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EVALUATION OF KNOWLEDGE, ATTITUDS AND PRACTICES OF SUN-DRIED MEAT CONSUMPTION AMONGST CONSUMERS IN PORT HARCOURT METROPOLIS, RIVERS STATE, NIGERIA

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Abstract

Dried meat contains nutrients that encourage the growth of microorganisms. The objective of this survey was to ascertain the socio-economic characteristics of the dried meat consumers and the knowledge, attitude and practices of dried meat consumers in Port Harcourt Metropolis. A descriptive survey design was adopted for this study. A total of 150 dried meat consumers were purposively selected and interviewed. Data were collected using structured questionnaire and analysed using descriptive statistics like mean, frequencies and percentages. The result on demographic characteristics of the respondents revealed that 29.33% of respondents were within the ages of 31 – 45years, with 52.67% being females and 50.00% being widows. Majority (93.34%) of the respondents had formal education. About 28.00% of the respondents earned annual income of ₦31,000 to ₦60,000. Besides, 31.33% were civil servants with a small percentage (7.33%) of the respondents were unemployed. The study showed a high percentage level of knowledge, attitude and good practices towards dried meat consumption, although the study showed that a small proportion followed good hygiene practices. Higher levels of education as recorded in this study, is likely to equip individuals with better understanding and awareness of food safety practices, thus choices towards dried meat consumption. This study recommends that services of food hygiene and environmental health officers should be employed to promote or increase awareness of dried meat hygiene through enforcement of hygienic methods of preparation and consumption.

Keywords: Knowledge, Attitude, Practices, Consumers, Dried Meat

1.0 Introduction

Meat, according to the Food and Agriculture Organisation (FAO) (2011), is defined as animal parts that are safe for human consumption. It is mainly made up of about 75% water, 22.3% protein, and 5% fats, along with various proteins carbohydrates. It provides approximately 27.7 kilocalories of energy and is recognised as food for humans (FAO, 2007). According to recent statistics from global surveillance, the frequency of foodborne illnesses is rising in developing nations, and these illnesses are mostly associated with intake of raw or undercooked meat and dairy products (Katayama *et al*., 2013; Samiullah, 2013). Mahangaiko *et al*. (2015) stated that the lack of thorough surveillance of contaminant bacteria in different meats in these areas highlights the necessity of ongoing control initiatives and research to maintain the highest standards of meat safety and cleanliness for the general public's health. Furthermore, extensive urban food distribution chains with several intermediaries and unclean transit facilities make it difficult to implement effective controls, exposing meat to unnecessary contamination (Olugasa *et al*., 2000).

Analyses of dried meat markets have shown that many of them are operating in unhygienic circumstances and lack basic amenities (The Nation, 2017). Dried meat products lose quality and deteriorate over time due to a variety of factors, including poor cutting, handling, shipping, by-product, and additive hygiene. When final goods are made from unhygienic raw materials, they often have an unusual flavour, an ugly colour, and a short shelf life because of high microbial loads. Furthermore, microbes that cause food poisoning may exist, posing a serious risk to public health (James *et al*., 2005). Furthermore, considering the long urban meat distribution chains with several middlemen, the distribution and transportation facilities are often inadequate and

unhygienic which complicates regulations (Olugasa *et al*., 2000). According to the News Agency of Nigeria (NAN, 2017), the Nigerian Federal Government has commenced the task of enacting a 'Meat Hygienic Act' to govern the functioning of abattoirs and slaughter slabs throughout the nation. In order to ensure food safety, Fasanmi *et al*. (2018) emphasised how important it is to prevent meat contamination at slaughterhouses. Global attention has been drawn to the quality of food and growing consumer awareness, which has redirected research efforts towards food safety. Practical hygiene procedures are essential to guaranteeing the safety and wholesomeness of meat in abattoir operations (Kingsley *et al.,* 2013; Enem, 2017; Fasanmi *et al.,* 2018).

In light of the paucity of research in Port Harcourt, Rivers State, on this topic, it is imperative to highlight consumer knowledge, attitudes, and behaviours around the eating of dried meat in the area. Consumers may be exposed to disease transmission, meat contamination, and environmental concerns as a result of unsafe working conditions at slaughterhouses and processing facilities. Thus, the purpose of this study was to evaluate the attitudes, behaviours, and knowledge of consumers of dried meat in Port Harcourt, Rivers State, Nigeria. The objective was to increase the efficacy of preventive measures to lower risks to the environment, the workplace, and diseases resulting from environmental contamination, as well as to promote the consumption of hygienic dried meat.

2.0 Mathodology

2.1 Research Design

A cross sectional survey was used for this study in order to assess the knowledge, attitude and practice of dried meat consumption amongst consumers in Port Harcourt Metropolis Rivers State.

2.2 The Study Area

The study was carried out in Port Harcourt Metropolis, Rivers State, Nigeria. Port Harcourt is a Local Government Area of Rivers State in Southern Nigeria. It is traditionally inhabited by the Ijaw and Ikwerre tribe. Its administrative seat is located in Port-Harcourt and it has two major ethnic groups; The Ikwerre and Obulom (Abuloma). Port-Harcourt lies between Latitudes $4^0$46'40"N and Logitudes 7^0.1'20"E. Port Harcourt Metropolis included in the Greater Port Harcourt region and it is situated 52 kilometres Southeast of Ahoada and about 40 kilometres Northwest of Bori. It is bounded to the South by Okrika, to the East by Eleme, to the North by Obio-Akpor and to the West by Degema. It has a total size of 109 square kilometres. Port Harcourt is one of Nigeria's leading industrial centres, known for boatbuilding, oil production and fishing industries and has fish-freezing facilities and it has a population of about 638,360 people (www.britannica.com/place/ PortHarcourt, 2022).

2.3 The Population of the study

The population for this study comprises 150 dried meat consumers in Port Harcourt Metropolis of Rivers State.

2.4 Data Collection Techniques

The data for this study were obtained majorly from primary sources through the use of structured questionnaire to elicit responses from the respondents. The questionnaire was divided into sections based on the specific objectives and administered to dried meat consumers in the study area.

2.5 Data Analysis Techniques

Descriptive statistics was employed in the data analysis for the study. Descriptive statistics like frequency and percentage were used for this study.

3.0 Results and Discussion

3.1 Demographic Characteristics of Respondents

Table 1 presents the demographic characteristics of the respondents. The age distribution reveals that the majority (29.33%) of the respondents fell within the age range of 31 to 45 years and this implies that majority of the respondents were within their active and economic age. The gender distribution indicates that 47.33% were males and majority (52.67%) were females, this shows that more females were involved in dried meat consumption. In terms of marital status, widows comprised the largest proportion (50.00%), followed by married individuals (19.33%). Education-wise, of the respondents (30.67%) have completed tertiary education, while primary and secondary education levels accounted for 21.33% and 24.67%, with 6.67% not having formal education, respectively. This is an indication that majority of the consumers have formal education and this could help them to prevent contamination. Regarding household size, families consisting of three to six members make up around 53.00% of the sample. Incomes were predominantly (47.33%) distributed in the range of ₦31,000 to ₦90,000. Occupation-wise, civil servants (31.33%) and traders (28.00%) constituted the respondents, respectively. This implies that majority of dried meat consumers were civil servants, with a small percentage (7.33%) of respondents being unemployed.

Table 1: Demographic Characteristics of Respondents (n=150)

Variables	Frequency	Percentage (%)
Age (years)		
≤ 25	15	10.00
26 – 30	36	24.00
31 – 45	44	29.33
46 – 55	26	17.33
56 – 65	20	13.33
≥ 66	9	6.00
Sex		
Male	71	47.33
Female	79	52.67
Marital Status		
Single	12	8.00
Married	29	19.33
Widow	75	50.00
Divorced	10	6.67
Widower	24	16.67
Educational Level		
Primary	32	21.33
Secondary	37	24.67
Tertiary	46	30.67
Adult education	25	16.67
Non formal Education	10	6.67
Household Size		
1– 2	29	19.33
3 – 4	35	23.33
5 – 6	44	29.33
7 –8	23	15.33
9 – 10	9	6.00
≥ 11	10	6.67
Monthly Income (₦)		
≤ 30,000	31	20.67
31,000 - 60,000	42	28.00
61,000 - 90,000	27	18.00
91,000 - 120,000	29	19.33
≥ 121,000	21	14.00
Occupation		
Traders	42	28.00
Civil Service	47	31.33
Skill Labour	23	15.33
Unemployed	11	7.33
Schooling	12	8.00
Farming	15	10.00

3.2 Evaluation of the Knowledge of Dried meat Consumption

Table 2 shows the consumers' knowledge of dried meat in the Port Harcourt region. Majority (73.33%) of the respondents acknowledged the versatility of dried meat. They recognized its potential not only as a snack (36.67%) but also as an ingredient that can enhance the flavour and nutrition of various main dishes (32.67%). On the safety of consuming dried meat, approximately 58.67% of the respondents agreed (34.67%) or strongly agreed (24.00%) that dried meat is considered safe. Regarding the practice of refrigerating dried meat to mitigate contamination risks, opinions were evenly spread. Table 2 further shows 32.00% agreed while 30.00% strongly agreed that storing dried meat in the fridge can help reduce the chances of contamination. As shown in figure 1, considering the popularity of dried meat as a market commodity 30.00% agreed, while 28.0% strongly agree (28.00%) that it is a well-known product. Similarly, figure 2 described the knowledge of the respondents on the nutritional benefits of dried meat in comparison to other types of meat that majority (55.33%) of respondents (55.33%) learned towards the view that dried meat offers similar nutritional advantages.

Table 2: Consumers' knowledge of dried meat in Port Harcourt

Variable	Frequency	Percentage (%)
Dried meat is regarded as a safe food item		
Strongly agree	36	24.00
Agree	52	34.67
Uncertain	26	17.33
Disagree	25	16.67
Strongly disagree	11	7.33
Dried meat can be used as snacks or adding it to a main dish		
Strongly agree	55	36.67
Agree	49	32.67
Uncertain	20	13.33
Disagree	15	10.00
Strongly disagree	11	7.33
Keeping dried meat in the fridge helps to reduce contamination		
Strongly agree	48	32.00
Agree	45	30.00
Uncertain	21	14.00
Disagree	21	14.00
Strongly disagree	15	10.00

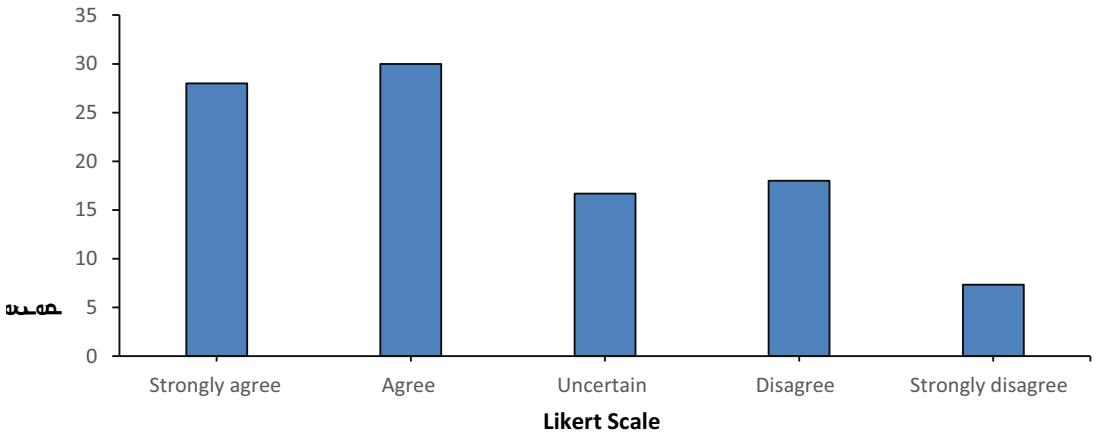


Figure 1: Dried meat is a popular type of meat sold in the market

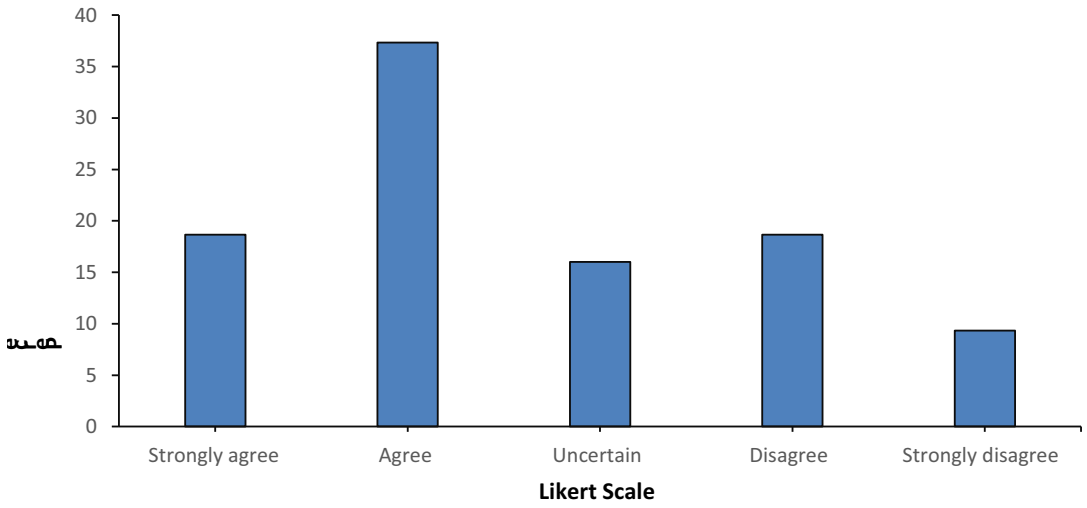


Figure 2: Dried meat has same nutritional benefits as every other types of meat

3.3 Evaluation of the Attitudes of Dried meat Consumers

Table 3 shows that 32% strongly agreed while 36% agreed that dried meat is tasty and has a pleasant flavour. However, 11.33% and 9.33%, respectively also had uncertainties or disagreed. When comparing dried meat to cooked meat, 28.67% strongly agreed that dried meat was more preferable, while 17.33% agreed. However, there was a substantial level of uncertainty (20.67%) and disagreement (22.67%), indicating a diversity of opinions. Local preference was evident in the belief that locally prepared dried meat was superior to imported meat, with 31.33% strongly agreed, while and 25.33% agreed. Nevertheless, 18% disagreed, showing a degree of disagreement with this notion. Additionally, 34% strongly agreed that dried meat can be consumed without further processing. However, 26% expressed uncertainty or disagreement. Safety perceptions were relatively positive, as 45.33% strongly agreed while 34% agreed that proper handling ensures dried meat's safety. Only a small percentage (6.67%) disagreed with this statement.

Similarly, figure 3 shows the willingness to pay for better quality dried meat. It was observed that 28.67% strongly agreed while 38% agreed that they could pay an average price for improved quality. Conversely, 11.33% strongly disagreed, while 9.33% disagreed, suggesting some resistance to higher costs. Meanwhile, figure 4 showed that in terms of recommendation, 28% strongly agreed and 34.67% agreed that they would recommend dried meat to others. However, 19.33% were uncertain, while 8% disagreed or strongly disagreed, revealing a mix of advocacy levels.

Table 3: Consumers Attitudes towards Dried Meat Consumption

Variables	Frequency	Percentage (%)
Dried meat is tasty and has a pleasant flavour		
Strongly agree	48	32.00
Agree	54	36.00
Uncertain	17	11.33
Disagree	14	9.33
Strongly disagree	17	11.33
Dried meat is more preferable than cooked meat		
Strongly agree	43	28.67
Agree	26	17.33
Uncertain	31	20.67
Disagree	34	22.67
Strongly disagree	16	10.67
Locally prepared dried meat is better than imported meat		
Strongly agree	47	31.33
Agree	38	25.33
Uncertain	22	14.67
Disagree	27	18.00
Strongly disagree	16	10.67
Dried meat can be eaten without further preparation or processing		
Strongly agree	51	34.00
Agree	42	28.00
Uncertain	18	12.00
Disagree	21	14.00
Strongly disagree	18	12.00
Proper handling of dried meat ensures it's safety		
Strongly agree	68	45.33
Agree	51	34.00
Uncertain	11	7.33
Disagree	10	6.67
Strongly disagree	10	6.67

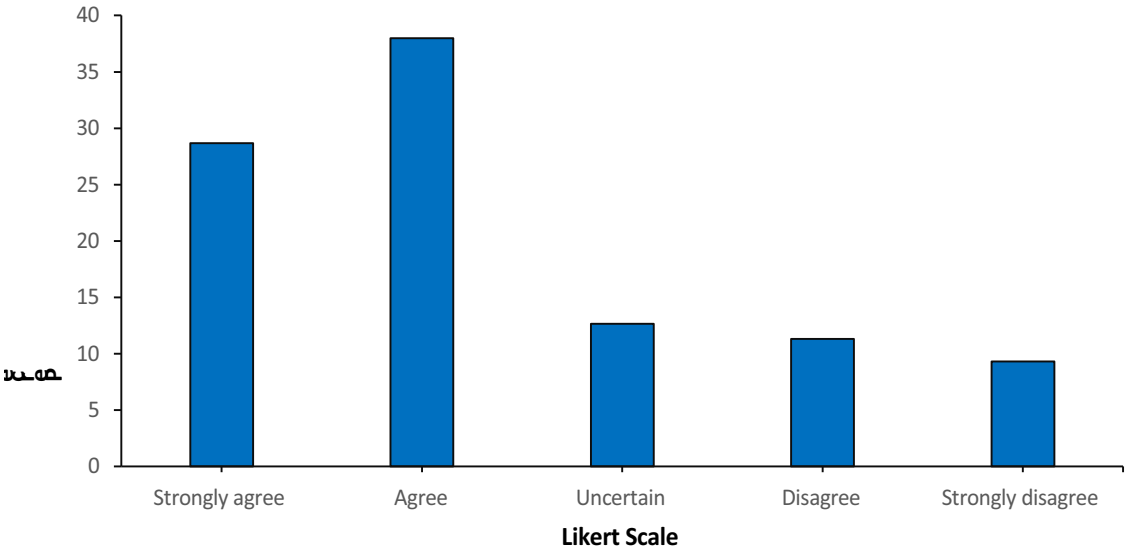


Figure 3: Average price can be paid for dried of better quality

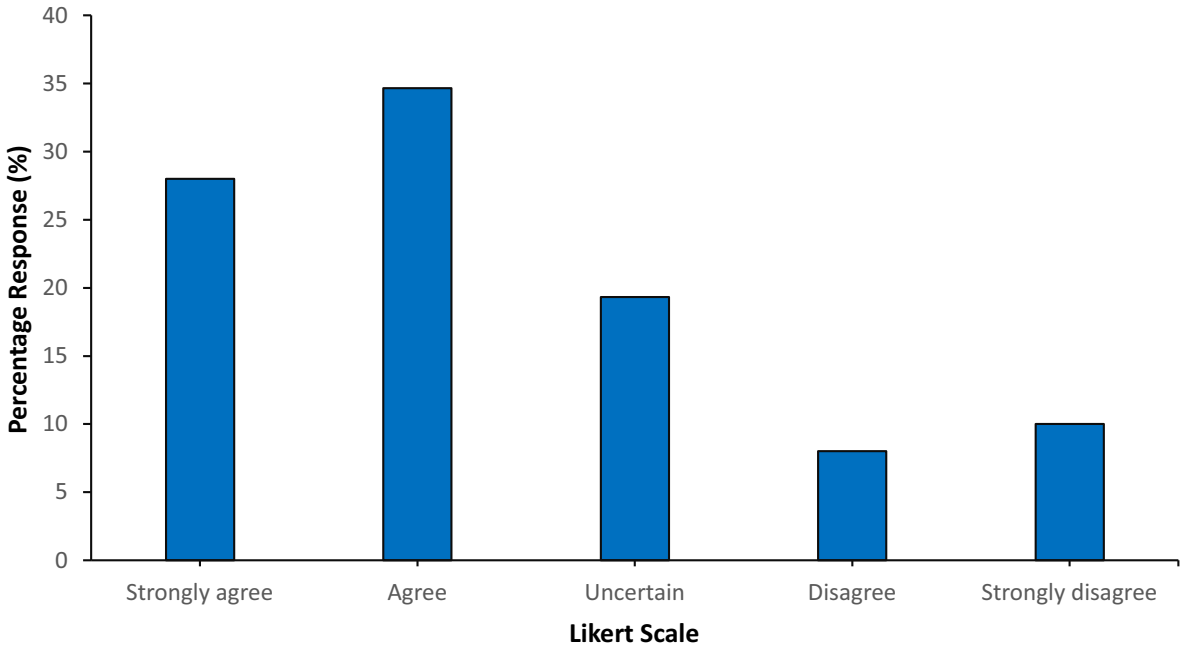


Figure 4: I would recommend dried meat to others

3.4 Evaluation of the Practices of Dried meat Consumption

Table 4 shows the Consumers' preferred practices towards Dried Meat Consumption. It reveals that, 18% of the respondents indicated consuming dried meat always, followed by 14.67% often, 33.33% sometimes, 23.33% rarely, and 10.67% never. On the willingness to explore new flavours or varieties of dried meat, 35.33% of the respondents indicated that they would always want to try new options, Furthermore, 22.67% indicated sometimes, with 11.33% as rarely and 17.33% never expressed interest in new varieties. On the issue of proper storage, 56.67% considered always covering their dried meat to prevent pests and contaminants. Often responses accounted for 17.33%, while 8.67% sometimes covered them. Meanwhile, 8% rarely and 9.33% never took such precautions. Figure 5 shows the quality consideration when purchasing dried meat. Percentage response from respondents showed that 30.67% always consider quality, While 23.33% often do. Similarly, figure 6 shows the question regarding health outcomes after consuming dried meat. It was found that 9.33% reported experiencing negative health effects from dried meat consumption always or often. The majority (42.67%) indicated never experiencing negative health outcomes.

Table 4: Consumerspreferred practices towards Dried Meat Consumption

Variable	Response (n)	Percentage (%)
How often do you consume dried meat in a month?		
Always	27	18.00
Often	22	14.67
Sometimes	50	33.33
Rarely	35	23.33
Never	16	10.67
Would you try new flavour or variety of dried meat?		
Always	53	35.33
Often	20	13.33
Sometimes	34	22.67
Rarely	17	11.33
Never	26	17.33
Do you cover dried meatproperly in order to prevent pests and other contaminants?		
Always	85	56.67
Often	26	17.33
Sometimes	13	8.67
Rarely	12	8.00
Never	14	9.33

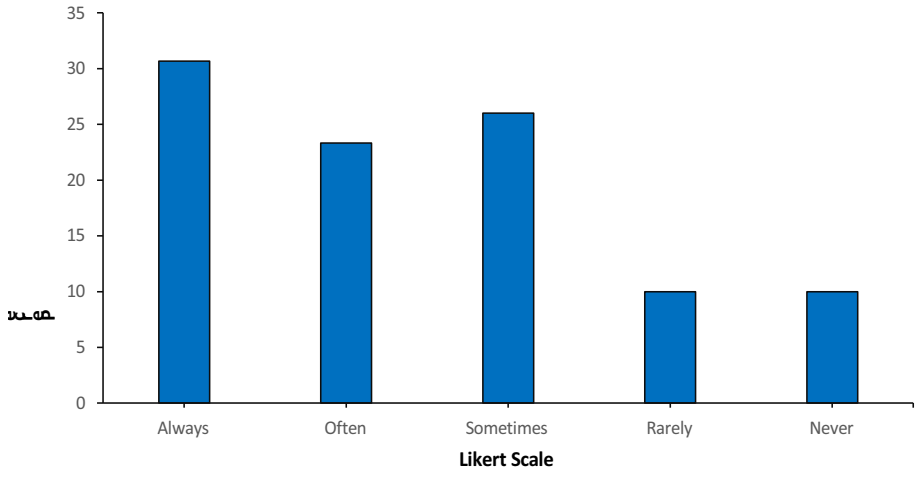


Figure 5: Do you consider the quality of dried meat when buying?

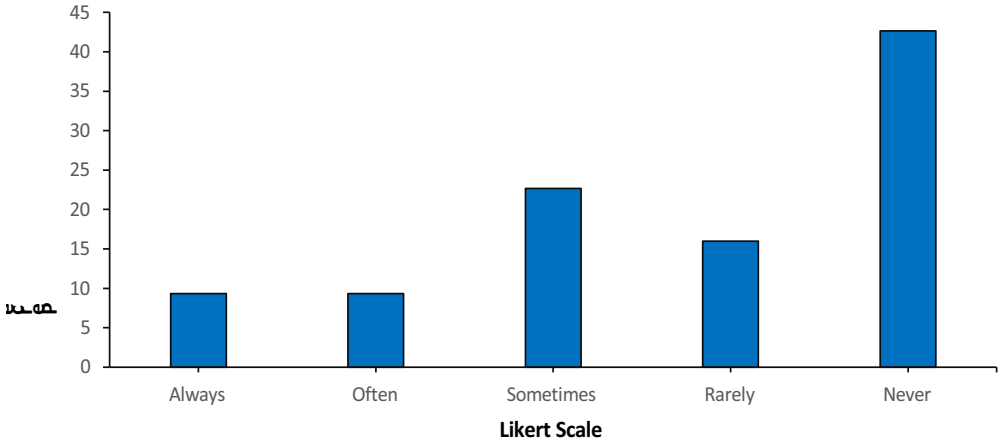


Figure 6: Have you experienced any negative health after consuming dried meat?

4.0 Discussion

The socio-economic characteristics of respondents provide insightful data regarding their demographics, economic status, and behaviors regarding dried meat consumption. In this study, the majority of respondents fell within the age range of 31 to 45 years, comprising 29.33% of the total. This age group is often associated with individuals who are actively engaged in household decision-making, including food choices and consumption patterns. Regarding gender representation, 47.33% of the respondents identified as male, while 52.67% identified as female. Interestingly, a higher proportion of females are involved in dried meat consumption, suggesting a significant preference for dried meat as a fast food or snack among women in the study area. This aligns with findings from previous research conducted in Taiwan (Sun *et al*., 2012) and China (Ma *et al*., 2019), which indicated that gender plays a role in food consumption practices, with females often exhibiting higher levels of knowledge, attitude, and practices related to food safety. Educational attainment emerged as another important factor influencing the

knowledge, attitude, and practices of dried meat consumers. Contrary to findings from a study conducted in Ghana by G. Annor and E.A. Baiden (2011), which reported no significant influence of educational level on food consumers' behavior, this study suggests a positive correlation between educational level and food safety knowledge. Higher levels of education likely equip individuals with better understanding and awareness of food safety practices, thus influencing their attitudes and behaviors towards dried meat consumption. Income level also emerged as a significant determinant of food safety knowledge and attitude among respondents. A majority (28.00%) of respondents reported a monthly income ranging from 31,000 to 60,000 naira, indicating a moderate level of economic stability among the surveyed population. Previous studies have highlighted the role of income in shaping individuals' access to and adoption of food safety practices (Choudhury *et al*., 2011; Isoni Auad *et al*., 2019). Higher income levels may afford individuals the resources necessary to prioritize food safety and hygiene in their consumption habits.

The study findings indicate a generally good level of knowledge regarding dried meat hygiene among respondents. This may be attributed to the increased accessibility of modern information and communication channels such as mass media and social media platforms, which serve to disseminate information on hygiene practices to a wider audience. The availability of such channels likely contributes to filling the knowledge gap and promoting awareness of proper hygiene practices among consumers. These findings are consistent with similar studies conducted in other regions. For instance, Pokhrel *et al*. (2015) reported a high level of knowledge of food hygiene among respondents in their study, while Iwu *et al*. (2017) found that knowledge, attitude, and practices regarding food hygiene were positively associated with the level of food

hygienic practices among vendors and consumers in their study area. Such studies underscore the importance of education, awareness campaigns, and training programs in promoting food safety practices and reducing the risk of foodborne illnesses. The socio-economic characteristics of respondents play a crucial role in shaping their knowledge, attitude, and practices regarding dried meat consumption and food safety in general. Understanding these factors can inform targeted interventions and educational campaigns aimed at promoting healthier food habits and reducing the incidence of foodborne illnesses in communities. Further research may explore additional variables and factors influencing food consumption patterns and behaviors to develop more comprehensive strategies for promoting food safety and hygiene awareness.

5.0 Conclusion and Recommendations

5.1 Conclusion

This study's data and findings led to the conclusion that in contrast to previous studies, consumers of dried meat exhibited positive knowledge, attitude and practices. Unlike other studies or research works, this study observed that good knowledge and attitude were reflected in the respondents' actual practices in the study area.

5.1 Recommendations

Based on the findings of this research, the following recommendations were made:

1. Dried meat marketers should employ the services of hygiene officers to train the marketer on proper hygiene practices.
2. The knowledge of the dried meat consumers was good, a small proportion still lack hygiene knowledge therefore, environmental health professionals should make concerted effort to promote or increase awareness of dried meat through seminars, trainings, the mass media and social media.

3. Federal, State and Local Governments should put in place assessment parameters for dried meat markets.

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