
Food Safety, Hygiene Practices and Consumer Choice of Food Vendors in Tertiary Institutions in Abia State, Nigeria

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ABSTRACT: *The paper the influence of food safety and hygiene practices on consumer choice of food vendors in tertiary institution in Abia State, Nigeria. Specifically, the study is to determine the standard of food safety and hygiene practices among food vendors in the study area and the influence of environment on consumer choice of food vendors in the study area. Two research objective guided the study and one hypothesis. Structured questionnaire and observational checklist were used to assess the food safety and hygiene practices among food vendors. The study population comprises of all the registered food vendors and consumers of the selected tertiary institutions in Abia State. Convenience sampling techniques was adopted for the study. A sample size of 260 registered food vendors and 196 consumers were adopted for the study. Descriptive statistics such as frequencies, percentages and means were used to analyze demographic variables and research questions, while multiple regression analysis was used to test the hypotheses at 0.05 significant level. Findings revealed that environment, location, price, quality of food among others are some of the factors that influences consumers' choice of food vendors. Management of tertiary instructions should sensitize, train and retrain food vendors on preparing and serving a healthy food to consumers. Disciplinary measures should be put in place to ensure strict adherence to standard food safety and hygiene practices in these institutions.*

KEYWORDS: consumers, food safety, hygiene, food vendor tertiary institution,

INTRODUCTION

Food is a substance consisting essentially of protein, carbohydrate, fat, and other nutrients used in the body of an organism to sustain growth and vital processes and to furnish energy (osisanya, 2015). The absorption and utilization of food by the body is fundamental to nutrition and is facilitated by digestion. Food as a basic human need plays a vital role in the sustenance of life and the growth of every living thing (Gizaw, Gebrehiwot, &Teka, 2014). It is quite unfortunate that mismanagement and unhygienic environment of food production process are

on the increase and have become a major concern in tertiary institutions. Nutritious food prepared in a healthy environment can enhance the performance and learning abilities of students in tertiary institutions. Food safety is about producing, handling, storing and preparing food in such a way as to prevent infection and contamination in the food production chain, and ensure that food quality and wholesomeness are maintained to promote good health (World Health Organization, 2015). Caterers in tertiary institution should be educated and trained to understand the measures towards provision of safe and wholesome food to the consumers. Consumption of contaminated food and water contributes to a myriad of health problems such as diarrhea, dysentery and worm infestation (Gizaw, etal; 2014). In 2017, World Health Organization estimated that approximately 600 million people fall ill after eating contaminated food resulting in 33 million healthy years; with the cost of illness that is associated with illness in Nigeria estimated at US\$3.6 billion per annum (WHO, 2017; Ezirigwe, 2018). This situation were caused by inadequate knowledge and practice on food safety and hygiene standard operations. (WHO, 2020) maintains that improper heating of food such as undercooking, poor reheating, overcooking, improper cooling of the food account for 44% of the food borne illnesses which ultimately affect the health of consumers after consumption of such food.

Therefore, food safety and hygiene practices are of utmost importance in any form of catering/ food vending business, considering the dangers of food poisoning/food borne illness and the number of customers they attend to on daily basis, though the challenges of not regulating and monitoring the activities of food vendors in tertiary Institutions in the study area has led to the increase of foodborne illness among consumers.

Objectives of the Study

The main objective of the study is to examine the influence of food safety and hygiene practices on consumer choice of food vendors in tertiary institutions in Abia State. Specifically, this study is to:

- (i) Identify the standard food safety and hygiene practices (HACCP) expected of food vendors in tertiary institutions in the study area.
- (ii) Ascertain the influence of environment on consumer choice on food vendors in tertiary institutions in the study area

Research Hypotheses

H0₁: Food safety and hygiene practices has no significant influence on consumer's choice of food vendors in tertiary institutions in Abia state.

H0₂: Food vendor's environment have no significant influence on consumer's choice of food vendors

LITERATURE REVIEW

Food safety is a scientific discipline describing handling, preparation, and storage of food in ways that prevent foodborne illnesses (WHO, 2011). In 2020, the World Health Organization, redefined Food safety to be, Food that is free from harmful bacteria, viruses, parasites or chemical substances, that can cause more than 200 diseases, ranging from diarrhea to cancers. Food handlers have crucial link between food and consumers (Haapala and Probart, 2004 cited in Nyarango, 2018) as there are high contamination tendencies on their part.

The Hazard Analysis and Critical Control Point (HACCP) is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product(Ezirigwe, 2018). HACCP system is also based on a preventive methodology, with the aim of avoiding potential risks that can cause harm to consumers by eliminating or reducing hazards, in order to ensure that unsafe foods are not placed at the disposal of the consumer (Ezirigwe, 2018). The HACCP system uses a critical control approach during product processing to prevent food safety problems, from raw materials to the final product (Iro, Amadi, Enebi & Amadi, 2017). The application of such a system allows human and material resources to be directed to the key points of the process and, when properly implemented, allows for a greater involvement and commitment of all employees in understanding and guaranteeing food safety. It then provides the means to prevent mistakes in food safety management that may undermine the survival of the establishment. Though some food vendors in tertiary institutions in Abia State does not have excellent knowledge of the principles of HACCP and this reduces the quality of food prepared and this poses a risk on consumers' health.

According to the World Health Organization (2020), Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. Hygiene practices should be of utmost priority to food vendors in tertiary Institutions in Abia state, in order prevent food poisoning, cross contamination, food borne disease and other illnesses that may arise through poor hygiene practices, which may affect consumers. It is always important that food vendors wear garments that are suitable for their job, wearing proper clothing and footwear for food processing is the best way to maintain the cleanliness of food which is particularly important when working in food industry such as hotels, restaurants, fast-foods among others, where standards need to be kept high. Any food vendor in the catering establishment who deals with processing food should wear impermeable gloves as they are a necessity that should be kept clean and sanitized at all times to prevent the spread of bacteria(Christy,2015). As well as that, all jewelry must be removed when dealing with food, because jewelries could be the main source of negative microorganisms(Christy,2015). The food service worker could probably

infect food either at the preparation stage or the service point. Personal hygiene with robust importance on hand washing is one of the most significant practices in the deterrence of foodborne illnesses. Poor hand hygiene has been known as a critical threat factor in increasing food-borne illnesses (Osisanya,2015). Therefore it is important to note that, food vendors in tertiary institutions in Abia state ought to be inspected by environmental health officers to ensure human body or food premises do not contaminate food for human consumption. Mishandling and disregard for good hygiene measures on their part may result in food contamination and its attendant consequences(Osisanya,2015). It is also postulated that food vendors, owing to their lack of or no education as well as being poor, lack an appreciation for safe food handling. Consequently, this together with the surroundings that they are prepared and sold in, food is perceived to be a major public health risk (Emmanuel, Mangi, Kanya, Goshit & Naman, 2015).

The Consumer plays a key role in any business; the success of every business cannot be imagined without the consumer. It is important to work intimately with one's customer (Fecikova, 2014). Consumer behavior is very complex and determined by emotions, motives and attitudes (Alvensleben, 2017). The attitudes play a fundamental role in consumer choice field, because, it determine the customer's disposition to respond positively or negatively to an institution, person, event, object or product (Alvensleben, 2017). The choice of consumers for food vending services is positively associated with the level of environmental cleanliness and sanitation (Fellows & Hilmi, 2011). Poor environmental sanitation has adverse implications on the health of consumers hence; those consumers who are conscious of their health consider good environmental sanitation as important factor in choosing a food vending service. This is similar to the study area where by environment The physical environment itself may produce feelings of excitement, pleasure, or relaxation to customers. Alvensleben,(2017), also elucidate other factors that influences the choice of consumers food safety and hygiene practices in a restaurant; price, quality and taste of food, appearance and or/attitude of staff, overall quality of the restaurant, location, service quality and the environment .On other hand satisfaction is an individual perception of pleasure or the disappointment. If people's desire level meets their degree of satisfaction, they will be happy but if not in that point frustration sets in. Majority of the consumers in tertiary institutions in the study area, consume food without knowing what happen in the production area, they are only attracted by the appearance or taste of the food presented to them, consumers should look beyond food presentation and consider the level of food hygiene and safety in making their consumption choice in order to reduce the high rate of food borne illness associated with food. This can be achieved through consumer education and sensitization programs(Amaechi&Oga,2018). It is also important that food vendor in tertiary institution in Abia State understand consumer's preferences so as to integrate these demands into their product and service attributes to gain a competitive edge, remain sustainable and as well retain and attract more customers.

Environment

The role of physical environment in food vendors business cannot be overemphasized. The cleanliness of the environment produces feelings of excitement, pleasure, or relaxation and increases customer patronage (Kotler & Armstrong, 2012). Consequently, various aspects of atmospherics may be used by customers as tangible cues to assess the quality of services provided by food vendors (Peace, Okwuchukwu & John, 2021). However, a range of atmospheric elements within a service setting include visual and auditory cues such as function, space, design, color, and music. The atmosphere of an establishment is shown to be a relevant factor that influences the choice of eatery outlet (Peace et al, 2021). However, the researchers, opined that physical environment has significant effect on customers' positive or negative emotions, as well as perceived value for the type of service rendered to customers. It is therefore very important that food vendors in tertiary institutions in Abia state should improve on the cleanliness and beautification of their environment in order to attract more customers and prevent food borne diseases in the study area.

Food vendors in the study area should also understand that when attending to customers, the wholesomeness of the environment and the food being prepared is the first point of contact which creates positive or negative impression in the mind of consumers. Faremi, Olatubi, & Nnabuife (2018), further stated that although food handling personnel played an important role in producing food for consumption, they were likely to contaminate the food by introducing pathogens in the process of preparation, production, processing, distribution and service. . In some of these food vending stalls in the study area, food is not served under hygienic conditions; tables are not promptly cleared leaving particles of food on the tables as well as on the floor. Some food vendors talk over food unknowingly while preparing and serving customers. All these practices may pose health challenges to consumers and as well led the customers making a decision on repurchase of food at a perceived spot. Based on the above facts, it is therefore necessary for food vendors in tertiary institutions in Abia State to have good knowledge and increase their level of application on the standard food safety and hygiene practices in order to reduce the rate of food borne disease among consumers. Therefore food vendors in the study area should adhere strictly to standard food safety and hygienic practices in preparing, producing and serving consumers.

METHODOLOGY

A survey research design was used through administration of questionnaire, oral interview and observation. This study was carried out in Abia State, Nigeria. The population for the study was made up of registered food vendors and food consumers which include staff, students and visitors of these institutions: Abia State University, MOUAU, Abia Poly, College of Education Technical Arochukwu, Gregory University Uturu, Rhema University, Clifford

University Owerinta. The study adopted a convenience sampling technique. Researchers made questionnaire, personal interview and observation was used in obtaining the needed informations. The researchers collected the information with the help of three research assistant. The study was analyzed using descriptive statistics such as frequencies, percentage, and mean deviation for both respondents' personal data and research questions. Then the hypothesis was tested using multiple regression.

Analysis of Research Questions

Question 1: What are the influence of the applied standard food safety and hygiene practices on consumer choice of food vendors in tertiary institutions in Abia state

Table 1: Mean responses of respondents on the influence of the applied standard food safety and hygiene practices on consumer choice of food vendors in tertiary institutions in Abia state

S/N		VHE	HE	LE	VLE	Total no	Total score	Mean	Remark
1	Repeat patronage	127 (47.4%)	87 (32.5%)	35 (13.1%)	19 (7.1%)	268	858	3.20	Accept
2	Customer satisfaction	125 (46.6%)	86 (32.1%)	19 (7.1%)	38 (14.2%)	268	834	3.11	Accept
3	Increase in sales	168 (62.7%)	39 (14.6%)	28 (10.5%)	33 (12.3%)	268	878	3.28	Accept
4	Profit maximization	131 (48.9%)	76 (28.4%)	28 (10.5%)	33 (12.3%)	268	841	3.14	Accept
5	Customer Loyalty	167 (62.3%)	68 (25.4%)	22 (8.2%)	11 (4.1%)	268	927	3.46	Accept
6	Destination Loyalty	102 (38.1%)	83 (31.0%)	49 (18.3%)	34 (12.7%)	268	789	2.94	Accept
7	Customer Retention	108 (40.3%)	79 (29.5%)	47 (17.5%)	34 (12.7%)	268	797	2.97	Accept
8	Quality Service delivery	63 (23.5%)	73 (27.2%)	91 (34.0%)	41 (15.3%)	268	694	2.59	Accept
Grand Mean								3.09	

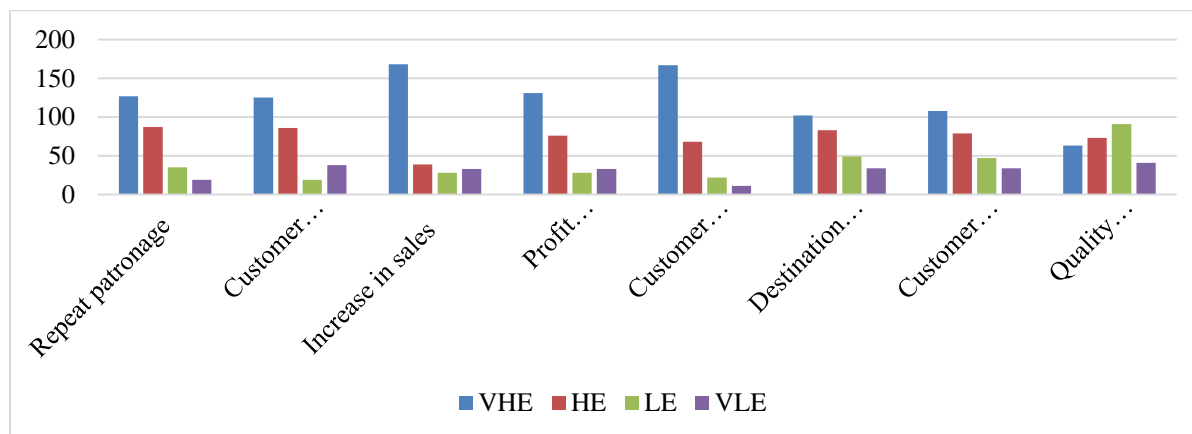


Figure 1: Mean responses of respondents on the influence of the applied standard food safety and hygiene practices to consumer choice of food vendors in tertiary institutions in Abia state.

Table 2 shows that 47.4% are to a very high extent aware of repeat patronage, 32.5% are aware to a high extent, 13.1% are aware to a low extent while 7.1% are aware to a very low extent. This was accepted with a mean score value of 3.20 which was more than the acceptable level of 2.5.

46.6% are to a very high extent aware of Customer satisfaction, 32.1% are aware to a high extent, 7.1% are aware to a low extent while 14.2% are aware to a very low extent. This was accepted with a mean score value of 3.11 which was more than the acceptable level of 2.5. The result also shows that 62.7% are to a very high extent aware of increase in sales, 14.6% are aware to a high extent, 10.5% are aware to a low extent while 12.3% are aware to a very low extent. This was accepted with a mean score value of 3.28 which was more than the acceptable level of 2.5. 48.9% are to a very high extent aware of profit maximization, 28.4% are aware to a high extent, 10.5% are aware to a low extent while 12.3% are aware to a very low extent. This was accepted with a mean score value of 3.14 which was more than the acceptable level of 2.5.

The result also shows that 62.3% are to a very high extent aware of customer loyalty, 25.4% are aware to a high extent, 8.2% are aware to a low extent while 4.1% are aware to a very low extent. This was accepted with a mean score value of 3.46 which was more than the acceptable level of 2.5.

The result also shows that 38.1% are to a very high extent aware of destination Loyalty, 31.0% are aware to a high extent, 18.3% are aware to a low extent while 12.7% are aware to a very low extent. This was accepted with a mean score value of 2.94 which was more than the acceptable level of 2.5.

40.3% are to a very high extent aware of Customer Retention, 29.5% are aware to a high extent, 17.5% are aware to a low extent while 12.7% are aware to a very low extent. This was accepted with a mean score value of 2.97 which was more than the acceptable level of 2.5. The result also shows that 23.5% are to a very high extent aware of quality Service delivery, 27.2% are aware to a high extent, 34.0% are aware to a low extent while 15.3% are aware to a very low extent. This was accepted with a mean score value of 2.59 which was more than the acceptable level of 2.5

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The result showed that all the listed items have grand mean values of 3.13 which is greater than the acceptable mean of 2.5. In other words, we can say that standard food safety and hygiene practices have significant influence on customer choice. This finding is contrary to the findings of Marwaha, (2017), who examined the hygienic practices of food vendors and its effects on consumer food safety in the University of Ghana campus.

Question 2: How does environment influences consumer's choice of food vendors in tertiary institutions in Abia state?

Table 2: Mean responses of respondents on the influence of environment on consumer's choice of food vendors in tertiary institutions in Abia state

S/N		VHE	HE	LE	VLE	Total no	Total score	Mean	Remark
1	Increase in sales	84 (42.9%)	60 (30.6%)	40 (20.4%)	12 (6.1%)	196	336	3.10	Accept
2	Business expansion/size	86 (43.9%)	63 (32.1%)	32 (16.3%)	15 (7.7%)	196	344	3.12	Accept
3	Good reputation	103 (52.6%)	67 (32.2%)	17 (8.7%)	9 (4.6%)	196	412	3.35	Accept
4	Return patronage	93 (47.5%)	75 (38.3%)	18 (9.2%)	10 (5.1%)	196	372	3.28	Accept
5	Income generation	91 (46.4%)	62 (31.6%)	31 (15.8%)	12 (6.1%)	196	364	3.18	Accept
6	Return in investment	99 (50.5%)	72 (36.7%)	17 (8.7%)	8 (4.1%)	196	396	3.34	Accept
7	Increase in productivity	100 (51.0%)	67 (34.2%)	21 (10.7%)	8 (4.1%)	196	400	3.32	Accept
8	Quality product delivery	104 (53.1%)	53 (27.0%)	28 (14.3%)	11 (5.6%)	196	416	3.28	Accept
9	Industry affiliation	105 (53.6%)	71 (36.2%)	12 (6.1%)	8 (4.1%)	196	420	3.39	Accept
Grand Mean							3.26		

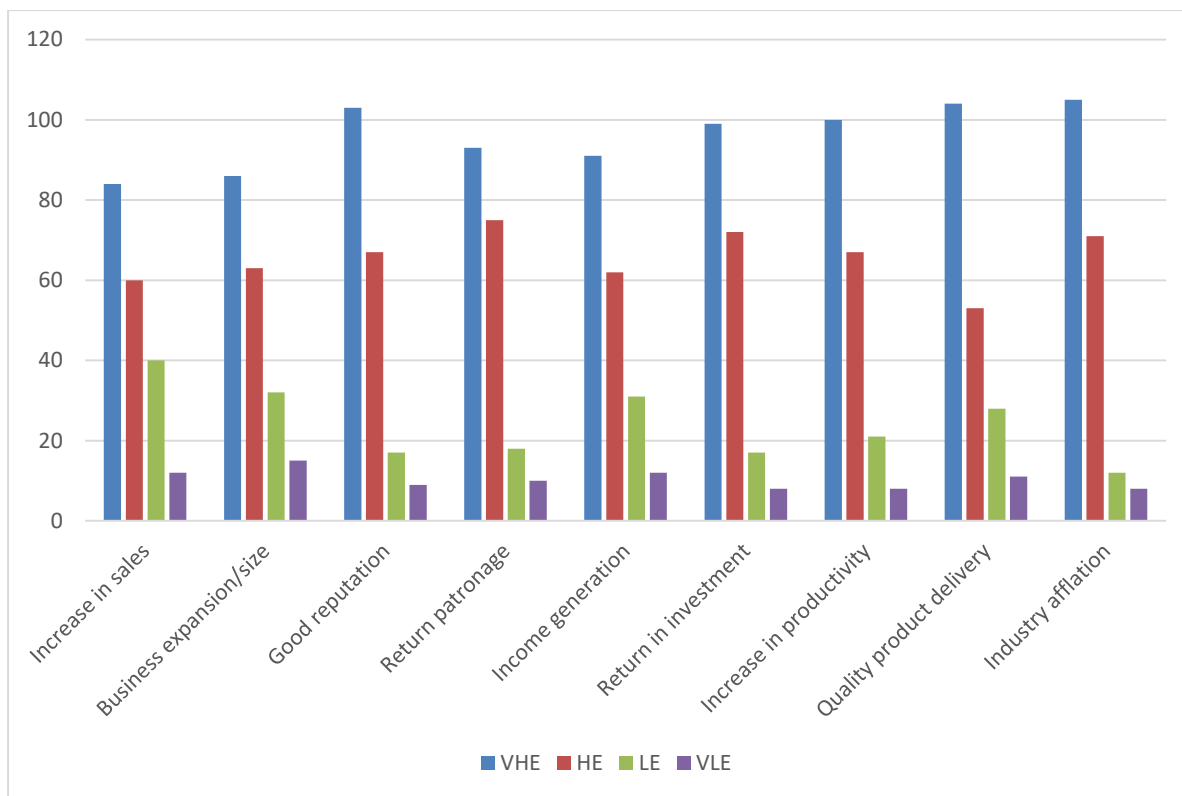


Figure 4.6: Mean responses of respondents on the influence of environment on consumer's choice of food vendors in tertiary institutions in Abia state

Table 2 shows that 42.9% are to a very high extent aware of increase in sales, 30.6% are aware to a high extent, 20.4% are aware to a low extent while 6.1% are aware to a very low extent. This was accepted with a mean score value of 3.10 which was more than the acceptable level of 2.5. 43.9% are to a very high extent aware of business expansion/size, 32.1% are aware to a high extent, 16.3% are aware to a low extent while 7.7% are aware to a very low extent. This was accepted with a mean score value of 3.12 which was more than the acceptable level of 2.5. The result also shows that 52.6% are to a very high extent aware of good reputation, 32.2% are aware to a high extent, 8.7% are aware to a low extent while 4.6% are aware to a very low extent. This was accepted with a mean score value of 3.35 which was more than the acceptable level of 2.5. 47.5% are to a very high extent aware of return patronage, 38.3% are aware to a high extent, 9.2% are aware to a low extent while 5.1% are aware to a very low extent. This was accepted with a mean score value of 3.28 which was more than the acceptable level of 2.5.

The result also shows that 46.4% are to a very high extent aware of income generation, 31.6% are aware to a high extent, 15.8% are aware to a low extent while 6.1% are aware to a very low extent. This was accepted with a mean score value of 3.18 which was more than the acceptable level of 2.5.

50.5% are to a very high extent aware of return in investment, 36.7% are aware to a high extent, 8.7% are aware to a low extent while 4.1% are aware to a very low extent. This was accepted with a mean score value of 3.34 which was more than the acceptable level of 2.5. The result also shows that 51.0% are to a very high extent aware of increase in productivity, 34.2% are aware to a high extent, 10.7% are aware to a low extent while 4.1% are aware to a very low extent. This was accepted with a mean score value of 3.32 which was more than the acceptable level of 2.5

The result also shows that 53.1% are to a very high extent aware of quality product delivery, 27.0% are aware to a high extent, 14.3% are aware to a low extent while 5.6 % are aware to a very low extent. This was accepted with a mean score value of 3.28 which was more than the acceptable level of 2.5 The result also shows that 53.6% are to a very high extent aware of Industry afflation, 36.2% are aware to a high extent, 6.1% are aware to a low extent while 4.1% are aware to a very low extent. This was accepted with a mean score value of 3.39 which was more than the acceptable level of 2.5. The results showed that all the listed items have grand mean value of 3.26 which is greater than 2.5 (which is the criterion mean).

Hypothesis 1

H0₂: Food safety and hygiene practices have no significant influence on consumer's choice of food vendors in tertiary institutions in Abia state.

Table 4.12: Multiple regression analysis on the influence of food safety and hygiene practices on consumer's choice of food vendors in tertiary institutions

Variables	Coefficients	Standard error	t-statistics	P-value
C	0.058238	0.064793	0.898830	0.3692
Avoid insects	0.047267	0.086904	0.543902	0.5868
Clean cloths	0.047267	0.088825	0.532136	0.5949
Covered food	0.035186	0.033632	1.046201	0.2960
Covered hair	0.059105	0.076839	0.769212	0.4422
Hand washing	0.956636	0.042665	22.42221	0.0000
No sneezing	0.044464	0.073205	0.607387	0.5439
Protective cloths	0.097479	0.076224	1.278842	0.2016
Short nails	0.044464	0.075476	-0.589111	0.5561
F-statistics	792.4243			
P-value	0.00000			
R-square	0.934684			
Adjusted R-square	0.933504			

The table above shows the result of the multiple regression analysis of the influence of food safety and hygiene practices on consumer's choice of food vendors in tertiary institutions. Food safety and hygiene practices were used as independent variables while consumer choice is used as dependent variable.

Based on the table above the R^2 has the value of 0.935 which means that 93.5% variation in customer choice of food vending outlet is explained or caused by explanatory variables (food safety and hygiene practices) of food vendors in tertiary institutions. The remaining 6.5% can be a result of error in variable or other variables not captured in the model. The high value of these explanatory variables indicates that application of food safety and hygiene practices can influence consumer choice of food vending. The adjusted R-square is 0.933 which means that there is 93.3% influence of food safety and hygiene practices on consumer's choice of food vendors in tertiary institutions.

This result simply means that protection of food materials from insects and rodents, washing of hands before and after food preparation, wearing of apron and other protective clothing while cooking, not sneezing or coughing over food, wearing clean uniforms at all times, keeping nails short and cut neatly at all times, proper covering of food while selling to prevent flies and other insects not entering the food are major factors that determines customer choice of food vending.

Avoiding insects has the coefficient of 0.047267. This implies that 1% increase in avoiding insects by food vendors will lead to 0.047267% increase in customer choice food vending.

Wearing clean cloths has coefficient value of 0.047267. This implies that if food vendors increase in wearing clean cloths by 1% it will increase consumer choice by 0.047267%.Covering of food has coefficient value of 0.035186. This implies that if food vendors increase in covering their foods by 1%, it will increase consumer choice by 0.035186%.Covering of hair has coefficient value of 0.059105. This implies that if food vendors increase in covering their hairs by 1%, it will increase consumer choice by 0.059105%. Hand washing of food has coefficient value of 0.956636. This implies that if food vendors increase in washing their hands by 1%, it will increase consumer choice by 0.956636%.

No sneezing and coughing has coefficient value of 0.044464. This implies that if food vendors reduce the rate of sneezing and coughing by 1%, it will increase consumer choice by 0.044464%.Wearing protective cloths has coefficient value of 0.097479. This implies that if food vendors increase in wearing protective cloths by 1%, it will increase consumer choice by 0.956636%.Keeping short nails has coefficient value of 0.044464. This implies that if food vendors increase in keeping short nails by 1%, it will increase consumer choice by 0.044464%.

Decision rule: If the probability of the F-statistic obtained from the result is less than 0.05 (5%) level of significance, the study would reject the null hypothesis, (H_0) and accept the alternative hypothesis, (H_1).

The F-statistic with 792.4243 has probability of 0.0000% level of significance. Since the probability of the F statistics is above 5% level of significance, we would reject the null hypothesis, H_0 and therefore conclude that Food safety and hygiene practices have significant influence on consumer's choice of food vendors in tertiary institutions in Abia state.

Hypothesis Two

H₀2: Food safety and hygiene practices have no significant influence on consumer's choice of food vendors in tertiary institutions in Abia state.

Table 4.12: Multiple regression analysis on the influence of food safety and hygiene practices on consumer's choice of food vendors in tertiary institutions

Variables	Coefficients	Standard error	t-statistics	P-value
C	0.058238	0.064793	0.898830	0.3692
Avoid insects	0.047267	0.086904	0.543902	0.5868
Clean cloths	0.047267	0.088825	0.532136	0.5949
Covered food	0.035186	0.033632	1.046201	0.2960
Covered hair	0.059105	0.076839	0.769212	0.4422
Hand washing	0.956636	0.042665	22.42221	0.0000
No sneezing	0.044464	0.073205	0.607387	0.5439
Protective cloths	0.097479	0.076224	1.278842	0.2016
Short nails	0.044464	0.075476	-0.589111	0.5561
F-statistics	792.4243			
P-value	0.00000			
R-square	0.934684			
Adjusted R-square	0.933504			

The table above shows the result of the multiple regression analysis of the influence of food safety and hygiene practices on consumer's choice of food vendors in tertiary institutions. Food safety and hygiene practices were used as independent variables while consumer choice is used as dependent variable.

Based on the table above the R^2 has the value of 0.935 which means that 93.5% variation in customer choice of food vending outlet is explained or caused by explanatory variables (food safety and hygiene practices) of food vendors in tertiary institutions. The remaining 6.5% can be a result of error in variable or other variables not captured in the model. The high value of these explanatory variables indicates that application of food safety and hygiene practices can influence consumer choice of food vending. The adjusted R-square is 0.933 which means that there is 93.3% influence of food safety and hygiene practices on consumer's choice of food vendors in tertiary institutions.

This result simply means that protection of food materials from insects and rodents, washing of hands before and after food preparation, wearing of apron and other protective clothing while cooking, not sneezing or coughing over food, wearing clean uniforms at all times, keeping nails short and cut neatly at all times, proper covering of food while selling to prevent flies and other insects not entering the food are major factors that determines customer choice of food vending.

Avoiding insects has the coefficient of 0.047267. This implies that 1% increase in avoiding insects by food vendors will lead to 0.047267% increase in customer choice food vending.

Wearing clean cloths has coefficient value of 0.047267. This implies that if food vendors increase in wearing clean cloths by 1% it will increase consumer choice by 0.047267%.

Covering of food has coefficient value of 0.035186. This implies that if food vendors increase in covering their foods by 1%, it will increase consumer choice by 0.035186%.

Covering of hair has coefficient value of 0.059105. This implies that if food vendors increase in covering their hairs by 1%, it will increase consumer choice by 0.059105%.

Hand washing of food has coefficient value of 0.956636. This implies that if food vendors increase in washing their hands by 1%, it will increase consumer choice by 0.956636%.

No sneezing and coughing has coefficient value of 0.044464. This implies that if food vendors reduce the rate of sneezing and coughing by 1%, it will increase consumer choice by 0.044464%.

Wearing protective cloths has coefficient value of 0.097479. This implies that if food vendors increase in wearing protective cloths by 1%, it will increase consumer choice by 0.956636%.

Keeping short nails has coefficient value of 0.044464. This implies that if food vendors increase in keeping short nails by 1%, it will increase consumer choice by 0.044464%.

Decision rule: If the probability of the F-statistic obtained from the result is less than 0.05 (5%) level of significance, the study would reject the null hypothesis, (H_0) and accept the alternative hypothesis, (H_1).

The F-statistic with 792.4243 has probability of 0.0000% level of significance. Since the probability of the F statistics is above 5% level of significance, we would reject the null hypothesis, H_0 and therefore conclude that Food safety and hygiene practices have significant influence on consumer's choice of food vendors in tertiary institutions in Abia state.

DISCUSSION OF FINDINGS

The findings of research question one revealed that washing of hands before and after food preparation, wearing of apron and other protective clothing while cooking, not sneezing or coughing over food, not talking much during preparation of food to avoid spit entering the food, wearing clean uniforms at all times, keeping nails short and cut neatly at all times, washing hands thoroughly after visiting the toilet, protection of food materials from insects and rodents among others are the standard food safety and hygiene practices expected in food vending facilities. This result is in conformity to the findings of Nyarango, (2018), Ezirigwe, (2018).

Findings from research question two revealed that repeat patronage, customer satisfaction, increase in sales, profit maximization, customer loyalty, destination loyalty, customer retention and quality service delivery influences consumers' choice of food vendors. This finding is contrary to the findings of Marwaha, (2017), who examined the hygienic practices of food vendors and its effects on consumer food safety on the University of Ghana campus. Qualitative data were analyzed in themes and quantitative data were analyzed with SPSS version 20 and results presented in frequency distributions and charts. The findings of the study indicate that food vendors at the University of Ghana campus do not engage in safe food practices even though they are knowledgeable about safe food practices. Therefore, environment plays a major role in consumers' choice of food vendor because is the bedrock of revenue generation.

Findings from research question six showed increase in sales, business expansion/size, good reputation, return patronage, income generation, return in investment, increase in productivity, quality product delivery and industry afflation are the vendor's environment on customer's choice of food vendors. The result is in conformity to the findings of Edwin, Peace, Okwuchukwu & John (2021) which revealed that food safety and hygiene practices have positive and significant influence on customer patronage which is paramount to customer satisfaction and a bedrock of revenue generation to food vendors.

CONCLUSION

Food is not only based on sensory properties of the product and its physical status, but also associated with other factors such as previous knowledge, previous experience as well as consumers' attitudes and beliefs. Similarly, some consumers who patronize food vendors in various tertiary institutions in the study area consider previous experiences either positive or negative, beliefs and attitudes of service providers, location, price, environment among others in their choice of food vendors. However, food vendors in tertiary institutions in Abia state should focus on the global initiative by following the standard food safety hygiene principles (HACCP) in order to minimize foodborne disease and its impact on consumer's health.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations have been made:

1. There should be continuous monitoring and periodic training incorporating basic principles of food safety and microbial surveillance of foods is essential to optimizing food hygiene in the food vending business.
2. Food vendors should be educated and well trained to be aware of the factors that can affect their business in the study area.
3. Food vendors should strictly adhere to environmental hygiene, personal hygiene among others.

REFERENCES

- Alvensleben, R. (2017), "Consumer Behaviour" in Padberg, D.I., Ritson, C., Albisu, L.M. (editors) *Agro-Food Marketing*, CAB International and CIHEAM, Wallingford, UK.
- Amaechi-chijioke & Oga, M.(2018) Effect of Hygiene and safety in food and beverage services area of catering establishment in Umuahia, Abia State, Nigeria. ATDIN 4th Bennial multidisciplinary conference proceedings of the Association for Tourism Development in Nigeria. Pg. 45 – 63
- Ezirigwe, J. (2018). Much ado about food safety regulation in Nigeria. *Journal of Sustainable Development Law and Policy*, 9(1), 109-132.
- Faremi, A.F., Olatubi, I.M., & Nnabuiife, C.G. (2018). Food safety and hygiene practices among food vendors in a tertiary educational institution in South Western Nigeria. *European journal of nutrition and food safety*, 8(2), 59-70.
- Gizaw, Z., Gebrehiwot, M. and Teka, Z. (2014). Food safety practice and associated factors of food handlers working in substandard food establishments in Gondar town, Northwest Ethiopia, 2013/14. *International Journal Food Science, Nutrition and Diet*, 3(7), 138-146.
- Kotler, P. & Armstrong, G. (2012). *Principles of Marketing, 14th ed.*, Pearson Education, Inc., Prentice Hall, New Jersey
- Marwaha, H. (2017). Assessing the Hygiene Practices among Street Food Vendors in Mohali. *The International Journal of Indian Psychology*, Volume 5, Issue 1. State Public Health

Laboratory. (2016). Foodborne Disease Handbook. Missouri Department of Health and Senior Services.

Nyarango R.M. (2018). The risk of pathogenic intestinal parasite infections in Kisii municipality, Kenya. *BMC. Public Health*

Osisanya, J. (2015): Food Hygiene and Nutrition (Basic Concept). Department of Hospitality Management, Yaba College of Technology, Yaba Lagos Nigeria.

WHO (2017). Food safety fact sheet Reviewed October, 2017) Available at: www.who.int/mediacentre/factsheets/fs399/en/

World Health Organization (2011). Recommended International Code of Practice. General Principle of Food Hygiene. 1999. Website: www.who.int/foodsafety. Accessed: 19th Feb. 2011.

World Health Organization. (2015). A global brief on hypertension: silent killer, global public health crisis. *Women*.

World Health organization. (2020). Health Topics: Food safety. <https://www.who.int/news-room/fact-sheets/detail/food-safety>

Fellows, P. & Helmi, M. (2011). *Selling street foods and snacks. Food and Agriculture Organisation, Rural Infrastructure and agro industries division*. Rome: United Nations Organisation