

Food safety knowledge among farming households in Irepodun local government area, Kwara State, Nigeria

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Abstract. *The study assessed the food safety knowledge and practices among farming households in Irepodun Local Government Area (LGA) of Kwara State, Nigeria. Irepodun LGA was purposively selected due to the large population of farmers in the area. Two-stage sampling technique was used to randomly select one hundred and four (104) respondents from five villages, namely: Elerinjare, Batanyin, Igbo-owu, Omode and Idofian. Primary data were used for the study and the data were collected by means of an interview schedule. Descriptive statistical tools such as precision counts, frequencies and percentages were used in analyzing the data while Pearson Product Moment Correlation (PPMC) analysis was used to test the hypothesis. The findings revealed that the mean income was 156375.50 NGN (441.74 USD) per annum, majority of the farming households have low knowledge towards food safety practices. Constraints to food safety practices include: lack of knowledge, inadequate training and awareness and inadequate finance. PPMC analysis showed that income and educational level was significantly related to the food safety practices among farmers across the selected farming households $P < 0.05$. Based on the findings, training and effective monitoring by relevant stakeholders, adequate provision of modern technology, sensitization and enlightenment campaigns will further boost farming household's knowledge and attitudinal changes towards food safety and ultimately safe food for the people.*

Keywords: farming households, food safety, knowledge, hygiene

Introduction

Food safety is an integral part of food security and is defined as protecting the food from microbial, chemical and physical hazards that may occur during all stages of food production in order to prevent food borne illnesses. Because of insufficient food to meet demand on the African continent, the majority of people is only concerned with satisfying hunger and does not give the necessary attention to food safety. This public uneasiness had spurred multiple investigations of where and how food is produced and the corresponding impacts on our environment and climate. The World health theme for 2015 was "Food safety" and the slogan was "Farm to Plate, make Food Safe". This highlights the importance that the World Health Organization places on the need to globally address in a coordinated manner, the potential threats posed by unsafe food which is a consequence of the breakdown of food hygiene with the subsequent risk of the emergence of food borne illnesses along the pathway of the entire food process, of which the rural household is a critical component. Food safety is a significant and growing public health problem in Nigeria. These factors require changes both in food technology and food distribution systems (Cowan, 2008). There is an increasing consumer's concern for food safety and quality and, at the same time, there has been a significant market increment in differentiated or high value products consumption, including organic products. The goal of food consumption is not only body nourishment but also health improvement over lifetime. If the food available is not safe or its consumption does not enhance health, it does not contribute to food security. In this sense Ogundugbe (2011) concludes: "food safety does not jeopardize food security; both

act together to enhance human health". According to FAO (2010), the fields of food safety and quality are complicated and multidimensional.

Nigeria has over the years grappled with the problem of food-borne diseases with their attendant social, economic and health costs. According to the report of Ifenkwe (2012), food-borne diseases are diseases resulting from consuming food and beverages. Until recently, nutrition-related diseases were superstitiously explained (Akobundu 1999). The most vulnerable include children under the age of five, pregnant women, people over the age of 70, and people with compromised immune systems (Awake, 2012). Despite the attention to the subject of food safety and the rising concern for quality issues, developing a deep understanding of food safety in Africa and Nigeria in particular is limited (Omotayo and Denloye, 2002). Globalization, growing incomes, fluctuating relative prices, urbanization and migration are leading consumption behaviour to high value agricultural products in many developed and developing countries.

In developing countries, up to an estimated 70% of cases of diarrheal disease are associated with consumption of unwholesome food and poor food safety practices which may result in foodborne illnesses. Food safety is a significant and growing public health problem in Nigeria. Despite the efforts by governments and both multilateral and bilateral agencies, weaknesses remain in national food safety control systems. There seems to be absence of enforceable policies, regulatory mechanisms, resources and coordination in addressing the challenge. The burden of food borne diseases in the African Region is difficult to summarize, but available data for diarrhea alone due to contaminated food and water could have an estimated mortality rate around 700000 persons per year

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across age groups (FAO, 2010). There are multiple sources of contamination from the environment, and contaminants could enter the food during production, harvest, storage, retailing and preparation for consumption. It is imperative that food safety remains a concern in all situations in order to derive maximum benefits from even the little available food. Unsafe food not only results in ill-health but also has economic consequences in the area of hospital fees and international trade losses. In Nigeria, NAFDAC has destroyed aflatoxin and many imported contaminated foods worth more than 200000 USD or 30200000 NGN (FAO, 2010). Available data according to FAO, show, that a cholera outbreak in Tanzania in 1998, and a ban on Ugandan fish exports to EU markets resulted in a similar loss.

Food safety is a shared responsibility that requires the common vision of all stakeholders. The problem is based on the perceived nature of unsafe food, with its attendant risks. Are consumers aware of these problems? Literature revealed that there was a limited understanding of safety of food in Nigeria despite the fact that the issue of food safety was given due attention over the years. It was also revealed that there was a certain level of resistance to change of the unhealthy pattern of consumption of food because of belief or tradition. The health implication of unsafe food also constitutes a problem to the consumers. Poor handling of food through exposure to unhygienic environment, lack of knowledge about proper hygiene such as washing of hand before and after, exposure of food to vectors like flies and improper cooking techniques are important factors affecting food safety.

The broad objective of this study was to assess the knowledge of farming households on the safety of food in Irepodun LGA, Kwara State. The specific objectives for this research were to describe the socio-economic characteristics of the farming household, determine the farming household's knowledge about hygienic food safety practices, investigate the farming household's food safety practices, and identify the constraints that influence the respondents' knowledge, attitudes and practices towards food safety.

The null hypothesis (Ho) tested was that there is no significant relationship between selected socio-economic characteristics of the farmers and the farming household's knowledge about hygienic food safety practices

Material and methods

The study was carried out in Kwara State, Nigeria. The state is located within the derived savanna vegetation of Nigeria. The crops grown in this vegetation include cassava, maize, melon, groundnut, cocoa, kola, oil palm and cashew. A two-stage sampling technique was used to select 104 respondents for the study. Firstly, Irepodun LGA was purposively selected from the sixteen LGAs in Kwara State and this was done because of high concentration of farming households in the area. In the second stage a list of farmers in each of these villages were gotten from the Kwara Agricultural Development Programme Office and 30% were selected. This gave 20, 22, 22, 15 and 25 farmers from Elerinjare, Batanyin, Igbo owu, Omode and Idofian, respectively. The selection of

the respondents from each of these five villages gave a total sample size of 104 respondents. Only one hundred questionnaires were retrieved from the respondents given a response rate of 96%. This implies that one hundred respondents were used for the data analysis. Data for the study was analyzed through frequency counts and percentages and Pearson Product Moment Correlation.

Results and discussion

The result in Table 1 revealed the mean age 50 years of the respondents were no longer in their productive ages. Also, More than half (64%) was married and were Muslims (63%) by religion. Several studies have found that majority of the rural dwellers were married, this agreed with the findings of Udoh et al. (2017). This implies that any interventions targeted at family in the quest for food safety practices will consequently impact positively on households to achieve reduction in food contamination. Slightly above average (51%) had above primary education this implies that their level of education did not really translate to high knowledge of food safety. Increasing knowledge of correct food safety and hygiene practices through awareness campaigns and sensitization will drive home the importance of food safety practices with a mean average income of 156375 NGN per annum, which shows that the respondents are mostly in the low earners category and thus are poor. Table 1 also showed that about majority (88%) has community health care centers around them. About 81% respondents indicated that they were not educated by the community health care workers on food safety practices and most (65%) indicated that radio programs were the primary source of information and almost (88%) all the respondents had access to electricity while few (22%) of the respondents had a functioning refrigerator.

Table 2 showed that majority 80% of the respondents do not know they should wash their hands after using the toilet, coughing and sneezing while 17% agreed that it is enough just by washing hands under running water to remove dirt before touching food. About 33% agreed that washing is the best way to avoid food poisoning from fruits and vegetables, while 66% indicated they have suffered from food borne diseases in the last 6 months. Also, almost 96% of the respondents indicated dirty water has the major cause of food borne disease in the household.

The result in Table 3 revealed that majority of the respondents indicated inadequate awareness (89.0%), lack of training (86.0%) and lack of public education (82.0%) were the leading constraints opined to strongly hinder farmers' knowledge of food safety in the study area. These findings imply that lack of education related factors was responsible for the present level of knowledge of food safety among farmers in the study area.

The result in Table 4 showed there is positive significant relationship between the level of education of the respondents ($r = 0.20$, $p = 0.04$) and their knowledge on food safety practices. This suggests that the level of their knowledge about hygienic food safety practices increase with the level of education. It also revealed the importance of deliberate ef-

Table 1. Socio-economic characteristics of respondents

Variables	Frequency	Percentage	Mean+SD
Age (years)			50.0+9.90
Household size (persons)			5.47+2.65
Household income (NGN, Naira)			156 375.50
Educational status			
No formal	19	20.2	
Quranic	5	5.3	
Primary	22	23.4	
Secondary	30	31.9	
Tertiary	18	19.15	
Religion			
Islam	59	62.76	
Christianity	31	32.97	
Traditional	4	4.26	
Marital Status			
Single	10	10.63	
Married	60	63.83	
Widowed	24	25.53	
Access to community health service center			
Yes	83	88.29	
No	11	11.70	
Access to community health workers			
Yes	16	17.02	
No	78	82.98	
Educated on food safety by community health care workers			
Yes	18	19.15	
No	76	80.9	
Other sources of information on food safety			
Friends	42	45	
Neighbours	45	47.5	
Print media	5	5	
Radio programs	61	65	
Tv programs	19	20	
Relatives	10	10	
Access to electricity			
Yes	83	88	
No	11	12	
Access to refrigerator			
Yes	21	22	
No	73	78	

Source: Field Survey, 2017

Table 2. Respondents' knowledge of food safety practices

Question	Responses	Frequency	Percentage
Do you know you should wash hands after toilet, coughing, sneezing?	Yes	12	13
	No	75	80
	Don't know	7	7
Is washing hands under running water? Important to removing dirt.	Yes	16	17
	No	69	73
	Don't know	9	10
When is it important to wash hands?	Before preparing food	25	27
	Before eating	90	96
	Before feeding child	44	47
	After cleaning baby wears	23	25
	After defecating	83	88
	After eating	67	71
When do you use soap to wash your hands?	Before preparing food	9	10
	Before eating	83	88
	Before feeding child	41	44
	After cleaning baby wears	3	3
	After defecating	23	24
	After eating	18	19
Do you believe washing hands with water but without soap is good enough?	Yes	23	24
	No	62	66
	Don't Know	9	10
Why it is important to wash hands with soap?	Prevent disease	32	34
	Prevent diarrhea	94	100
	Clean hands/ Remove dirt	62	66
	Because its good hygiene	14	15
	Prevent dirt from mouth	64	68
	Prevent dirt from food	60	64
	Remove germs	12	13
	Smells good	9	10
	Feel clean	7	8
Washing is the best way to avoid food poisoning from fruits and vegetables	Yes	35	33
	No	10	11
	Don't know	49	56
Have you suffered from food borne disease in the last six months?	Yes	62	66
	No	21	22
	Don't know	11	12
Type of food borne disease suffered from	Diarrhea	4	4
	Dysentery	57	60
	Typhoid fever	0	0
	Vomiting	4	4
	Stomach upset	28	30
Kitchen area should be cleaned on a daily basis	Yes	83	88
	No	2	2
	Don't know	9	10
Which do not cause food borne diseases?	Uncovered food	18	19
	Overnight food	58	62
	Uncooked meat	16	17
Which increase exposure to food borne diseases	Half boiled eggs	7	7
	Unpasteurized milk	12	13
	Raw seafood	60	64
	Undercooked meat	67	71
	Unwashed vegs	58	62
	Raw egg	39	41
What causes food borne diseases in the household?	Bad dirty water	90	96
	Bad/ Dirty food	76	81
	Poor hygiene	25	27
	Dirty hands	51	54
	Defecating in open	25	27

Source: Field Survey, 2017

Table 3. Constraints influencing knowledge towards food safety

Variables	Strongly agree (%)	Agree (%)	Disagree (%)	Undecided (%)
Lack of public education	82	13	5	0
Lack of training	86	5	7	2
Lack of adequate infrastructure	80	11	5	4
Inadequate knowledge on food safety	80	10	10	0
Inadequate finance	74	22	4	0
Inadequate awareness	89	5	4	2

Source: Field Survey, 2017

Table 4. Relationship between the socioeconomic characteristics of the farmers and the farming household's knowledge of food safety practices

Hygienic practices	r-value	p-value	Remarks
Age	0.36	0.48	Not significant
Religion	0.18	0.67	Not significant
Household	0.21	0.42	Not significant
No of annual visits	0.16	0.53	Not significant
Educational Level	0.20*	0.04	Significant
Average annual Income	0.34*	0.02	Significant

* Correlation is significant at the 0.05 level (2-tailed).

forts at increasing the respondent's income. In essence, the respondents will be able to afford to buy foodstuffs of higher quality and are free of dirt, stones and all types of contaminants and use adequate technology that will help in preserving food so as to avoid spoilage and contamination.

Conclusion

The study therefore concludes that respondents exhibited low knowledge towards food safety. However, practices due to lack of public education on food safety practices, lack of training on food safety practices, and lack of adequate infrastructure are found to be the major constraints. Therefore, training on food safety should have a follow-up and effective monitoring component. This will guarantee that farming household knowledge is translated to food safety practices. Also, government and non-governmental organizations' participation in food safety practices should be institutionalized to promote a better food safety practice among rural house-

hold. Adequate provision of modern technology that will safety practices less cumbersome and less time-consuming should be made available for the farming household by relevant stakeholders in order to ensure food safety practices. Sensitization and enlightenment campaigns on food safety should be embarked on towards sustaining a favourable attitude to food safety by relevant regulatory authorities.

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