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Descriptive Analysis of Food Hygiene Practices among Rural Women in Enugu North Senatorial Zone, Enugu State, Nigeria

Amadi, Benedict Ezike

Department of Human Kinetics and Health Education, Faculty of Education, University of Nigeria, Nsukka, Enugu State, Nigeria. Email: benedictamadi88@gmail.com. Phone: +2348032654557

Abstract

Worldwide, food hygiene practice is a significant public health initiative that aids the elimination of food-related diseases in human population. The present study investigated food hygiene practices of rural women in Enugu North Senatorial Zone, Enugu State, Nigeria. It was a community-based descriptive survey research design conducted in a population of 22,261 rural women between November 2023 and July 2024. A sample size of 396 rural women was drawn using two-stage sampling technique. Data collection was completed through a researcher-designed instrument called “food hygiene practices questionnaire (FHPQ)” which demonstrated 0.88 internal consistencies. Data computation was completed using International Business Machine - Statistical Package for the Social Sciences (IBM-SPSS version 22). Frequencies and percentages were employed to answer research questions, while the null hypothesis was tested using chi-square statistics. Result was deemed significant at $p \text{ value} \leq 0.05$. It was revealed that 80.7% of rural women in Enugu North Senatorial Zone of Enugu State practice appropriate food hygiene. All the rural women of various family sizes (1-3 persons: 79.4%; 4-6 persons: 79.7%; and 7 persons plus: 86.5%) practice appropriate food hygiene. Statistically, no significant association was recorded on food hygiene practices of the rural women based on family size ($\chi^2 = 4.347$; $p = 0.114$). Thus, rural women in Enugu North Senatorial Zone regardless of family size practice appropriate food hygiene. The need for collaboration between Nigerian government and concerned agencies are crucial for the sustainability of food safety and security particularly in the present study location.

Keywords: rural women, descriptive analysis, food hygiene practice, family size, Nigeria

Introduction

Worldwide, food hygiene practice is a significant public health initiative that aids the elimination of food-related diseases in human population. Inappropriate practice of food hygiene is associated with numerous health problems and diseases such as cholera, typhoid, diarrhoea, poliomyelitis, yellow fever, hepatitis B, and Lassa fever, and can eventually lead to death (Mara, Lane, Scott & Trouba, 2023). The increasing cases of diseases originating from poor food hygiene practices can be more critical in rural areas where healthcare facilities, services and professional cares are limited and scantily available. According to World Health Organization (WHO, 2023) poor hygienic practices was reported to be responsible for high incidence of food-related diseases in developing countries with an estimated 280,000 diarrhoeal deaths annually. The organization further reported that high consumption of oral-faecal contaminated food holds adverse effects in human body systems. Similarly, the United Nations assert that increased cases of food-related diseases, loss of productivity and an estimated 5 per cent decline in gross domestic products in developing regions were due to poor hygienic practices (UN, 2023). Also, the African Ministers Committee on Water

(AMCOW, 2024), reported that food and water safety and security services are more critical in the African region with approximately six million Africans living without basic sanitation and hygienic services. The above reports are clear indications to establish the hygienic practices of the most vulnerable groups to food-related diseases such as the rural women.

In Nigeria particularly, available evidence indicates that sicknesses caused by poor food hygiene practices had created more health challenges in many households than imagined and thus, resulted to diverse disease conditions as well as deaths (WHO, 2023). Studies (Oke, Atinsola & Aina, 2023; Shittu, Akpan, Mafiana, Ogunshola & Sodipe, 2024) had shown that the widespread cases of diarrhoea and cholera due to poor food hygiene practices abound in Nigeria. In Enugu State and her sub-settings such as Enugu North Senatorial Zone, it was revealed that food hygiene practice is in a deplorable state with obvious health-related challenges (Agu, Nebo, & Abonyi, 2024). The reports by the United Nations-UN (2023); as well as Munya and Alabi (2023), summarized that poor food hygiene practices are responsible for the increasing cases of food-related morbidity and mortality in rural areas, including the zone under study. However, it is still unknown if family size of the various households play significant role in the status of food hygiene practice of the rural women in the zone. It is against this background that this study was conducted, with greater interest on food hygiene practices of rural women with significant consideration on family size.

Contextually, food hygiene is the way involved in preparing, preserving and storing food and food items (Parks, 2024). This covers washing of food materials before cooking, such as vegetables, certain cereals and meat; proper cleaning of grinding stone, cooking pots, pestle and mortar, and covering of food adequately so that rodents do not perch on the food. Deaths arisen from food-borne diseases such as Lassa fever and gastroenteritis are reported to be very high in rural areas (Nigeria Centre for Disease Control - NCDC, 2024). It is on this premises that the present study was initiated with the view of investigating food hygiene practices of rural women in Enugu North Senatorial Zone, Enugu State, Nigeria. The outcome of this study is expected to provide a viable framework for designing sound health interventions and programme aimed at improving and sustaining food hygiene practices of rural dwellers in the population, particularly in Enugu North Senatorial Zone, Nigeria.

Research Questions

The following research questions and null hypothesis guided the study:

1. What is the proportion of rural women who practice appropriate food hygiene in Enugu North Senatorial Zone?
2. What is the proportion of rural women who practice appropriate food hygiene in Enugu North Senatorial Zone based on family size?

Hypothesis

1. There is no significant difference in the food hygiene practices of rural women in Enugu North Senatorial Zone based on family size

Materials and Methods

It was a community-based descriptive survey research design conducted in a population of 22,261 rural women between November 2023 and July 2024 (National Demographic and Health Survey-NDHS, 2021). The design was chosen due to the fact that it granted the researcher the opportunity to analyze statistical data as generated from definite population of rural women at a particular time, and place as suggested by other experts (Abdulaq, Umaru & Isaa 2021; Gebraeli et al., 2022; Yuri et al., 2023). Enugu North Senatorial Zone was the area of the study which covers six LGAs including Uzo-Uwani LGAs, Nsukka, Igbo-Eze North, Udenu, Igbo-Eze South, and Igbo-Etiti. A sample size of 396 rural women was drawn using

two-stage sampling technique. In the first stage, simple random sampling procedure was adopted to select three rural communities from each of the six LGAs in the zone. This yielded a total of 18 rural communities. The choice of simple random sampling technique was to ensure that every community in the six LGAs stands a chance of being used for the study. The second stage involved using convenient sampling technique to select 22 rural women from each of the sampled communities in the first stage. This process yielded a total of 396 rural women who were used in the study. This was in accordance with the recommendation of experts regarding the use of standard sample distribution Table in a survey with definite population figure (Cohen, Manion & Morrison, 2011). In addition to residing in the rural communities in the Zone, declaration of interest and signing the informed consent form were the basis for eligibility. Rural women who did not meet the stipulated eligibility criteria were excluded from the survey.

Data collection was completed through a researcher-designed instrument called “food hygiene practices questionnaire (FHPQ)” which demonstrated 0.88 internal consistencies. The questionnaire was designed after extensive literature review and also in accordance with standardized tools as used by other experts in their respective studies with great similarity (Godson & Moriby, 2021; Lybia, Peterson & Spencer, 2021; Usazie & Oribase, 2022). The FHPQ was constructively validated through the services of five public health education experts from the University of Nigeria Nsukka. The FHPQ which can take maximum of ten minutes to respond was compiled in simple English language and has two sections “A & B”. The section A addressed the family size as demographic variable while section B contained information addressing food hygiene practices of the rural women with response options of yes or no. With the help of 3 research assistants (health educators to be precise) who received twenty minutes briefing on the modalities for the administration and retrieval of the questionnaire, the copies of the questionnaire were distributed to the women in their various communities. Those who could not read nor write English language were given maximum attention and the needed interpretation by the researcher and the assistants. The completed copies of the questionnaire were collected on the spot with a return rate of 98.7 per cent. The research assistants and the rural women were not paid for participating in the study and thus, all forms of bias were completely eliminated.

Data computation was completed using International Business Machine - Statistical Package for the Social Sciences (IBM-SPSS version 22) (IBM, 2013). Frequencies and percentages were employed to answer research questions, while the null hypothesis was tested using chi-square statistics. Result was deemed significant at p value ≤ 0.05 .

Results

Table 1
Demographic profile of the respondents (n = 391)

<i>S/n</i>	<i>Variable</i>	<i>Indices</i>	<i>Frequency</i>	<i>Percentage</i>
1	Family size	1-3 persons	89	23
		4-6 persons	239	61
		7 persons plus	63	16

Table 2

Proportion of Rural Women Who Practice Appropriate Food Hygiene in Enugu North Senatorial Zone (n=391)

	Yes	No
		105

S/N	Items	f	%	f
	%			
1.	Ensure proper cleaning of grinding stone, cooking pots, pestle and mortar before and after use.	379	96.9	12
	3.1			
2.	Ensure proper washing of food items before cooking, such as vegetables and meat with salt and clean water.	311	79.5	80
	20.5			
3.	Wash basins, cups, plates and pots used for serving foods at home.	299	76.5	19
	23.5			
4.	Throw away contaminated or decayed food stuff and unpreserved foods items.	293	74.9	98
	25.1			
5.	Warm your already cooked and stored food daily before eating	323	82.6	68
	7.4			
6.	Use storage containers for already prepared food	289	73.9	102
	26.1			
	Overall Percentage Score		80.7	
	19.3			

Note: f = frequency; % = percentage; n = sample size

Data in Table 2 showed that overall, 80.7% of rural women practice appropriate food hygiene in Enugu North Senatorial Zone. The Table further revealed that 96.9% of the rural women ensure proper cleaning of grinding stone, cooking pots, pestle and mortar before and after use while only 3.1% do not.

Table 3

Proportion of Rural Women Who Practice Appropriate Food Hygiene in Enugu North Senatorial Zone Based on Family Size (n=391).

S/N	Items	1-3 prns(89)		4-6 prns(239)		7prns + (63)
		f	%	f	%	f
	%					
1.	Ensure proper cleaning of grinding stone, cooking pots, pestle and mortar before and after use.	86	96.6	230	96.2	63
	100.0					
2.	Ensure proper washing of food items before cooking, such as vegetables and meat with salt and clean water.	70	78.7	184	77.0	57
	90.5					
3.	Wash basins, cups, plates and pots used for serving foods at home.	69	77.5	176	73.6	54
	85.7					
4.	Throw away contaminated or decayed food stuff and unpreserved foods items.	65	73.0	178	74.5	50
	79.4					
5.	Warm your already cooked and stored food daily before eating.	71	79.8	194	81.2	58
	92.1					
6.	Use storage containers for already prepared food	63	70.8	181	75.7	45
	71.4					
	Overall Percentage Score		79.4		79.7	
	86.5					

Note: prns = persons; f = frequency; % = per cent, n = sample size; () = bracket sign

Data in Table 3 showed that overall, majority of rural women of various family sizes (1-3 persons: 79.4%; 4-6 persons: 79.7%; and 7 persons plus: 86.5%) practice appropriate food hygiene in Enugu North Senatorial Zone.

Table 4.

Independent Chi Square Analysis Testing No Significant Difference in Food Hygiene Practices of Rural Women in Enugu North Senatorial Zone Based on Family Size (n=391).

Food Hygiene	Variable (Family Size)	Yes O(E)	No O(E)	X ²	df	P value
Dec						
Food	1-3 persons	71(74.4)	18(14.6)	4.347	2	0.114
NS						
Hygiene	4-6 persons	198(199.9)	41(39.1)			
Practice	>7 persons	58(52.7)	5(10.3)			

Note: NS = Not Significant; S = Significant; Dec. = decision; df = degree of freedom

Table 4 showed the calculated independent chi-square value and the corresponding *p* value of food hygiene practices of rural women in Enugu North Senatorial Zone based on family size ($X^2 = 4.347$; $p = 0.114$) which is greater than 0.05 level of significance at 2 and 391 degrees of freedom. The null hypothesis of no significant difference in the food hygiene practices of rural women in Enugu North Senatorial Zone based on family size was, therefore, not rejected. This implies that food hygiene practices of rural women did not differ significantly based on family size.

Discussion

This community-based survey has shown that approximately eighty per cent of rural women practice appropriate food hygiene in Enugu North Senatorial Zone, Enugu State. The finding is quite surprising especially when location of the study area is prioritized. This is because there is high assumption and speculation that rural dwellers are known for very poor hygienic practices which are made manifest on their patterns of food preparation, storage, preservation and processing. This finding is accordance with Sallam and Dabous (2022) who reported that married women had desirable hygienic practices in rural communities of Alexandria. In contrast, this finding can serve as a counter proof to the speculation that high incidence of food-related diseases in the rural areas are due to increased consumption of oral-faecal contaminated food. It is possible that other unknown factors might be responsible for the increase in food-related diseases in the rural communities other than their hygienic practices. The finding also disagrees with the assertion that increased cases of food-related diseases in rural communities were due to poor food hygiene practices of the rural dwellers (United Nations –UN, 2023).

Also, the finding that rural women of various family sizes (1-3 persons, 4-6 persons, and 7 persons plus) practice appropriate food hygiene in Enugu North Senatorial Zone, Enugu State was not surprising rather expected. In addition, there was evidence of no significant association in the food hygiene practices of rural women in Enugu North Senatorial Zone based on family size. The above findings are quite commendable and encouraging. The implications are crucial as they reflect the zeal of the rural women in maintaining high level of food hygiene practices regardless of the number of persons in each household. The findings could be linked to the fact that a good household enjoys good standard of living if the environment and the level of hygiene is commendable. Also, the findings could be attributed to cultural norms in the study locality which places high values to good and desirable hygienic practices among the residents. The encouraging findings draw some similarities with the findings of other researchers such as Usazie and Oribase (2022), who

carried out a study on the level of hygiene practices among pregnant women in Asaba of Delta State, Nigeria and found that the respondents with large family sizes reported very high level of food hygiene practices when compared to their counterparts with small family sizes. Also, in Lybia, Peterson and Spencer (2021) found that the food hygiene practices of women of reproductive age with smaller family sizes were higher when compared to their counterparts with larger family sizes. Similarly, a descriptive study in Kenya by Godson and Moriby (2021) focusing on the level of food hygiene practices of women of childbearing ages (WCBAs) in Urban Cities revealed that the respondents with larger family sizes indicated desirable food hygiene practices when compared to their counterparts with small family sizes. The present survey recorded some strengths and limitations. The strength of the survey primarily relied on the adoption of appropriate research design, use of definite population and the choice of research questionnaire. However, the major weakness is shown on the use of only rural women who are residing in the sampled rural communities. This population cannot serve a true representation of the rural women in generalizing the status of food hygiene practices. Thus, the need for a similar survey to encompass all the rural women becomes expedient. A researcher-structured questionnaire was the only instrument used for data collection and thus limiting the survey to quantitative data collection and analysis only. A similarly survey adopting qualitative approaches such as interview guide and focus group discussion to enable the participants to share their views and experiences regarding the study phenomenon is paramount.

Conclusion

Practices of food hygiene among rural women in Enugu North Senatorial Zone were appropriate. Family size of the rural women is not a significant determinant of food hygiene practices. However, there is the need for collaboration between the Nigerian government and concerned agencies are crucial for the sustainability of food safety and security particularly in the present study location.

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