JOURNAL OF AGRIPRENEURSHIP AND SUSTAINABLE DEVELOPMENT (JASD)



2023

Volume 6, Number 3

ISSN (Print): 2476-7464 | ISSN (Online): 2705-2399

Website: www.journal.jasrmng.org.ng
Email: jasd@jasrmng.org.ng

Journal of Agripreneurship and Sustainable Development

Editorial Team

Board Chairman:

Prof. I. Mohammed (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

Editor-in-Chief:

Dr S. Idi (HOD, Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

.

Deputy Editor-in-Chief:

Prof. S. A. Jibril (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

Business Editor/ICT:

Dr. A. Kolo (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

Deputy Business Editor/ICT:

Dr. B. Hamidu (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

Board Secretary:

Dr. G. Muhammad (Department of Agricultural Extension & Rural Development, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

Editorial Advisory:

1. Prof. S. Kushwaha (Vice-Chancellor, Rajiv Ghandi University, Ronohills, Arunachal Pradesh,

India vc@urg.ac.in www.urg.ac.in).

2. Prof. U. Haruna (Department of Agricultural Economics and Extension, Federal University, Dutse, Nigeria).

Editors/Reviewers:

1. Prof. J. E. Ochi (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
2. Prof. R. M. Sani (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
3. Prof. N. Murtala (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
4. Prof. Jethro Zuwarimwe (Institute of Rural Development, University of Venda, South Africa).
5. Prof. Patrick V. Kwaghe (Department of Agricultural Economics and Extension, University of Jos, Nigeria).
6. Prof. Ahmed Ladan Ala (Department of Agricultural Economics, Usmanu Danfodiyo University, Sokoto, Sokoto State, Nigeria).
7. Prof. Ahmed Bakori Mohammed (Department of Agricultural Economics and Extension, Bayero University Kano, Nigeria).
8. Dr. Anthony O. Onoja (Department of Agricultural Economics and Extension, University of Port Harcourt, Nigeria).
9. Prof. Philip Nyangweso (Faculty of Agriculture, Moi University, Nairobi, Kenya).
10. Prof. Kpotun Mohammed Baba (Department of Agricultural Economics and Extension, Federal University of Technology, Minna, Nigeria).
11. Prof. Orefi Abu (Department of Agricultural Economics, University of Agriculture, Makurdi, Nigeria).
12. Prof. D. J. U Kalla (Department of Animal Production, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
13. Prof. A. S. Fagam (Department of Crop Science, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

14. Prof. A. M. Hassan (Department of Soil Science, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
15. Prof. F. N. Nnadi (Department of Agricultural Extension, School of Agriculture and Agricultural Technology, Federal University of Technology, Owerri, Nigeria).
16. Prof. H. A. Danwanka (Department of Agricultural Economics and Extension, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
17. Prof. Muhammad R. Ja'afar-Furo (Department of Agricultural Economics, Adamawa State University, Mubi, Nigeria).
18. Prof. Benjamin Ahmed (Department of Agricultural Economics, Ahmadu Bello University, Zaria, Nigeria).
19. Prof. I. A. Abu (Department of Agricultural Extension Services, University of Maiduguri, Nigeria).
20. Prof. M. Abubakar (Department of Animal Production, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
21. Prof. S. Abdulsalam (Department of Chemical Engineering, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
22. Prof. M. Abdulkarim (Department of Fisheries and Aquaculture, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
23. Prof. Dr. Mohammed Behnassi (Faculty of Law, Economics and Social Sciences, Ibn Zohr University, Agadir, Morocco).
24. Prof. Saminu AbdulRahman Ibrahim (Department of Soil Science, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
25. Prof. Dauda B. Bawa (Department of Agricultural Economics and Extension, University of Jos, Nigeria).
26. Prof. G. A. Abu (Department of Agricultural Economics, University of Agriculture, Makurdi, Nigeria).
27. Prof. S. Mohammed (National Information Technology Development Agency [NITDA], Abuja-Nigeria).
28. Prof. A. A. Amba (Department of Soil Science, Abubakar Tafawa Balewa University, Bauchi, Nigeria).

29. Prof. Bala S. Dalhat (Department of Accounting and Finance Technology, Abubakar Tafawa Balewa University, Bauchi, Nigeria).
30. Prof. M. Anouar JAMALI (Director, Africa Initiatives, Mohammed VI Polytechnic University, Morocco).
31. Dr. Suleiman Yakubu (Department of Agricultural Economics, Abubakar Tafawa Balewa University, Bauchi, Nigeria)

Make a Submission

Browse

Information

For Readers

For Authors

For Librarians

Contact Us

Faculty of Agriculture and Agricultural Technology Abubakar Tafawa Balewa University
P.M.B. 0248, Bauchi, Nigeria
Tel.: (+234) 80 6907 0184
Email: jasd.daee.atbu@gmail.com
Site: https://www.jasd.daee.atbu.edu.ng

Journal of Agripreneurship and Sustainable Development (JASD)
www.jasd.daee.atbu.edu.ng; Volume 6, Number 3, 2023
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

CONSUMER PREFERENCES FOR FISH AND SEAFOOD PRODUCTS IN OF JOS NORTH METROPOLIS, PLATEAU STATE

[1]Awolumate, S., [2]Oshibanjo, D. O., [3]Inyang, H. B[*]. and [4]Adediran, A. O.
[1]Department of Animal Science and Fisheries, National Open University of Nigeria. Abuja
[2]Animal Production Department, University of Jos, Plateau State Nigeria
[3]Department of Agricultural Economics & Extension,
National Open University of Nigeria, Abuja
[4]Department of Animal Science, Faculty of Agriculture, University of Ibadan,
Oyo State Nigeria
[*]**Corresponding Authors' Email:** hinyang@noun.edu.ng **GSM:** 08163759057

ABSTRACT
The study examined the preference and consumption for fish and seafood products in Jos North Metropolis. A two-stage sampling procedure was employed to select respondents. In the first stage, ten major districts were purposely chosen. At the second stage, thirty households were randomly selected from each of the ten districts, totaling three hundred (300) households for the study. Data was collected using questionnaires and analyzed using descriptive statistics such as charts, frequency distribution tables, simple percentages and mean. The study revealed preference for fish and seafood, particularly evident among the 20-29 age cohort (41.5%) and single (58%). Tertiary education exhibited a positive correlation with a 57% inclination. Income also exerted influence, notably among those with earnings falling below ₦100.00 (25%). Majority (51.2%) held the perspective that no religious impediments existed concerning seafood consumption. Conversely, 56% subscribed to the belief that fish possessed a lower cost yet inferior quality compared to seafood. In contrast, aversion to taste/odour (18.3%) and the presence of bones (25%) emerged as primary factors underpinning the avoidance of seafood. The study concludes that younger, single, educated, and Christian males exhibited stronger inclinations fish and seafood preferences with fish being preferred due to its perceived value in terms of both cost and quality and thus recommends targeted educational campaigns promoting nutritional benefits, affordability, and culturally sensitive marketing to enhance preferences.
Keywords: Consumer, Fish, Preference, Products and Seafood

INTRODUCTION
Consumer preferences exert a significant influence on market demand and business strategies, particularly within the fish and seafood industry (Smith *et al*., 2020). It is imperative for industry participants to comprehend and cater to these preferences to remain competitive. Analysing consumer inclinations enables effective marketing, fosters innovation in product development, and guides the formulation of targeted strategies (Johnson and Smith, 2019). In the multifaceted context of Nigeria, a nation celebrated for its rich cultural diversity and culinary heritage, the study of consumer preferences for fish and seafood products assumes pivotal significance. Fish and seafood, beyond their nutritional value, hold deep-rooted cultural and economic importance in Nigeria, where they contribute substantially to dietary patterns and economic activity. With its vast coastal resources and inland waters, Nigeria's fishery sector serves as a vital source of sustenance and livelihood for numerous communities (Ajao *et al*., 2020). Consumer preferences, a dynamic interplay of individual tastes and external influences, wield considerable influence over market dynamics, supply chains, and business strategies within the fish and seafood industry. These preferences are intricately woven with

cultural practices, regional variations, economic considerations, health perceptions, and environmental consciousness (Oluwadiya *et al*., 2019). Thus, understanding and deciphering these preferences become instrumental for producers, retailers, and policymakers to ensure products resonate with consumer demands while promoting sustainable practices.

Furthermore, within Nigeria's complex socio-economic landscape, where food security remains a critical concern, investigating consumer preferences for fish and seafood products can provide actionable insights to optimize resource allocation, refine distribution systems, and enhance public health outcomes. As studies have shown, consumer preferences can significantly influence food choices and nutrition-related health outcomes (Adeoti *et al*., 2019).

This research embarks on a comprehensive exploration of consumer preferences for fish and seafood products within Nigeria's unique context. By meticulously unraveling the intricate web of cultural traditions, economic dynamics, and nutritional considerations, this study seeks to illuminate the underlying factors that shape consumption patterns. By contributing to an in-depth understanding of consumer preferences, this research has the potential to inform strategies aimed at sustainable food production, economic growth, and improved dietary practices in Nigeria. Seafood's nutritional value contributes to its role in promoting optimal nutrition and reducing the risk of chronic diseases (Mozaffarian, 2016). Fish, in particular, offers health benefits with high protein content and favorable fat composition, leading consumers to prefer it over red meat (Schwingshackl and Hoffmann, 2014). Research shows that geographic, social, and cultural factors impact fish consumption patterns (Pieniak *et al*., 2011). Aligning offerings with consumer preferences enhances competitiveness and market share (Schwingshackl and Hoffmann, 2014). Understanding changing preferences aids businesses in adapting strategies and product development (Casadesus-Masanell and Zhu, 2013). However, gaps exist in understanding socioeconomic factors influencing preferences, presenting opportunities for businesses to respond to consumer demands, promote sustainability, and responsible consumption. This study aims to investigate the socioeconomic characteristics and factors influencing fish and seafood consumption and preferences in Jos North metropolitan area.

MATERIAL AND METHODS

The Study Area

The study area is situated within the distinct boundaries of the Jos North Metropolis, an integral part of Plateau State in Nigeria. Geographically positioned at approximately 9.9279° N latitude and 9.8772° E longitude, the Jos North Metropolis is nestled within the central highlands of Nigeria. The metropolis is subdivided into several administrative districts, each bearing its own unique characteristics and socio-cultural dynamics. The districts of the Jos North Metropolis each offer distinct characteristics. Angwan Rukuba bustles with vibrant markets and a blend of traditional-modern architecture. Nasarawa Gwong boasts a rich history, where ancient landmarks coexist with modern structures. Angwan Miango is a melting pot of cultural diversity, weaving together various ethnic traditions. Tudun Wada showcases a range of residences, from traditional dwellings to modern apartments. Rikkos thrives with lively markets, educational institutions, and a spirited community ambiance. The Jos North Metropolis is emblematic of Plateau State's unique topography, marked by elevated terrains and picturesque landscapes. The metropolis is interspersed with urban development, marketplaces, educational institutions, and pockets of green spaces. The geographical layout and socio-economic diversity contribute to a dynamic setting that reflects the intricate fabric of Nigerian society.

Journal of Agripreneurship and Sustainable Development (JASD)
www.jasd.daee.atbu.edu.ng; Volume 6, Number 3, 2023
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

METHOD OF DATA COLLECTION AND ANALYSIS

The study used simple random sampling technique to select 164 households in Jos North Metropolis, Plateau State. Data was collected through a validated structured questionnaire. Descriptive statistics was employed for data analysis using Statistical Package for Social Sciences (SPSS) Version 26.0 and Microsoft Excel 2010. The results were presented using mean, frequency and percentages.

RESULTS AND DISCUSSION

Socioeconomics Characteristics of Household

Table 1 shows socio-economic characteristics and affiliation to fish and seafood preference. The majority of respondents (41.5%) fell into the 20-29 age group, followed by 30-39 years (25.6%) and <20 years (19.5%). Younger individuals showed a higher preference for fish and seafood, which is in consistent with the finding of Kaiimakoudi *et al*. (2013). Understanding these demographics can help target specific age groups and enhance marketing strategies to promote fish and seafood products.

Regarding gender, a higher percentage of males (64%) expressed a preference for fish and seafood products compared to females (36%). This finding contrasts with the study by Lucky *et al*. (2004) in Bangladesh, where females consumed more fish than males. In this study, males consumed twice as much fish as females, possibly due to their primary involvement in fish purchasing and, as household heads, tending to consume more fish, while females were mainly responsible for fish preparation (Dasgupta *et al*., 2017). The results further show that majority (58%) of single expressed higher preference for fish and seafood consumption compared to married individuals (40%). In terms of education, respondents were distributed as follows: 18.9% had primary education, 24.4% secondary, and 56.7% tertiary education. Those with tertiary education had the highest fish and seafood preference (57%), followed by secondary (24%) and primary (19%). Higher education correlated with higher consumption preference, likely due to awareness of nutritional benefits, which aligns with (Hicks, *et al*., 2008) findings on education and fish consumption.

Income levels influenced preferences, 25% of household heads had income of less than ₦ 100,000. However, 16.5% and 20.1% of household heads had income of ₦ 100,000-₦ 150,000 and ₦ 150,0001- ₦ 200,000 respectively. Similarly, 14.0% and 24.4% of household heads had income of ₦ 200,001- ₦ 250,000 and above ₦ 250,000 respectively.

Socioeconomic factors play a role in dietary choices, as shown by Uddin *et al*. (2019) on the relationship between education level and fish consumption. Religious affiliation also affected preferences, with Christians expressing the highest preference (64%), followed by Muslims (33.5%) and other affiliations (2.4%). This in line with Tan *et al*. (2014) who work on religion and consumer food choice, where spirituality influenced food-related lifestyles. Additionally, Suki (2015) and Mathras *et al.* (2016) found that religious laws can restrict specific food purchases and consumption.

Journal of Agripreneurship and Sustainable Development (JASD)
www.jasd.daee.atbu.edu.ng; Volume 6, Number 3, 2023
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

Table 1: Socioeconomic Characteristics of Household

Items (n=164)		Frequency	Percent
Age	<20	32	19.5
	20- 29	68	41.5
	30-39	42	25.6
	40-49	15	9.1
	50 -59	3	1.8
	60- above	4	2.4
Gender	Male	105	64.0
	Female	59	36.0
Marital status	Single	95	57.9
	Married	66	40.2
	Others	3	1.8
Educational Level	Primary School	31	18.9
	Secondary school	40	24.4
	Tertiary School	93	56.7
Income	<₦100,000	41	25.0
	₦100,000-₦150,000	27	16.5
	₦150,0001-₦200,000	33	20.1
	₦200,001-₦250,000	23	14.0
	Above ₦250,000	40	24.4
Religion	Christianity	105	64.0
	Muslim	55	33.5
	Other	4	2.4

Source: Field survey, 2022

Journal of Agripreneurship and Sustainable Development (JASD)
www.jasd.daee.atbu.edu.ng; Volume 6, Number 3, 2023
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

Factors Influencing Fish and Seafood Consumption and Preferences.

A majority of respondents (51.2%) strongly agreed that there are no religious restrictions to the consumption of seafood. This suggests that religious beliefs do not significantly restrict seafood consumption for a substantial proportion of participants (Neale *et al*., 2012). Majority (80%) of respondents preferred fish over seafood, with 47% agreeing and 32.9% strongly agreeing with this preference. Understanding such consumer preferences can provide valuable insights for the food industry to cater to varying tastes and enhance product offerings. More than half of respondents viewed seafood as wild animals and unsuitable for consumption. Addressing misconceptions and promoting the nutritional benefits of seafood through targeted campaigns can encourage a more diverse and sustainable consumption pattern.

Approximately 56% of respondents believed that fish is cheaper and of lower quality than seafood, while 30% disagreed on this assertion. There were mixed views, indicating a need for more information or awareness. 72.6% of respondents agreed that seafood has high nutritional quality but is relatively expensive. This awareness of seafood's nutritional benefits may be attributed to their high literacy level and aligns with previous studies (Dalhatu and Ala, 2010; NBS, 2012; Hicks *et al*., 2008; Amao and Ayantoye, 2014; Can *et al*., 2015). The rate of seafood consumption among respondents varied, with the majority consuming seafood once a week. Local availability, taste preferences, awareness of nutritional benefits, and cultural factors influenced their dietary choices. The primary reasons for consuming fish and seafood were awareness of high protein content (38.4%), easy digestibility (22%), and omega-3 and omega-6 fatty acids (15.2%). Health-related factors significantly influenced their choices, likely influenced by information from educational institutions, media, and health organizations (Esteve *et al*., 2018).

In addition, the results depict that dislike of taste/odor (18.3%) and bones (25%) were the primary reasons for not consuming seafood. Other factors included allergies (11%), vegetarianism (3%), troublesome preparation (7.3%), cost and health concerns (10.4%), and unspecified reasons (22.6%). Personal preferences, practical considerations, dietary choices, and health played key roles in their decisions (Kinnucan *et al*., 1993)

Table 2: Factors Influencing Fish and Seafood Consumption and Preferences

Factors (n=164)	Frequency	Percent
Item 1: No Religions Restrictions to Consumption of Seafood		
Strongly agreed	84	51.2
Agreed	53	32.3
Undecided	8	4.9
Disagreed	14	8.5
Strongly disagreed	5	3
Item 2: There is Preference for Fish Compared to Seafood		
Strongly agreed	54	32.9
Agreed	77	47
Undecided	21	12.8
Disagreed	9	5.5
Strongly disagreed	3	1.8

Journal of Agripreneurship and Sustainable Development (JASD)
www.jasd.daee.atbu.edu.ng; Volume 6, Number 3, 2023
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

Table 2: Factors Influencing Fish and Seafood Consumption and Preferences cont'd

Factors (n=164)	Frequency	Percent
Item 3: Seafood are Wild Animals and Should Not Be Consumed as Food		
Strongly agreed	41	25
Agreed	47	28.7
Undecided	23	14
Disagreed	29	17.7
Strongly disagreed	24	14.6
Item 4: Fish are Cheaper and of Lower Quality Compared to Seafood		
Strongly agreed	37	22.6
Agreed	55	33.5
Undecided	23	14
Disagreed	33	20.1
Strongly disagreed	16	9.8
Item 5: Seafood Has High Nutritional Quality but is Quite Expensive		
Strongly agreed	47	28.7
Agreed	72	43.9
Undecided	27	16.5
Disagreed	13	7.9
Strongly disagreed	5	3
Item 6: Frequency of Seafood Consumption		
Once a week	68	41.5
Twice a month	24	14.6
Twice a week	32	19.5
Once a month	17	10.4
Less than once a month	23	14
Item 7: Awareness of Different Benefits		
Contents of w-3 and w-6 fatty acids	25	15.2
Low cholesterol	17	10.4
Easily digestible	36	22
Rich in vitamin and minerals	17	10.4
High protein content	63	38.4
low calorie Essential amino acids	6	3.7
Item 8: Reasons Why Some Individuals Do Not Consume Seafood		
Dislike taste-odour	30	18.3
Allergy	18	11
Bone	41	25
Being vegetarian	5	3
Troublesome to prepare	12	7.3
Expensive	17	10.4
Unhealthy	4	2.4
Others	37	22.6

Source: Field survey, 2022

CONCLUSION AND RECOMMENDATIONS

The study found that fish and seafood preferences were influenced by demographic and socioeconomic factors. Younger individuals and males consumed more fish, while singles had a higher preference than married individuals. Respondents with higher education showed stronger preference due to awareness of nutritional benefits. Lower-income respondents had a lower preference. Religious affiliation also played a role, with Christians showing higher preference than Muslims and others. Regarding influencing factors, many agreed there were no religious restrictions on seafood consumption, and some preferred fish over other options. Perception of seafood as wild animals and fish being cheaper and lower quality were prevalent. Despite being relatively expensive, many acknowledged seafood's high nutritional value. Most consumed seafood once a week, with high protein content being a major reason.

Based on the study's findings, the following upgraded recommendations are suggested:

i. Develop targeted educational campaigns to raise awareness about the nutritional benefits of fish and seafood products among diverse demographic groups.
ii. Highlight the variety of fish and seafood products available and promote diverse cooking methods to showcase their appeal.
iii. Implement measures to make fish and seafood more affordable and accessible, especially for lower-income individuals.
iv. Respect cultural and religious beliefs that may influence seafood consumption and tailor marketing strategies accordingly.
v. Partner with health institutions to promote the health benefits of fish and seafood as part of a healthy diet.
vi. Design consumer-friendly packaging to address concerns about odor and ease of preparation, encouraging more frequent selection of fish and seafood products

REFERENCE.

Adeoti, A. I., Adesiyan, T. S. and Onifade, G. A. (2019). Assessment of factors influencing the consumption of seafood among residents of Abeokuta metropolis, Nigeria. *Journal of Fisheries International*, **14**(3):22-30.

Ajao, E. A., Adeniyi, I. F. and Oso, O. B. (2020). Fish consumption pattern in Nigeria: Evidence from selected cities. *Journal of Agribusiness and Rural Development*, **55**(2): 139-150.

Amao, J. O. and Ayantoye, K. (2014). Consumer preference and consumer pattern for selected forms of fish in Oyo State, Nigeria. *International Journal of Science, Environment and Technology*, **3**(3):841-860.

Can, M. F., Gunlu, A. and Can, H. Y. (2015). Fish consumption preferences and factors influencing it. *Food Science and Technology*, **35**(2):339-346.

Casadesus-Masanell, R. and Zhu, F. (2013). Business model innovation and competitive imitation: The case of sponsor-based business models. *Strategic Management Journal*, **34**(4):464-482.

Dalhatu, M. and Ala, A. L. (2010). Analysis of fish demand in Sokoto Metropolis, Sokoto State, Nigeria. *Nigerian Journal of Basic and Applied Science*, **18**(2):154-159.

Dasgupta, S., Mustafa, M., Paul, T. and Wheeler, D. (2017). *The socio-economics of fish consumption and child health in Bangladesh*. World Bank Policy Research Working Paper 137 (8217), 105201.

Esteve, F., Chatenoud, L., La Vecchia, C., Negri, E. and Franceschi, S. (2018). Fish consumption and cancer risk. *The American Journal of Clinical Nutrition*, **70**(1):85-90.

Hicks, D., Pivarnik, L. and McDermott, R. (2008). Consumer perceptions about seafood - an Internet survey. *Journal of Food Service*, **1**(9):213-226.

Johnson, R. and Smith, L. (2019). Consumer Behavior and Market Trends in the Seafood Industry. *International Journal of Food Studies*, **8**(2):78-91.

Kinnucan, H. W., Nelson, R. G. and Hiariey, J. (1993). *U.S. preferences for fish and seafood: An evoked set analysis*. Marine Resource Economics, 8, 273-291.

Lucky, N. S., Haque, M. M. U. and Hossain, M. A. R. (2004). Fish consumption pattern in three slums of Mymensingh. *Progress in Agriculture*, **15**(2):67-76.

Mathras, D., Cohen, A. B., Mandel, N. and Mick, D. G. (2016). The effects of religion on consumer behavior: A conceptual framework and research agenda. *Journal of Consumer Psychology*, **2**(6):298-311.

Mozaffarian, D. (2016). Dietary and policy priorities for cardiovascular disease, diabetes, and obesity: A comprehensive review. *Circulation*, **133**(2):187-225.

NBS (2012). *Consumption pattern in Nigeria 2009/2010*. National Bureau of Statistics. Preliminary report 2012. 71p.

Neale, E. P., Nolan-Clark, D. and Probst, Y. C. (2012). Comparing attitudes to fish consumption between clinical trial participants and non-trial individuals. *Nutritional Diet*, 69, 124-129.

Oluwadiya, O. D., Babatunde, R. O. and Oluwadare, O. A. (2019). Fish consumption pattern and preference of consumers in Nigeria. *Journal of Agricultural Science and Food Technology*, **5**(1):001-006.

Pieniak, Z., Kołodziejczyk, M., Kowrygo, B. and Verbeke, W. (2011). Consumption patterns and labeling of fish and fishery products in Poland after the EU accession. *Food Control*, **22**(6):843-850.

Schwingshackl, L. and Hoffmann, G. (2014). Dietary fatty acids in the secondary prevention of coronary heart disease: A systematic review, meta-analysis and meta-regression. *Business Management Journal*, **4**(4):44-57.

Smith, J., Brown, A., and Jones, M. (2020). The Role of Consumer Preferences in Shaping the Seafood Indstry. *Journal of Business and Fisheries*, **15**(2):45-62.

Suki, N. M. (2015). Does religion influence consumers' green food consumption? Some insights from Malaysia. *Journal of Consumer Marketing*, **3**(2):51-56.

Tan, M. M., Chan, C. K. Y. and Reidpath, D. D. (2014). Faith, food and fettle. Is individual and neighborhood religiosity/spirituality associated with a better diet? Religions, 5, 801-813.

Uddin, M. T., Rasel, M. H., Dhar, A. R., Badiuzzaman, M. and Hoque, M. S. (2019). Factors determining consumer preferences for Pangas and Tilapia fish in Bangladesh: Consumers' perception and consumption habit perspective. *Journal of Aquatic Food Product Technology*, **28**(4):438-449.