

Influence of Market Access on Household Food Consumption Pattern in Imo State, Nigeria

ABSTRACT

Aim: Improving access to variety of food items and healthy food consumption pattern at the household level is a sure strategy to eradicating chronic hunger and improving food and nutrition security situation of a country. The present study assessed the influence of market access on food consumption pattern of households in Imo State, Nigeria.

Study design: Multi-stage and cluster sampling techniques were adopted to select 792 households across the three senatorial (Owerri, Okigwe and Orlu) districts in Imo State.

Methodology: A well-structure questionnaire was used to obtain information on socio-economic status, market access and food consumption pattern of households.

Result: Result revealed low household monthly income of ₦60,000-₦80,000. Monthly food expenditure of 37-45 per cent of monthly income and household size of 4-6 members (47%) was found. Regular access to market reflected on the daily (42.37%) and weekly (41.22%) food purchasing habits observed among the households. Starchy-root food products constituted regular breakfast (40.8%) and dinner (55.7%) of households while legume-based food products were minimally consumed as breakfast (9.92%), lunch (14.63%) and dinner (9.03%). Traditional green leafy vegetables (58.52%) and citrus fruits (48.6%) were found to be households' favourites. Food consumption pattern of households was found to be mainly due to affordability (46.44%) while monthly income significantly ($P=0.004$) influenced their food expenditure.

Conclusion: Generally, the study reveals low-income level, regular market access to staple foods and poor food consumption pattern among the households analyzed.

Recommendation: The government urgently needs to support the trading and farming occupation of household heads in Imo State for improved income status and increased access to variety of food items.

Keywords: household, food access, food system, hunger, food security, food expenditure

INTRODUCTION

According to the United Nations (UN, 2017), a household is defined as a group of persons who make common provisions of food, shelter and other essentials of life. Similarly, household is considered on the basis of arrangements people make, individually, or in groups to provide themselves with food and other essentials (Ardayio-Schendorf, 1997). From business point of view, a household is social unit of people who live and share resources together under one roof, but not related to each other (Corporate Finance Institution (CFI), 2022). There are different definitions and interpretations of a household, comprehensively, a household could be defined as group of persons living in an accommodation, related by blood (family), legal ties or otherwise, and may be sharing similar cultural and religious background. A household may consist of adult, children, adolescent, elderly or just an

individual (usually an adult) living alone. Habits such as morals, food preparation and consumption are acquired at the household.

Food being an essential need for every mankind requires that populations are food secured and should be on the top priority in the developmental issues. Sadly, individuals are persistently denied the right to adequate food despite the fact that everyone deserves access to healthy, affordable food and quality nutrition care (Global Nutrition Report, 2021). Food and nutrition security exists when all people at all times have physical, social and economic access to safe food, consumed in sufficient quantity and quality to meet their dietary needs and food preferences, supported by adequate environmental sanitation, health services and care, for an active healthy life (CFS, 2012, cited by Bosch, 2020). In other words, household food and nutrition security exist when every member of the household (young and old) has sustained physical, economic and social access to sufficient quality and quantity of adequate diet at all times to meet their body requirement, including functional and accessible health care facilities. Physical access involves the ability of household to make right food choices from available food materials, this pillar is influenced by the knowledge about nutrition and food preparation skills of household head. Social access to food at the household is greatly influenced by cultural belief and practices restricting people from accessing available food varieties. Economic access to food implies level of income to purchase sufficient quantity and quality of foods for household members, which is reliant on the occupation of household heads.

However, global food and nutrition insecurity especially in the developing countries is greatly influenced by the food system drivers such as, production, distribution, market access, conflicts, climate extremes, among others and is delaying the process of achieving the goal 2 (zero hunger) UN sustainable development goals (SDGs) (FAO/IFAD/UNICEF/WFP/WHO, 2022). In other words, the world needs a sustainable food system delivers to achieve food and nutrition security now and for future generations irrespective of economics, social and environmental challenges (High Level Panel of Experts (HLPE, 2014). Based on research findings, factors ranging from low food access, poverty, low income, infrastructural unavailability, family size, gender, age to household level of education have contributed to household food insecurity, especially in the developing countries (Gill and Khan, 2010; Chang *et al.*, 2014; Mango *et al.*, 2014; Kassie *et al.*, 2014; Olalekan, 2020; FAO, 2010), and the Asian and Sub-Saharan African countries are mostly affected. According to Wang *et al.* (2020) moderate to severe food insecurity affected more than 66% of population in Sub Saharan Africa in 2020 and figure was projected to hit 70.4 % in 2021.

Nigeria is among the African countries experiencing persistent increase in hunger and poverty. According to the global poverty and hunger index (GHI, 2014), Nigeria ranked 38th out of 76 hungry countries in the world with 24% death rate from malnutrition and diet related non-communicable diseases (World Health Organization, 2018). In 2020, 83 million Nigerians was reported to be living below ₦137,430 (\$381.75) annually (World Bank, 2020), since then, Nigeria has been on top list of countries facing critical hunger (GHI, 2020, GHI, 2021). Recent report of the Integrated Food Security Phase Classification (IPC) (2023) revealed that 18.56 million Nigerians are facing acute food insecurity representing 9% of the population analyzed. And the situation is projected to affect 26.37 million (12%) people between June and August 2024 (IPC, 2023).

Nigerian food and nutrition insecurity cut across all the regions. But, states in the South eastern region could be at greater danger due to the lingering sit-at-home saga. A situation where people are restricted from going to work, farm, market and any other business on specific days have affected the economic growth in the Southeastern region for over 3 years. Imo state, popularly known as the Eastern heartland could be facing a more severe hunger and starvation than imagined. Back in 1990, chronic poverty was the major determinants of food insecurity in Imo State (Obasi, 2005) especially, among female headed households. Between 2009 and 2010, 65.7% monthly household food expenditure in Imo State was 10% higher than the figure recorded at the national level (National Bureau of Statistics (NBS, 2012; Knoema, 2010). According to Ikem and Ozo (2013), Imo State faced severe food insecurity and hunger, especially the female headed households (51.6%) in 2013. Currently, Maduka, Amadi, Nlem, and Okafor (2022) still blame the Covid-19 pandemic as the major cause of low access to food at the households in Imo State. The situation is not getting better couple with the high population of over 5,459, 300 inhabitants (Chidiebere-Mark, Ahaneku and Oluwaseun, 2022). Farming which is the primary occupation and major source of income for majority of the Imo State population (Knoema, 2010; Obasi, 2005) might be challenged with the high insecurity in the region.

However, the goal 2 (zero hunger) of the global Sustainable Development Goals (SDGs) (UN, 2015) can only be achieved, when households have sustainable physical, social and economic access to nutritious food. Market access to adequate food items and consumers behaviour, especially healthy consumption pattern is very key to improving household food and nutrition security. Markets are expected to offer more diverse foods than any given household can produce (Bellon, Ntandou-Bouzitou and Caracciolo, 2016) and also determine the price for agricultural produce and the farmer's revenue, which affects household food expenditure (Stifel and Minten, 2017). Underlying factors such as low access to market, poor purchasing habits among others could be affecting household food intake. Previously, researchers have focused on household dietary diversity score (HDDS) and determinants of household food insecurity. There seems to be limited research on household market access, food purchasing and consumption habits in Imo State. The present study aimed at assessing the socio-economic, market access and food consumption pattern of households in Imo State, Nigeria. Relationship between household income, food expenditure and market access to food was also determined.

METHODOLOGY

Study area

The study was conducted in Imo State, located at the South-East geopolitical region of Nigeria, bordered by the states of Anambra to the north, Abia to the east, and Rivers to the south and west (Britannica, 2022). The state has 27 local government areas (LGAs) distributed among three senatorial districts (Owerri, Okigwe and Orlu). Imo state is mainly inhabited by the Igbo speaking group, the third smallest in the area but fourteenth most populated in Nigeria, with an estimated population of over 5.4 million in 2016 (Wikipedia, 2022). The population is mostly farmers and traders, and oil palm has remained the main cash crop. The "Eastern Heartland", as the state is popularly known, takes its name from the Imo River which flows along the state's eastern border, and the state capital is Owerri (Nigerian Finder, 2022).

Study design

Descriptive research design was adopted to evaluate the socio-economic status, market access to variety of food items and food consumption pattern across households in Imo State, Nigeria.

Population of study

Households located in the 27 local government areas of the state constituted the total population of the study. The region is made up urban, semi-urban and rural settings.

Sample size

Households located in the case study was large, a minimum sample size of 792 was obtained from the unknown total number of households, using the method described by Scott (2007). Thus:

$$\text{Sample Size} = (Z\text{-score})^2 \times \text{StdDev} \times (1\text{-StdDev}) / (\text{margin of error})^2$$

Where Z-score = 3.22 (99% confidence level)

$$\text{StdDev} = 0.5$$

$$\text{Margin of error} = 0.06$$

$$(3.22)^2 \times 0.5(1-0.5)/(0.06)^2 = 10.3684 \times 0.25/0.0036 = 2.5921 / 0.0036 = 720$$

$$10\% \text{ non-response error} = 720 \times 10/100 = 72$$

$$\text{Estimated sample size} = 720 + 72 = 792$$

Sampling technique

Multi-stage (three-stage) sampling and cluster sampling procedures were adopted (Kothari, 2013). First, 6 local government areas were randomly selected using simple balloting from the 27 local government areas, 2 from each senatorial district. Second, was random (balloting) selection of 18 wards, 3 from each of the 6 local government areas. Third, was random selection of 36 communities from the 18 wards. Finally, cluster sampling, probability proportional sampling procedure, was used to select 792 households, from the selected communities, since the number of households is not same in all the clusters (communities). Data collection was not completed in 6 households, 786 households fully participated in the study. Sampling cut across households in the case study (urban, semi-urban and rural), there was no specific criterion for selection, all categories of households was recognized and captured.

Data Collection

A well-structured questionnaire was used to collect information on the socio-economic status, market access and food consumption pattern from household heads or representatives. Illiterate household members were assisted through oral questioning. The questionnaires were pre-tested with three communities that are not selected for the study. Hence, identified errors relating to survey implementation and interpretation of questionnaire were corrected before the study commenced. Undergraduates from the Nutrition and Dietetics Department, Imo State Polytechnic were trained to assist in administration of questionnaire and oral interview, under the strict supervision of the researchers. Data collection lasted for four (4) months (September - December, 2022). Data analysis lasted for two (2) months (February-March, 2023) coordinated by Agugo, Modestus Chizimibe.

Statistical Analysis

Statistical Package for Social Science (SPSS) version 20 was used to summarize the socio-economic status, market access and food consumption pattern of households, using the data generated from the questionnaire. Results were expressed in percentages in tables and charts. Person correlation analysis (2 tailed) was used to determine the relationship between variables.

Consent

The community leaders were duly informed and consent of the household members (heads) secured before commencement of the study. The rural households were given incentives for their full participation after detail briefing on the objectives of the study.

RESULTS

Figure 1 showed that more than fifty per cent (53.7%) of the households were headed by men. The education level of household heads was majorly First School Leaving Certificate (FSLC) (30.2%) and Senior School Certificate (SSCE) (32.3%). More women headed households (11.8%) do not have any formal education. It was observed that majority (70.5%) of household members are self-employed, either into trading farming (majorly cassava) as their major occupation. Greater percentage of women (20.5%) was involved in farming and sale of food materials, while more men (23.4%) were into trading (non-food materials). Monthly income of most households (38.3%) was found to be within 60-80 thousand naira. Others falls within ₦90,000-₦110,000 (29%), ₦30,000-₦50,000 (17.1%), <₦30,000 (8.2%) ≥₦120,000 (7.4%) monthly income level. The Number of households members was observed to range from 4-6 (47%), 2-3 (30%), 7-10 members (20%) and >11 (3%). Monthly food expenditure ranging from ₦20,000-₦50,000 representing 37-45 % of monthly income was found in 81% of the households studied (Figure 1).

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Figure 1: Socio-economic Characteristics of Households

Access to variety of foods, including animal-source protein, fruits and vegetables by household was not influenced by market location (Table 1). Though, only 33.3% of the households live at a trekking distance (20-30 minutes) to the market, affordable food items sold at these markets are mostly staples (79.39%). On the other hand, market structure may have influenced market access as observed among households, more than fifty (54.07%) of markets within the reach of households operated at 4-7 days intervals, giving rise to regular weekly (41.22%) and daily (42.37%) food purchasing habit. The regular food purchasing habit would have benefited the households if perishable (fruits, vegetables, meat and fish) food items were accessed. But this was not the case, it was found that major food items purchased by the households studied were staples (41.6%) and the reason for food purchasing habit was greatly based on lack of money (70.74%). This is an indication that the observed low monthly income level may have influenced household access to variety of food items.

Greater access to market is expected to improve households' access to variety of foods outside the ones they produce as well as improve household's income. Unfortunately, this was not the situation among the households studied, similar staple food items were purchase at each visit to the market.

Table 1. Household Market Access to available Foods

Variables	Frequency	Percentage
Market location		
20-30 minute walk	261	33.21
20-30 minutes drive	103	19.47
40-60 minutes walk	207	39.06
1 hour drive	215	8.27
Structure of nearest market		
4-7 days market interval	425	54.07
Grocery stores	138	17.56
Modern market	105	13.36
Super market	118	15.01
Available food items sold at the nearest market		
Staples (cereals, root and tuber, beans, bread, noodles, plantain)	624	79.39
Fish and meat groups	106	13.49
Fruits and vegetables	33	4.2
All food items	23	2.93
Household food purchasing habit		
4-7 days interval	324	41.22
Monthly	116	14.76
Daily	333	42.37
On demand	13	1.65
Reasons for food purchasing habit		
Easy access to market	120	15.27
Lack of money	556	70.74
Busy schedule	23	2.93
Market structure	87	11.07
Food items targeted by this habit		
Staples	327	41.60
Fish and meat groups	121	15.40
Fruits and vegetables	86	10.94
All food type	252	32.06

Food consumption pattern of households is presented in Table 2. Consumption of animal-based protein sources was found as follows, once a day (45.42%), twice a day (37.28%), 2-5 times a week (9.41%) and not sure (7.89%) among households analysed. Consumption of starchy-root food products from cassava, yam and sweet potato dominated regular breakfast (40.8%) and dinner (55.7%) of households while cereals such as rice and noodles were consumed more as lunch. Legume-based food products were minimally consumed for breakfast (9.92%), lunch (14.63%) and dinner (9.03%) among the households studied. Green leafy vegetable like *ugu*, *ukazi*, *oha*, *utazi*, (traditional) was mostly (58.5%) consumed by the households. Moderate (19.75%) consumption of root and tuber vegetable such as beetroot, radish, cucumber, and carrot was found and the least consumed vegetable was pumpkin (4.96%). Citric fruits such as oranges, grapes, tangerine, pineapple and lemon were the mostly (48.6%) consumed fruits followed by seasonal fruits (30.1%) like mangoes, paw-paw and avocado. Orange coloured non-citric fruits (13.61%) and vegetables (16.54%) were consumed moderately at the households studied. Households snacks was found to be

mostly soaked *garri* (40.59%) a cassava-based food followed by pastries and sweetened beverages (31.3%), others include plant-based (13.49%) (E.g. cucumber & groundnut, banana & groundnut and carrot) and legume-based (14.63%) snack product such as *moi-moi*, *okpa*, and *odudu*. The reason for household choice of regular meals, snacks, and fruits is based on the taste (36.01%), affordability (46.44%), ease of preparation (13.49%), and personal reasons (13.5%).

Table 2. Household food consumption pattern

Variables	Frequency (n)	Percentage (%)
Consumption of animal source protein		
Once a day	357	45.42
Twice a day	293	37.28
Twice a week	74	9.41
Not sure	62	7.89
Major constituents of breakfast		
Cereal-based food products	231	29.39
Legume-based food products	78	9.92
Tuber-based food products	156	19.85
Starchy-root food products	321	40.84
Major constituents of lunch		
Cereal-based food products	235	29.9
Legume-based food products	115	14.63
Tuber-based food products	213	27.1
Starchy-root food products	223	28.37
Major constituents of dinner		
Cereal-based food products	196	24.94
Legume-based food products	71	9.03
Tuber-based food products	80	10.18
Starchy-root food products	439	55.85
Favourite Vegetables		
Green leafy vegetables (traditional)	460	58.52
Root and tuber vegetables	157	19.97
Pumpkins	39	4.96
Orange-colour vegetables	130	16.54
Favourite Fruits		
Local fruits in season	237	30.15
Orange-colour non-citric fruits	107	13.61
Exotic fruits	60	7.63
Citric fruits	382	48.6
Favourite snacks		
Pastry and sweetened drink	246	31.3
Traditional legume-based snacks	115	14.63
Fruit/veg.	106	13.49
Soaked <i>garri</i>	319	40.59
Reason for household choice of food		
Tasty	283	36.01
Affordable	365	46.44
Easy to prepare	106	13.49
Personal	32	4.07

Table 3. Correlation between monthly income, market access and monthly food expenditure

Variable 1	Variable 2	Pearson Correlation	Sig. (2-tailed)
Monthly Income	Market Access	.020	0.575
Market Access	Monthly Food Expenditure	-.021	0.558
Monthly Food Expenditure	Monthly Income	.103**	0.004

** . Correlation is

significant at 0.01 level (2-tailed)

Table 3 shows no relationship between monthly income and market access; monthly food expenditure and market access. On the other hand, there was strong relationship ($P=0.004$) between monthly food expenditure and monthly income. In order words, households' income status affected food expenditure.

DISCUSSION

The present study revealed that, more than fifty per cent (53.7%) of the households were headed by men, this finding is similar to the report of Zakari, Ying, and Song (2014) on factors influencing household food security in southern Niger, but in contrast with the reports of Kassy, Ndu, Okeke, and Aniwada (2021) on food security status and factors affecting household food security, in Enugu state, Nigeria, as well as the report of Khanam *et al.* (2020) on factors affecting food security in women enrolled in a Program for vulnerable group development, in Bangladesh. Large household size of 4-6 members was found among 47% of households studied. This finding approximately conforms to the 2010 report on household's size (3.7 persons) in Imo State (Knoema, 2010). Similarly, Kassy *et al.* (2021) reported household size of 5.2 members in Enugu state. The income level of majority (38.3%) of households analyzed was within ₦60,000 (\$41.42) to ₦80,000 (\$55.23) monthly income level to 4-6 household members (47%). This finding conforms to previous research reports on the economic status and household size in Imo State (Keoma, 2010; Obasi, 2005). Monthly food expenditure found among 45% of the households studied, ranged from ₦20,000 to ₦30,000, representing 33.33%-37.5% of household monthly income. Contrarily, higher monthly food expenditure of more than sixty percent (67.5%) of household Imo State has been reported (Keoma, 2010).

The education level of most of the household heads was FSLC and SSCE, with male (36.6%) having more formal education than female (25.9%). The finding on the education qualification of households agrees with most research reports in African and Asian countries (Abdullah *et al.* 2019, Khanam *et al.*, 2020, Kassy *et al.*, 2021, Aweke *et al.*, 2022).

Households were found to fall within the lower social class that toils so much to put food on table on regular basis as their major occupation was farming (36%) and trading (35.4%) for both male and female. The busy schedule of mother and father could possibly affect children upbringing, on the contrary, the children need to eat food to be alive. What a dicey situation. Starchy-food products and cereal-based food products were found to dominate the breakfast, lunch and dinner of the households in the study area. This conforms to the report that some rural households in Ekiti State Nigeria, largely consume starchy foods with little

protein and vitamin(Oluwatayo, 2018). It was found that more than 60% of the households access the market for food purchased on weekly (36.4%) and daily (29.6%) basis. Frequent consumption of animal-base protein as much as three times daily (27.4%) and daily from soup (33.2%) was found among the households in the study area, but the quantity was less than 10 g and ice fish was the major animal source protein consumed. The minimal consumption of legume-base food products for found at the households could be attributed to the long cooking time of legumes or possibly due to the flatulence effect of legumes, while high consumption of traditional vegetables could be linked to availability of the vegetables. The observed food consumption pattern was found to be greatly depends on, culture, affordability and sensory demand (taste). Food access was also found to be greatly dependent on income as food items were purchased whenever the resources are available, basically, on weekly and daily bases. Similarly, lack of money and increase in prices of food items have been reported to greatly affect household access to nutritious food and food generally (Kassye *et al.*, 2021). All these factors imply that households in the study area are not nutrition secured due to inadequate consumption of all food groups, which may affect their nutritional status. Maintaining normal nutritional status requires adequate intake of protein, energy, vitamins and minerals for all household members at all times (Graeme *et al.*, 2015)

The weekly and daily food purchasing habit found among households could be attributed to the strong ($P=0.004$) relationship between monthly income and food expenditure. This practice is best described as “eating from hand to mouth”. According to Abbasi, Ghoochani, Ghanian, and Kitterlin, (2016), the most common form of food insecurity occurs when food is unavailable for consumption due to inadequate resources. Furthermore, the percentage monthly food expenditure was found to fall between 33%- 66% of household monthly income. This finding agreed with the 2010 report that households in Imo State spend 65.7% of their monthly income on foods (Knoema, 2010) and with the 64.7% household food expenditure reported in Nigeria (NBS, 2012). According to CIAT (2018), it may be difficult to achieve food security if households must spend most of their income in obtaining food. The fact remains that, even with the high amount spend on food, households are not able to provide enough food for its members. Moreover, with the current rate of inflation, monthly income of ₦60,000-₦80,000 for 4-6 household members is grossly insufficient to provide the essential needs including adequate quantity and quality of diet for all the members.

CONCLUSION

The major occupation of household heads in Imo state is trading for males and farming for females. Most male and female headed households are within low-income group with large family size of 4-6 members. Low education background of household heads, which was basically, primary/secondary certificate, affected physical and economic access to variety of foods at the households studied. The scenario also reflected on the observed unhealthy food consumption pattern, predominantly cereal and starchy-root-based food products. Notwithstanding, more than thirty percent of households monthly income was spent on food, yet they are not able to access more varieties of foods. Finally, the observed low access to sufficient varieties of foods adversely affected food consumption pattern at most of the households analysed.

RECOMMENDATION

Based on the findings of this study, Imo state government is advised to:

- Support mechanized farming practices in the state to assist households that are into farming
- Support expansion of household trading businesses with soft loan.
- Provide enabling environment (especially, security) for farming and trading occupation to thrive in the state
- Financially support more research on assessing household nutritional status and well-being
- Promote nutrition sensitive intervention programmes to improve household access to variety of foods.

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