3 and 4:

Table 3: Mean Ranks Statistics for Food Safety Resilience Measures

	Food Safety Resilience Measures	N	Mean Rank
Customer retention	without food safety resilience measures	64	56.50
	with some food safety resilience measures	400	265.46
	with all food safety resilience measures	16	352.50
	Total	480	

There is a positive, even though weak, and statistically significant relationship between food safety resilience measures and customer retention in unclassified African indigenous restaurants in Nairobi City County. Spearman’s correlation coefficient of 0.566, within the 0.4–0.6 range, and a p-value of 0.000 (<0.05), suggest that implementing food safety resilience measures positively influences customer retention. In addition, Kruskal-Wallis H tests were carried out to examine

whether there are significant differences between food safety resilience measures and customer retention, with the findings shown in Tables 4.

Table 4: Kruskal-Wallis H Tests Statistics for Food Safety Resilience Measures and Customer Retention

Test Statistics ^{a,b}	Customer retention
Kruskal-Wallis H	160.717
df	2
Asymp. Sig.	.000

There is a statistically significant difference in customer retention rates across varying levels of food safety resilience adoption in unclassified African indigenous restaurants in Nairobi City County ($\chi^2 = 160.717$, $p < 0.05$). The mean rank for customer retention was 56.50 for restaurants without food safety resilience measures, 265.46 for those with some measures, and 352.50 for those fully implementing such measures. This indicates that greater adoption of food safety resilience measures is associated with higher customer retention. These findings align with a study in Brazil, which found that commercial restaurants actively implementing food safety resilience measures were better able to retain customers. Such measures reduced vulnerability to foodborne disease outbreaks and their consequences, including business closures, employee and customer illnesses, and the revocation of business permits (De Freitas & Stedefeldt, 2022).

Qualitative Analysis of The Role of Food Safety Resilience Measures on Customer Retention

A further qualitative analysis using Word Frequency Query analysis was conducted to examine the role of food safety resilience measures on customer retention in unclassified African indigenous restaurants in Nairobi City County. The results are as shown in Figure 2:

mechanisms whereby head chefs and supervisors conduct frequent hygiene audits , risk management measures whereby staff undergo mandatory food handlers’ tests, policy compliance measures whereby head chefs and supervisors conduct frequent visual inspections to ensure staff compliance to statutory and company laws , creating awareness through knowledge sharing and training both employees and customer on food safety have a positive effect on customer retention. The results support the findings from both the Word Frequency Query and Kruskal-Wallis H tests, confirming that food safety resilience measures positively impact customer retention in unclassified African indigenous restaurants in Nairobi City County.

Table 5: Summary of Hypothesis Testing

Null Hypothesis	Test done	Verdict	Results
H ₀ ₁ : Food resilience measures has no significant relationship with customer retention of unclassified African indigenous restaurants in Nairobi City County, Kenya.	H ₀ ₁ , P-value 0.001<0.05	(H_A₁) was accepted (H ₀ ₁) was rejected	There is a significant relationship between food resilience measures has no significant relationship with customer retention of unclassified African indigenous restaurants in Nairobi City County, Kenya.
H _A ₁ : Food resilience measures has a significant relationship with customer retention of unclassified African indigenous restaurants in Nairobi City County, Kenya.	H ₀ ₁ , P-value 0.001<0.05	(H_A₁) was accepted (H ₀ ₁) was rejected	There is a significant relationship between food resilience measures has no significant relationship with customer retention of unclassified African indigenous restaurants in Nairobi City County, Kenya.

DISCUSSION OF FINDINGS

The study found a clear association between food safety resilience measures and customer retention in unclassified African indigenous restaurants in Nairobi City County. Further analysis using the Kruskal-Wallis H test revealed a statistically significant difference in customer retention based on the level of adoption of these measures. Restaurants that fully implemented food safety resilience measures retained the most customers, while those that did not adopt such measures retained the fewest. This indicates that higher adoption of food safety practices leads to greater customer retention, thereby rejecting the null hypothesis. These results were reinforced by qualitative analyses. Word Frequency Query analysis highlighted that practices such as maintaining restaurant and kitchen hygiene and conducting temperature inspections positively

influence customer retention. Similarly, Text Search Query analysis supported these findings, showing that measures like regular hygiene audits by head chefs and supervisors, mandatory food handler tests, adherence to policy compliance through visual inspections, and ongoing food safety training and awareness for staff and customers all contribute to higher customer retention.

CONCLUSIONS

The study found significant differences in food safety resilience measures and customer retention in unclassified African indigenous restaurants in Nairobi City County ($p = 0.001 < 0.05$). Customer retention was influenced by factors such as risk management measures, food safety assurance mechanisms, food safety policy compliance, and food safety awareness. In addition, Node matrix analysis revealed that food safety awareness had the greatest impact on customer retention compared to risk management measures, food safety assurance mechanisms, and policy compliance, highlighting its critical role in retaining customers.

RECOMMENDATIONS FOR PRACTICE

The study provided recommendations for restaurant practitioners, managers, and decision-makers based on its key findings. It showed a statistically significant difference in customer retention across varying levels of food safety resilience adoption: restaurants that fully implemented these measures retained the most customers, while those without them retained the fewest. This difference in customer return rates is largely linked to concerns about health risks from consuming unsafe food. Therefore, it is clear that restaurant managers and practitioners should actively implement food safety resilience measures to enhance customer retention and minimize foodborne disease outbreaks.

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