

Household Food Security and Body Weight Perception of Women Living In a Rural Community in Enugu State, Nigeria

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ABSTRACT: This study assessed the household food security and physical activity of women living in Obukpa rural community. A total of two hundred (200) subjects were randomly selected for the study. Data was collected using structured and validated questionnaires. The data collected was analysed using frequency distribution, percentages, means and standard deviations. The results showed that households spent between ₦2000 - ₦4000 on food per week. Twenty three percent of the households depended solely on home made food production as the source of family food while 64.5% of the subjects reported that they also depended on low-cost food because of their low socio-economic level. The subjects reported that in order to be food secure in the households, 23.5% of the subjects bought food on regular basis, 16.5% practiced bulk buying, 25% used available piece of land for home garden/farm. Cassava (garri) was always available and had the highest frequency of 12.5%, followed by pumpkin leaf which had 10%. About 70% of the subjects considered (perceived) themselves normal, 19.5% believed they were moderately fat or overweight while only 10.5% considered themselves too fat or obese. Using BMI assessment, 8.5% of the subjects were underweight, 52.5% were of normal weight, 23.5% were overweight and 15.5% were obese which contraindicated their self-perception. Based on the findings, food and nutrition education is recommended to enlighten the respondents on the importance of household food security on their health status and also the importance of physical activity (exercise) for healthy living.

KEYWORDS: Food security, household, physical activity

I. INTRODUCTION

Food security according to [1] is defined as when all people at all time have physical and economic access to safe and nutritious food to meet their dietary needs and food preferences for an active and healthy lifestyle. At household level, food security is a guarantee that families have regular, permanent and economic access to a basic food supply whose quantity are sufficient to meet their nutritional needs [2]. The world's population is increasing rapidly especially that of Nigeria which is believed to have a population of over 120 million [3]. The increase in the world's population makes the supply of food increasingly important. The percentage of households or families who are well-nourished varies from low-income to middle-income and to higher-income classes.

However, up to 2 billion people lack food intermittently due to varying degrees of poverty and uneven distribution of food [2]. Subsequently, more than 800 million people who do not get enough regular healthy food are at a very high risk of ill-health and shorter life expectancy. Children, especially very young children, who suffer from food insecurity, will be less developed than children of the same age who have had sufficient food. They will most likely be shorter and weigh less and be less able physically and intellectually, because of poor nutrition. According to the World's Food Day 16th October, more than half of the world's population live in low-income food deficit countries which are unable to produce or import enough food to feed their population. More than one third of all children are malnourished and six million children die of cases related to malnutrition due to some related problems such as conflicts, disasters, civil unrest, climate, population size and growth etc. These factors affect drastically the availability of food thereby leading to hunger and malnutrition, stunting and chronic nutritional deficiencies.

In developing countries, household food insecurity and cost constraints are primary factors limiting dietary diversity [4]. Nigeria's grim hunger situation is most virulent because it is disguised. Over 2.8 million US dollars is reportedly spent annually to import food for local consumption [5]. Osagie [5] reported that even with the imports about 38% of Nigerians younger than five suffer from moderate to severe malnutrition, according to UNICEF, while 65% of the population (roughly 91 million people) are what the Food and Agricultural Organization called 'food insecure'. This study was therefore designed to determine:

- The level of food security in the households.

- Measures taken in the households to improve food availability, accessibility and utilization.
- The body weight perception of the rural women in relation to their BMI.

II. MATERIALS AND METHODS

Study area

This study was carried out in Obukpa in Nsukka Local Government area of Enugu State, which is a town of Northern Igbo culture area. Obukpa community is divided into three quarters names, Ajuona, Owerre and Obige. Each quarter is made up of sub-quarters, which have several kindred. Obukpa is inhabited by both natives and the people who migrated from other places who are mainly workers in University of Nigeria, Nsukka and has a population of 2,101,080. Obukpa was selected because it is a typical rural community and one of the catchment communities to the University of Nigeria, Teaching Hospital (UNTH).

The climatic conditions of the area include high rainfall, moderate temperature and humidity that fluctuates between the two major seasons in Nigeria namely: dry (November to March) and wet (April to October) seasons. The population of the natives comprises of predominantly peasant farmers, petty traders and university workers. Farming is practiced in the wet season. The main staple foods of Obukpa are cassava (*Manihot esculenta*), maize (*Zea mays*), cocoyam (*Colocasia spp*), pigeon pea (*Cajanus cajan*), and sweet potatoes (*Ipomea batatas*). Fruits and vegetable are also widely grown.

Study Design

This cross-sectional survey was conducted among two hundred (200) active -women (18-45yrs) who were randomly selected.

III. METHOD OF DATA COLLECTION

Questionnaire

A structured and validated questionnaire was used to obtain information on respondents' educational and socio-economic status, health information/assessment and availability and accessibility of the households to food.

Anthropometry

The anthropometric measurements of respondents were taken using salter scale (CMS weight Ltd London) and microtoise height meter. The parameter measured were weight, height from which the body mass index (BMI) was calculated. Height The height measurement was taken using a height meter. The subject was made to stand erect barefooted against the meter bar with the heel, buttock and the back of the subjects' head touching the height meter. The subject was measured erect with the arms by the sides and feet put together. The measurement was taken to the nearest 0.1cm.

Weight

The weight of the subjects was taken using salter scale (CMS weights Ltd London) of 120kg capacity. Each subject was weighed with minimum clothing and shoes off. The subject was made to stand on the platform of the scale with arms by the sides and head erect. The measurement was taken to the nearest 0.1kg.

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}} = (\text{kg}/\text{m}^2)$$

Data Analysis

The data was coded and entered into the computer using the statistical package for social science (SPSS). The data obtained was analyzed using frequency distribution, percentage, mean and standard deviation.

IV. RESULTS

Background Information Of The Women Studied

Table 1 shows that above half (52.5%) of the respondents were between 31 and 40 years of age and 32.5% were 20 and 30 years of age. More than half of the women studied were married (78.5%) with only 12.0% single. About 51.0% of the respondents had a household size of 5 to 7, 32.0% had a household size of 2 to 4 while only 5.0% had a household size above 10.

Table 2 shows that most of the women studied had a secondary school (31.5%) and higher education (36%). Only 19.5% had primary school education while 15% had no formal education. Forty four percent (44%) of the respondents were petty traders/artisans while 28.5% were civil servants. Also 21.5% of the respondents

were not employed/housewives or students. Thirty one percent of the respondents earn between N6, 000 and N8, 000, 48.5% earn less than N6, 000 and 11% earn between N8, 000 and N20, 000. The result revealed that only 9.5% of the respondents had a monthly income above N20, 000.

V. HOUSEHOLD FOOD PRODUCTION AND ACCESSIBILITY

Table 3 showed that 71% of the respondents produced some of the foods they consume and bought the others. Only 15% produced the foods they consume while 14% purchased all the foods they consume. Eighty one percent of the respondents spend between ₦2, 000 to ₦6, 000 (US\$ 13.00 to US\$ 39.00) on food per week. A good number (20.5%) spend less than ₦2, 000 on food per week. However, only 1% of the women studied acknowledged spending more than ₦6, 000 on food per week. Most of the women studied reported using different strategies most often in combination to ensure food availability in the household. Table 3 showed that 47.5% used proper preservation/storage strategy, 37.5% practiced bulk buying while 32% and 30% kept livestock and used land for farm/home garden respectively to help them ensure food availability in the family.

Figure 1 shows the foods produced and consumed by at least 25% of the household of the women studied. The result revealed that tuber crops produced by most of the households were cassava (94%), cocoyam (42%), and yam (32%). Maize was the only cereal crop produced by 49.5% of the households. Production of vegetables was not popular among the households. Pumpkin leaves were produced by 32% of the families while okra was produced by 26% of the families. Figure 1 also revealed the foods consumed everyday of the week by at least 25% of the women and their households. Cassava was consumed everyday by 84.5% of the households mostly as garri and akpu. Rice was consumed everyday of the week by 74.5%, yam by 63%, and beans by 56% of the women studied and their households. This clearly showed that with the exception of cassava, the households consumed more of what they did not produce (i.e. rice and beans) and less of what they produced (such as cocoyam and maize). However, there was a clear indication of poor consumption of vegetables even those produced by the households. Pumpkin leaf was the only vegetable consumed everyday of the week by 27% of the households.

Table 4 revealed some of the impact of poor food accessibility and affordability on the women studied and their households. Sixty four percent of the women consumed less food due to lack of food while 51% do not have enough money to buy food. Furthermore, about 47.5% relied on low cost food due to lack of money and in 34% of the households studied; a child went hungry because of lack of food. Food insecurity also caused about 25.5% and 22.5% of the women to starve for a day and to loose weight respectively. However, only 4% of the women and their household never afforded consuming adequate meal.

Table 5 revealed that most (70%) of the women perceived themselves as having normal nutritional status, 24% believed that they were moderately fat while only 6% considered themselves as too fat or obese. Assessment of the nutritional status of the women using body mass index (BMI) contradicted their self perception with the women having a mean BMI of 23.7kg/m². Table 5 also showed that although 45.5% of the women had a normal BMI, 14.5% were underweight while 23.5% and 16.5% were overweight and obese respectively. This indicated that some of the women who considered themselves normal may actually be underweight or obese.

VI. DISCUSSION

Level of food security in the household

The three pillars underpinning food security are food availability, food accessibility and food utilization. This infers from concept that food security is not a just a production issue. Food availability within the households was poor as 64% consumed less food due to lack of food. This is in line with the analyst's view who believed that over 60% of Nigerias' population face serious food insecurity [5]. The long term effects of the most common way of coping is to reduce or modify the amount of foods eaten and shift to cheaper less nutritious food [6]. Some 25.5% and 34% of the women and children respectively went hungry on some occasions due to lack of food. A household, however, is considered food secure when its occupants do not live in hunger or fear of starvation. This simply indicates that most of the households faced serious food insecurity. Household food accessibility was poor as the women were mostly low income earners. However, 81% of the women spent between ₦2000-6000 (US\$ 13-39) on food weekly (ie US\$ 2-6 daily on food). This simply shows that pervasive poverty exists within the households. Pervasive poverty among the rural population in Nigeria is an indication of low agricultural productivity and relatively low incomes [7]. Some households (47.5%) relied on low cost food due to lack of money and 51% revealed that they lacked enough to buy food. Making food available is not enough, one must be able to purchase it especially the low income households [8]. Households must have sufficient income to purchase food they cannot grow themselves. They must have purchasing power

before they have access to available food as household food security is extricably linked to financial security [9]. However, financial insecurity was the case in most of the households making food security a mirage. Food utilization means ensuring good nutritional outcome ie nutrition security, as having sufficient food will not ensure a good nutritional outcome [10]. However, 22.5% and 4% of the women and their household lost weight due to poor food intake and never afforded consuming adequate meal respectively. While the households maintain itself above starvation level, the capacity of adult family members to work and earn is compromised; the capacity of children to learn is diminished and the sound mental and physical development of infants is impaired [6]. According to Ngongi [6] for those persons living at the lowest levels of poverty, there is a clear link between hunger – inadequate food consumption – and investment. Until they have help with the problem of inadequate food consumption, hunger will continue to obstruct their prospects for investment and thus development. Proper utilization, however, depends on proper food storage to guard against spoilage, appropriate handling to avoid disease transmission and proper preparation to ensure nutritionally adequate meal [11].

Measures taken in the households to improve food availability, accessibility and utilization
Food production and consumption of the women in Obukpa and their household showed that the households consumed more of what they did not produce (rice and beans) and less of what they produced (maize and cocoyam). However, there was a clear indication of poor consumption of vegetables even those produced by the households though pumpkin leaves was consumed daily by 27% of the households. This might be due to lack of adequate storage facilities (for fruits and vegetables) and pressing needs. Mayer [12] revealed that starchy staples like rice, cassava, maize and sorghum are the main calories sources in developing countries with good storability characteristics but their micronutrient content is generally low. This simply indicates that micronutrient deficiencies may be highly prevalent in the area since fruits and vegetables though seasonal and perishable are often sold for money.

The women reported using different strategies most often in combination to cope with food security problem. Some (47.5%) used proper preservation/storage techniques, 37.5% bought food in bulk, 24.5% of the women bought food on a daily basis, 32% kept livestock and 30% used land for farming or home gardening to ensure food availability within the household. However, some of the women studied used available foods (9%) or bought food on credit (14%) to help them cope with food security problems.

Body weight perception of the rural women in relation to their body mass index (BMI)

Seventy per cent of the women perceived themselves as normal while only 6% perceived themselves as too fat. However, only 45.5% of the women had a normal BMI. This showed that some of the women who perceived themselves as normal were either underweight, overweight or obese. This is because 14.5%, 23.5% and 16.5% of the women were underweight, overweight and obese respectively. This shows that under-nutrition and over-nutrition coexist in the study area.

VII. CONCLUSION

The households consumed more of what they did not produce and less of what they did produce. However, they lacked the purchasing power to buy the foods they did not produce (financial insecurity). This showed that poverty played a major role in the food insecurity experienced within the households. Poor households usually are the victims of food insecurity [13]. In addition, food insecurity within the household was evident as some of the women and their children went hungry on some occasions due to lack of food.

VIII. RECOMMENDATIONS

Food production should be improved upon as this will help increase food availability within the area.

The women should engage in other income generating activities because when women earn income, they and their children feed better.

Place figures within the text and tables should appear before end of text references

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Table 1: Demographic characteristics of the women studied (n = 200)

Characteristics	F	%
Age range (years)		
20 – 30	65	32.5
31 – 40	105	52.5
41 – 50	24	12.0
51 – 60	6	3.0
Total	200	100.0
Marital status		
Single	24	12.0
Married	157	78.5
Divorced	7	3.5
Widow	12	6.0
Total	200	100.0
Household size		
2 – 4	64	32.0
5 – 7	102	51.0
8 – 10	24	12.0
Above 10	10	5.0
No response	12	6.0
Total	200	100.0

Table 2: Socio economic characteristics of the women studied (n = 200)

Characteristics	F	%
Educational qualification		
None	26	13.0
FSLC	39	19.5
WASC	63	31.5
NCE and above	72	36.0
Total	200	100.0
Occupation		
Housewife/unemployed/student	43	21.5
Cleaner /messenger	12	6.0
Civil servant	57	28.5

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Petty trader/artisan	88	44.0
Total	200	100.0
Monthly income		
Less than N6,000	97	48.5
N6,000 – N8,000	62	31.0
N8,000 – N20,000	22	11.0
Above N20,000	19	9.5
Total	200	100.0

Table 3: Food availability in the households and coping strategies

	F	%
Where food is produced		
Some home produced/some purchased	142	71.0
Home produced	30	15.0
Purchased	28	14.0
Amount spent on food per week		
Below ₦2,000	41	20.5
₦2,000 – ₦6,000	162	81.0
Above ₦6,000	2	1.0
Strategies to ensure food availability		
Proper preservation/storage	95	47.5
Buy food in bulk	75	37.5
Keep livestock	64	32.0
Use land for farm/home garden	60	30.0
Buy food on daily basis	49	24.5
Plan meals carefully	34	17.0
Use available food	18	9.0
Buy food on credit	28	14.0

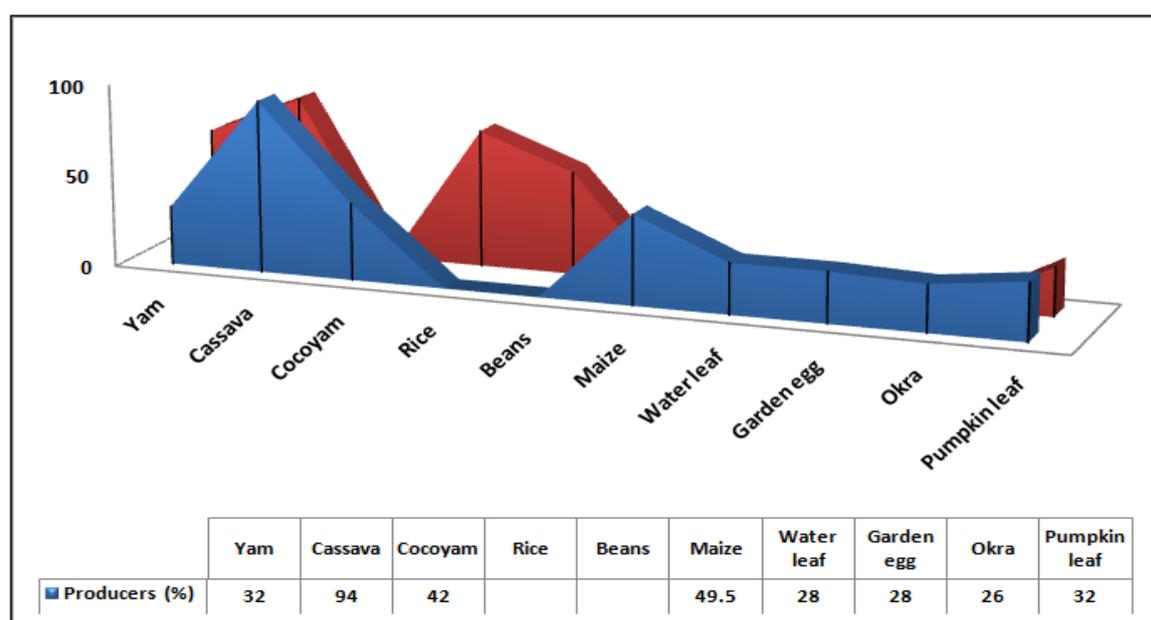


Figure 1: Household food production and consumption of more than 25% (50/200) of the women and their household

Table 4: Impact of poor food accessibility and affordability on the women and their households

Impact	F	%
Consume less food due to lack of food	128	64.0
Do not have enough money to buy food	102	51.0
Relied on low cost food due to lack of money	95	47.5
Child went hungry because of no food	68	34.0
Starved for a day because of no food	51	25.5
Lost weight due to poor food intake	45	22.5
Never afforded consuming adequate meal	8	4.0

Table 5: Self Perception and actual Body Mass Index (BMI) of the women studied

	F	%	
Self-Perception			
Thin	-	-	
Normal weight	140	70.0	
Moderately fat	48	24.0	
Too fat	12	6.0	
Total	200	100.0	
BMI			
BMI Categories			
Underweight (<18.5 kg/m ²)	29	14.5	16.87 ± 1.55
Normal (18.5 – 25.0kg/m ²)	91	45.5	21.47 ± 1.88
Overweight (25 – 30kg/m ²)	47	23.5	27.11 ± 1.60
Obese (>30 kg/m ²)	33	16.5	31.14 ± 1.22
Total	200	100.0	

Mean ± Standard deviation