



The Relevance of Information of Shellfish Quality on Consumers' Purchase Decision in Lagos Metropolis, Nigeria

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ABSTRACT

This study assessed the information sources and cues of food quality at customer interest before the purchase of shellfish in Lagos metropolis, Nigeria. Shellfish is a broad description for aquatic invertebrate possessing a hard outer covering which include the molluscs (oysters, clams and snails) and the crustaceans (shrimps, prawns, lobsters and crabs). A total of 240 questionnaires were distributed between October and December 2019, while 218 were retrieved and 201 were analysed using descriptive statistics. The majority of the respondents were females (77.61%) with age range of 18 - 30 years. Among the sampled population, 45.27% had secondary education, 67.16% married while over 25% earned a monthly income of less than ₦20,000. Shrimp (28.36%) was the major type of shellfish consumed, although 43.78% consumed shellfish occasionally while buying majorly from fish market (58.71%). The main source of information on shellfish quality was fish mongers (39.30%) and nutritional composition (32.34%) was the most often used information cues for purchase decision. Awareness on information of shellfish quality in the study area is on the high side although consumption can still be regarded to be low, considering the percentage that purchases shellfish occasionally.

Keywords: Shellfish; Nutritional Quality, Nutritional Information, Consumption, Nigeria.

INTRODUCTION

Shellfish, a broad description for aquatic invertebrate possessing a hard outer covering includes Molluscs (Oysters, Clams and Snails) and the Crustaceans (Shrimps, Prawns, Lobsters and Cabs) (Yeo *et al.*, 2008; Moruf and Adekoya, 2018). The consumption of seafood and particularly shellfish is beneficial to human health. Edible crustaceans constitute one of the major sources of nutritious food for human consumption, providing an important amount of dietary protein and lipid diet in many countries. Despite recommendations by dieticians, shellfish consumption is low in several African countries. One of the many relevant factors that influence shellfish consumption is the quality of the meats (Afolayan *et al.*, 2020).

Shellfish quality can be defined by several products related and individual factors. Reported commonly used product related factors are: product safety, the nutritional content, freshness and the physical attributes of the fish product (Grunert *et al.*, 2012). According to Grunert *et al.* (2012), quality is a factor strongly related to the raw material itself but also individual factors such as the perceived image and trust in the end product, which influences food choice in general. Therefore, quality of the raw material and its perception is one of the most

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important factors that influence consumers' choice for shellfish products. Shellfish quality is also strongly linked to visual cues such as the muscle structure, which may lead consumers to the conclusion of choice or rejection of a product that allows the evaluation of this information.

Information on food nutrition is widely available from a variety of different sources, ranging from pervasive mass media, through economic operators (farmers, manufacturers, and retailers), public authorities, consumer organisations, scientists, to dieticians (Pieniak *et al.*, 2007). Consumers are constantly exposed to a myriad of messages that are often contradictory, especially with respect to food quality and safety issues. There is evidence that the public uses different information sources in diverse situations, depending on the product choice faced, the type of information being communicated and the type of potential issue or hazard in question (Jungermann *et al.*, 1996). Verbeke (2005) pointed out that probably the most important information source regarding food quality and safety in general is the mass media, with advertising being the most widely used tool.

Consumers frequently have questions about the amount of specific nutrients in various kinds of shellfish. Because shellfish is commonly sold from bulk displays in retail seafood markets, nutritional information needed on a package label sometimes not available. Some retailers provide nutrition information that can be used to compare one type of shellfish to another as observed on field. Shellfish provides negligible amounts of trans fat, dietary fiber and sugar. Shellfish is a high-protein food that is low in calories, total fat, and saturated fat (Lawal-Are *et al.*, 2018a; 2018b; Moruf and Lawal-Are, 2019). High in vitamins and minerals, shellfish has been shown to have numerous health benefits. For example, recent studies have shown that eating shellfish can decrease the risk of heart attack, stroke, obesity, and hypertension. Shellfish also provides essential nutrients for developing infants and children (Moruf and Akinjogunla, 2018; Moruf *et al.*, 2019). The nutrient composition for the 5 most frequently consumed shellfish products was presented in Table 1.

Table 1: Shellfish Nutritional Facts

Nutrients	Shellfish				
	Blue Crab	Clam	Lobster	Oysters	Shrimp
Calories	100	110	80	100	100
Calories from fat	10	15	0	35	10
Total Fat (g)	1	1.5	0.5	4	1.5
Saturated Fat (g)	0	0	0	1	0
Cholesterol (mg)	95	80	60	80	170
Total Carbohydrate(g)	0	6	1	6	0
Protein (g)	20	17	17	10	21
Vitamin A (%DV)	0	10	2	0	4
Vitamin C (%DV)	4	0	0	6	4
Calcium(%DV)	10	8	6	6	6
Iron (%DV)	4	30	2	45	10
Sodium(%DV)	14	4	13	13	10
Potassium(%DV)	9	13	9	6	6

Keys: Per cent Daily Value (%DV) was based on 2000 calorie diet

Source: Adapted from US Food and Drug Administration (2018)

Previous studies have shown the importance of nutritional information disclosure in consumers' food choices and found a positive relationship between information on nutritional facts and decisions about food choices (Kreuter *et al.*, 1997; Grunert *et al.*, 2012). Furthermore, consumers select more healthy food and had higher satisfaction with the food quality when nutritional information was provided at a restaurant (Cranage *et al.*, 2004). Most of the studies that have been conducted on the information sources utilised by consumers concentrated particularly on information pertaining to nutrition and health (O'Keefe, *et al.*, 1998; Worsley and Lea, 2003) and food safety issues (Frewer and Miles, 2003; Rosati and Saba, 2004). The phases of interest for this study was to collect information and analyse the main information at customer interest before the purchase of shellfish.

METHODOLOGY

The study was carried out in two major fish markets in Lagos State, Nigeria; Better Life market, Makoko and Ajeloro Fish Market, Apapa. The two locations were chosen because they are the major fish markets that sell all kind of fresh seafoods (wholesale/retail) in Lagos State due to their proximity to the Lagos Lagoon complex. The markets sourced the shellfishes from local fish landings of the Lagos Lagoon with latitudes 6° 26' – 6° 37' N and longitude 3° 23 – 4° 20'E (Moruf and Lawal-Are, 2015). Data was collected using structured questionnaire. Questionnaires were distributed after respondents agreed to participate in the survey. The questionnaire, in addition to the socio-economic and demographic information of the consumers, was designed to understand the perception of shellfish quality in general, the information that consumers gather before the purchase of shellfish. A total of 240 questionnaires were distributed but 201 questionnaires were retrieved and used for the study. Data collection was carried out between October and December 2019. Statistical data analyses were conducted using SPSS (Version 21.0) for descriptive statistics.

RESULTS AND DISCUSSION

Socio-demographic Characteristics of the Respondents

The profiles of the respondents are presented in Table 2. With regards to gender, 22.39% of the respondents were male and 77.61% were female. The predominance of females among the respondents can be attributed to the peculiarities of the study area, where shopping was mostly done by female. This is in line with the report of Holgado *et al.* (2000) where gender, was found to be significant in the choice of place of product purchase. Majority of the respondents (79.10%) in the study were between 18 and 30 years old. The dominant age range indicated that the respondents were young and, therefore, should be able to give adequate information on this study. This could be that the younger ones are more active and tend to have more access to information through the media and their social engagement (Dauda *et al.*, 2016). A majority of the respondents were married (67.16%), and about 32.84% were single. Approximately 45.27% had secondary education. Education level was almost equally distributed among primary, secondary and tertiary levels. According to Dauda *et al.* (2016), According to Pieniak *et al.*, (2007), people with higher education were more likely than those with lower education, to select health professionals and mass media as the main sources of information for making food choices. A total of 31.84% of the sampled population had 2 members in household size while monthly income of the respondents showed a relatively poor state, with over 25% earning less than ₦20,000 Naira monthly. This may probably affect their purchasing power and the choice of what they consume. The inhabitants of such areas spend a larger part of their income on food (NBS, 2012).

Table 2: Socio-Demographic Characteristics of Respondents, n = 201

Characteristics	Frequency (No)	Percentage (%)
Gender		
Male	45	22.39
Female	156	77.61
Age (years)		
18-30	159	79.1
31-40	19	9.45
41-50	17	8.46
50 and above	6	2.99
Marital Status		
Married	135	67.16
Single	66	32.84
Education		
Primary	58	28.86
secondary	91	45.27
Tertiary	35	17.41
Informal Education	17	8.46
Household size		
1	29	14.43
2	64	31.84
3	34	16.9
4	53	26.37
5	14	6.97
6	6	2.99
7	1	0.50
Monthly income (Naira)		
Less than 10,000	34	16.92
10,000 - 19,999	59	29.35
20,000 - 29,999	32	15.92
30,000 - 39,999	20	9.95
40,000 - 49,999	19	9.45
50,000 and Above	37	18.41

Knowledge and Information Processing

Consumer knowledge is relevant and significantly influenced how consumers gather and organise information, and ultimately, what products they buy and how they use them (Pieniak *et al.*, 2007). The results of the consumer's pre-purchase knowledge and information processing of shellfish are presented in Table 3. Shrimp (28.36%) followed by lobster (21.39 %) and crab (16.42%) were the major types of shellfish consumed, although larger percentage (43.78%) consume shellfish occasionally. This may not be unconnected with availability, information on the nutritive value of fish and the financial status of the respondents (Tsado *et al.*, 2012). On shellfish source, 58.71% claimed fish market as their place of purchase while knowing how to assess shellfish quality. According to Drichoutis *et al.* (2005), individual's knowledge base has been proven to be associated with information needs and information processing example, the use of label. Although findings about the

impact of knowledge on information processing are often contradictory (Radecki and Jaccard, 1995), there is a consensus that knowledge is an important construct in information processing.

Table 3: Consumer's Pre-Purchase Knowledge and Information Processing of Shellfish

Parameters	Frequency (No)	Percentage (%)
Type of Shellfish purchase		
Crab	33	16.42
Cuttlefish	26	12.94
Lobster	43	21.39
Oyster	18	8.96
Periwinkle	24	11.94
Shrimp	57	28.36
How often do you buy shellfish		
Daily	2	1.00
Several times a week	11	5.47
Once a week	43	21.39
Once a month	57	28.36
Occasionally	88	43.78
Place of purchase		
Supermarket	28	13.93
Fish market	118	58.71
Grocery store	38	18.91
Others	17	8.46
Knowledge of shellfish quality		
I care about the shellfish appearance	37	18.41
I care about the shellfish weight	45	22.39
I care about the shellfish freshness	63	31.34
I care about the shellfish Odour	56	27.86

Information Sources and Cues

As shown in Table 4, there were various information sources used by the consumers before purchase decision. It was revealed that 79(39.30%) of the respondents use and relied on fish mongers for information on shellfish quality. This agrees with Pieniak *et al.* (2007) that consumers use best and trust information sourced from experienced sellers. Also, 39(19.40%) of the respondents relied on friends and family for nutritional information, similar to the report of Dauda *et al.* (2016) on awareness of nutritive value of cultured fish in Katsina State. Radio programmes were another source of information accounting for 9.45%. This may be due to the fact that radio is cheap, mobile and affordable to the most people. This result supports the findings of Morgan (1993) in a study carried out in Kenya which showed that 80% of the populations were radio listeners. Moreover, Helen and Amin (2002) found that the radio remains the most important medium for communicating with the rural populations of developing countries. In this present study, the most often used information cues (Figure 1) by the respondents was the nutritional composition (32.34%) followed by shellfish freshness (24.38%). This is inconsonant with Choi (2015) who studied impact of disclosure of nutrition information on consumers' behavioral intention in Korea. According to Rosati and Saba

(2004) safety guarantee, quality mark and recipes related to fish consumption were other information cues preferred by consumers.

Table 4: Sources of Information on Shellfish Quality before Purchase Decision

Parameters	Frequency (No)	Percentage (%)
Sources of information		
Television programme	6	2.99
Radio programme	19	9.45
Public health recommendations	16	7.96
Newspaper	30	14.93
Dietician	12	5.97
Fish monger	79	39.30
Friends and family	39	19.40

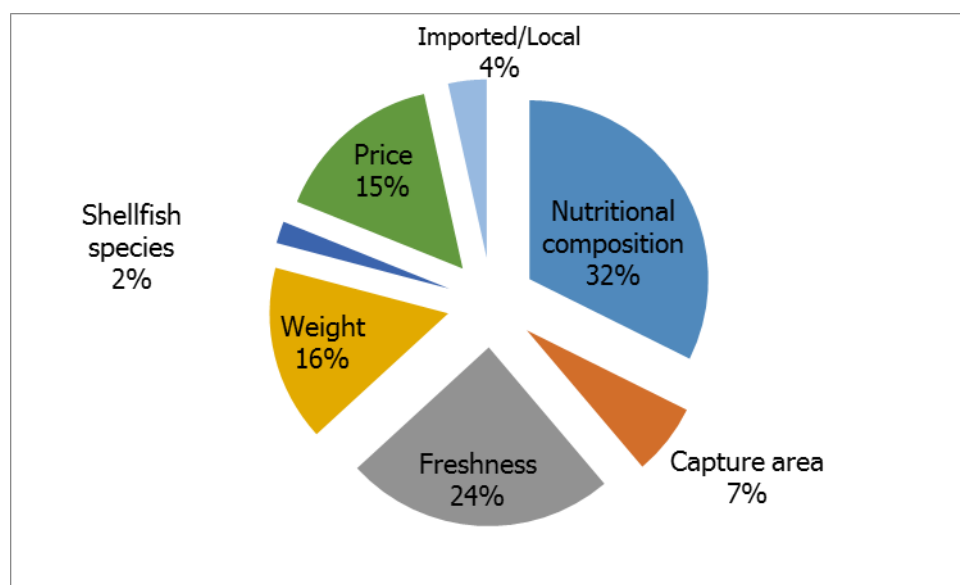


Figure 1: Information cues on Shellfish Quality before Purchase Decision

CONCLUSION

It can be concluded that knowledgeable consumers have both the motivation and ability to seek information on shellfish quality with principal sources of information being fish mongers and mass media. Awareness of the shellfish quality in the study area is on the high side although consumption can still be regarded to be low, considering the percentage that consumed shellfish occasionally. As communication of information on shellfish quality remains crucial for purchase decision, then awareness of nutritive value of shellfish can still be promoted in the state through sensitization and advocacy programmes.

REFERENCES

- Afolayan, O.A., Moruf, R.O. and Lawal-Are, A.O. (2020). Bacterial contamination and heavy metal residues in frozen shellfish retailed within Lagos Metropolis, Nigeria. *Science World Journal*, 15(1): 11-14.

- Choi, J. (2015). The impact of disclosure of nutrition information on consumers' behavioral intention in Korea, *Journal of the American College of Nutrition*, 1–7.
- Cranage, D.A., Conklin, M.T. and Lambert, C.U. (2004). Effect of nutrition information in perceptions of food quality, consumption behavior and purchase intentions. *Journal of Foodservice Business Research*, 7: 43–61.
- Dauda, A.B., Oladele, A.H. and Elaigwu A.M. (2016). Awareness of nutritive value of cultured fish among inhabitants of selected peri-urban local government areas in Katsina State, Nigeria. *African Journal of Fisheries and Aquatic Resources Management*, 1: 61-66.
- Drichoutis, A.C., Lazaridis, P. and Nayga, R.M. (2005). Nutrition knowledge and consumer use of nutritional food labels. *European Review of Agricultural Economics*, 32(1): 93–118.
- Frewer, L. J. and Miles, S. (2003). Temporal stability of the psychological determinants of trust: Implications for communication about food risks. *Health, Risk and Society*, 5(3): 259–271.
- Grunert, K.G., Wills, J., Celemin, L.F., Lahteenmaki, L., Scholderer, J. and Bonsmann, S.S (2012). Socio-demographic and attitudinal determinants of nutrition knowledge of food shoppers in six European countries. *Food Quality and Preference*, 26: 166–177.
- Helen, H.O. and Amin, K. (2002). Listening to stakeholders. Agricultural Research and Rural Radio Linkages. International Service for National Agricultural Research (ISNAR). *Briefing paper No. 48. April, 2002. The Hague, Netherlands. 15pp.*
- Holgado, B., Martinez-Gonzalez, M.A., De Irala-Estevez, J., Gibney, M., Kearney, J. and Martinez, J.A. (2000). Sources of information about diet and health in a Mediterranean country – Comparison with other European member states. *European Journal of Public Health*, 10(3): 185–191.
- Jungermann, H., Pfister, H.R. and Fischer, K. (1996). Credibility, information preferences, and information interests. *Risk Analysis*, 16(2): 251–261.
- Kreuter, M. W., Brennan, L. K., Scharff, D. P. and Lukwago, S. N. (1997). Do nutrition label readers eat healthier diets? Behavioral correlates of adults' use of food labels. *American Journal of Preventive Medicine*, 13(4): 277-283.
- Lawal-Are, A.O., Moruf, R.O. and Afolayan, O.A. (2018a). Proximate composition, mineral profile and cholesterol level in whole and fillet of the Guinean Mantis Shrimp, *Squilla aculeata calmani* (Holthuis, 1959) (Crustacea: Stomatopoda). *Albanian Journal of Agricultural Science*, 17(3): 1–6.
- Lawal-Are, A.O., Moruf, R.O., Junaid, D.A. and Oke, M.O. (2018b). Chemical bio-compounds and functional properties of raw and processed cuttlefish, *Sepia officinalis* (Mollusca: Cephalopoda). *Food and Environmental Safety*, 17(3): 332 – 340.
- Morgan, K.I. (1993). Research Findings on Rural Radio Listenership in Meru and Thuraka Nithi District Kenya. Nairobi: Agricultural Information Centre. Kenya, 15Pp.

- Moruf, R.O, Saba, A.O., Chukwu-Osazuwa, J. and Elegbede, I.O. (2019). Seasonal variation in Macro-Micronutrient compositions of the flesh and shell of the Portunid Crab, *Callinectes amnicola* (De Rochebrune, 1883) from the coastal waters of Southwest Nigeria. *Agricultura*, 102 (1-2) 200-209.
- Moruf, R.O. and Adekoya, K.O. (2018). Molluscan and crustacean genetic and biotechnology interventions: A review. *Animal Research International*, 15(1): 2906 – 2917.
- Moruf, R.O. and Akinjogunla, V.F. (2018). Photometric determination of macro-micro minerals in the West African Mud Creeper, *Tympanotonus fuscatus* var *radula* (Linnaeus, 1758). *Journal of Experimental Research*, 6(3): 35–40.
- Moruf, R.O. and Lawal-Are, A.O. (2015). Growth pattern, whorl and girth relationship of the periwinkle, *Tympanotonus fuscatus* var *radula* (Linnaeus, 1758) from a tropical estuarine lagoon, Lagos, Nigeria. *International Journal of Fisheries and Aquatic Studies*, 3 (1):111-115.
- Moruf, R.O. and Lawal-Are, A.O. (2019). Protein, amino acid and fatty acid profiles of two edible crabs of Lagos coast, Nigeria. *Journal of Bangladesh Agricultural University*, 17(3): 396–401.
- N.B.S. (2012). National Bureau of Statistics Preliminary, Consumption Pattern in Nigeria 2009/2010. *NBS Preliminary Report*. 71pp.
- O’Keefe, G.J., Boyd, H.H. and Brown, M.R. (1998). Who learns preventive health care information from where: Cross-channel and repertoire comparisons. *Health Communication*, 10(1): 25–36.
- Pieniak, Z., Verbeke, W., Scholderer, J., Brunsø, K. and Olsen, S. (2007). European consumers’ use of and trust in information sources about fish. *Food Quality and Preference*, 18: 1050–1063.
- Radecki, C.M. and Jaccard, J. (1995). Perceptions of knowledge, actual knowledge, and information search behavior. *Journal of Experimental Social Psychology*, 31(2): 107–138.
- Rosati, S. and Saba, A. (2004). The perception of risks associated with food-related hazards and the perceived reliability of sources of information. *International Journal of Food Science and Technology*, 39(5): 491–500.
- Tsado, J.H., Adeniji, O.B., Ojo, M.A., Adebayo, C.O. and Abdulazzeez, R. (2012). Perception of Women Knowledge on the Nutritive Value of Fish in Kaduna North Local Government Area of Kaduna State, Nigeria. *Journal of Agriculture and Social Research (JASR)*; 12(1): 162-169.
- Verbeke, W. (2005). Agriculture and the food industry in the information age. *European Review of Agricultural Economics*, 32(3): 347–368.
- Worsley, A. and Lea, E. (2003). Consumers’ personal values and sources of nutrition information. *Ecology of Food and Nutrition*, 42(2): 129–151.

- Yeo, D.C., Ng, P.K., Cumberlidge, N., Magalhaes, C., Daniels, S.R. and Campos, M. R. (2008). Global diversity of Crabs (Crustacea: Decapoda: Brachyura) in Freshwater. *Hydrobiologia*, 595(1): 275 – 286.