



Food Security and Nutrition among Farming Households in Akinyele LGA of Oyo State

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Abstract

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This study examines the relationship between food security and nutrition among households in farming communities of Akinyele local government, Oyo state. The study assesses food security using a modified Household Food Insecurity Access Scale (HFIAS) and related household food insecurity with malnutrition among children aged from 6 to 23 months. A multistage sampling was employed for this study. The results shows prevalence of food insecurity and malnutrition for households and children aged 6 to 23 months. It also reveals that food insecure households generally had inferior socioeconomic status than food secure ones. The results of anthropometric measurements of children shows negative Height-for-age z-score (HAZ), weight-for-age z-score (WAZ), and weight-for-height z-score (WHZ), indicating poor nutritional status of the children captured in this study. Significantly, the mean HAZ and WAZ were higher for children in food-insecure households than for those in food-secure households. Prevalence of stunting was 37.67 per cent, while prevalence of wasting and underweight children was 8.37 and 22.02 per cent respectively. Children from food insecure households had higher prevalence of stunting, wasting and underweight. While the difference in stunting and wasting between children in food secure and food insecure households was significant, the difference for underweight was not significant at 5 per cent level. The significance of mothers' education and income of households heads in food secure households relative to food insecure households suggest the importance of investment in educating mothers as well as creating income earning opportunities for heads of households to improve nutritional outcomes.

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INTRODUCTION

The term "food security" was coined in the 1960s and popularized in the 1970s, although has its roots in the 1798 Malthusian theory alerting the world to the impending danger of population growth outstripping food supply at that time (FAO, 2013). Grain

shortages in the Soviet Union and spurts in oil prices centered concerns about food security on country-wise and global food supply narratives in the 1970s. The thematic preoccupation shifted in the 1980s to food access following the seminal contributions of Amartya Sen, highlighting inadequate financial capacity of households to procure food supplies as responsible for food insecurity. By the 1990s, diet

quality and nutritional outcomes including elements of health and the environment had been mainstreamed into the discourse on household food security (Brown and Gentilini, 2006).

The Food and Agricultural Organisation (FAO) defines food security as “*a situation where all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life*” (FAO, 2008). Similarly, “*Food security exists when food is available to everyone at all times, they have means of access, and that it is nutritionally, adequate in terms of quantity, quality and variety also that it is acceptable, within the given culture* (FAO, 2004).”

These definitions and their variants embed the concepts of *availability, stability, accessibility and utilization*. Thus, vulnerability or uncertainty in respect of any of these components is symptomatic of food insecurity (FAO, 2008). As food insecurity receded through time, concerns emerged that dietary intake for large sections of society were lagging behind their minimum energy requirements, leading to pervasive under-nutrition (Ramachandran, 2013).

Food security is closely correlated with the level of nutrition as food insecure households are likely to exhibit a high degree of malnourishment especially among children (Atoloye, et. al., 2015). Thus, by impairing food consumption or dietary intake, food insecurity undermines the nutritional status of the household (Gundersen *et al.*, 2009). However, while food security may be necessary for good nutrition, it is not sufficient as a plethora of contextual, structural, household, and country- specific factors influence nutritional levels (HLPE, 2017). Other factors influencing child nutrition includes “maternal knowledge of nutrition and healthcare practices, maternal nutritional status, intra-household food allocation and utilization, access to health services, and healthful environmental conditions such as good hygiene and sanitation” (Osei, *et. al.*, 2010)

Global hunger levels have been growing with an estimated 804 million people in 2016 and approximately 821 million people in 2017 suffering undernourishment or acute food deprivation, while the share of undernourished people in the world reached 10.9 per cent in 2017 (FAO, *et. al.*, 2018). Africa leads the globe with an undernourishment prevalence rate of 21 percent of the population in 2017, representing about 256 million people. For sub-Saharan Africa (SSA), the prevalence rate was 23.2 percent in 2017, showing progressive increase from

181 million undernourished persons in 2010, to almost 222 million in 2016, and projected at 236 million in 2017 (FAO, *et. al.*, 2018). This steep rise, driven predominantly by poor nutritional outcomes in West Africa, is explained by factors such as sluggish economic growth, escalating food costs and recurring droughts (Ndife, 2017). Comparatively, stunting is a greater challenge in SSA relative to wasting and underweight as 37 percent of children are stunted in SSA relative to a world average of 25 percent (UNICEF, 2015).

According to National Nutrition and Health Survey (NNHS) for Nigeria 2018, Global Acute Malnutrition (GAM) for Nigeria among children aged 6-59 months was 7.0 percent in 2018, moderate acute malnutrition (MAM) was 5.5% and severe acute malnutrition (SAM) was 1.5%. GAM is acceptable if prevalence (< 5%), precarious (5 to 10%), serious (10 to 15%) and critical (>15%). Chronic malnutrition is acceptable if prevalence (< 20%), precarious (20 to 30%), serious (30 to 40%), and critical (>40%). Underweight threshold are 10% (acceptable), 20% (precarious), 30% (serious) and above 30% (critical). SAM prevalence is critical if above 2% (FAO, *et. al.*, 2018). Underweight children (0-59 months) prevalence in Nigeria in 2018 was 19.9 percent which exceeded the global norm of 15 percent, but compares favorably with the 22 per cent for West and Central Africa. Nigeria’s stunting prevalence of 32.0 percent lies within the World Health Organisation’s (WHO) designated “serious band”, although better than the African average of 37 per cent.

The nexus between food security and nutrition is shaped by diet or food intake (FAO, *et. al.*, 2018). Therefore, insights into food consumption patterns, food access, dietary quality and associated environmental factors helps to shed light on the trajectory from food insecurity to malnutrition. A diet devoid of diversity leads to maternal malnutrition which undermines foetal development and infant growth culminating in child stunting (Drewnowski and Darmon, 2005). Several studies have established associations between food insecurity and child growth in Africa and Asia, although ambiguities still exist for North America (Maitra, 2018, Ghattas, 2014). Stunting is precipitated by low infant birth-weights especially in poor communities; which itself is triggered by malnutrition (Maitra, 2018). There is however lack of clarity on the relationship between food insecurity and low birth-weight (FAO, *et. al.*, 2018).

Food insecurity has been found to impede cognitive development and academic performance (Jyoti, *et al.*, 2005). Negative health outcomes such as childhood obesity also tend to be predominant in food insecure or low-income households (Vieweg, *et al.*, 2007). For instance, Casey, *et al.* (2016) found high risk of child obesity based on various measurements of food security. Dubois *et al.*, (2006) concluded that food insecurity made preschoolers in low-income families thrice more likely to become obese. However, Gundersen *et al.*, (2009) reported comparable likelihood of child obesity in both food secure and food insecure households using five measures of obesity, while Rose and Bodor (2006) did not find any correlation between food insecurity and weight and height gain among children.

The objective of this study was to examine the relationship between food security and nutrition among households in two communities of Akinyele local government, Oyo state. The specific objectives were to establish food security in the sample households; compare socio-demographic characteristics of food secure and insecure households, as well as assess nutritional statuses of children in food secure and insecure households.

MATERIALS AND METHOD

Study Location and Sampling

This study was conducted in Akinyele Local Government Area, Ibadan, Oyo State. With headquarters in Moniya, Akinyele local government area occupies a land area of 464.892 square kilometers with a population density of 516 persons per square kilometer. The 2006 national population census put the population of the local government area at 211,811. It is located between latitude 7°25'0"N, longitude 3°39'4"E and latitude 7°42'39"N, longitude 4°07'00"E. According to Okwu *et al.* (2008) and Oluwatayo (2008), malnutrition among children is high in the rural areas of Oyo state.

Sampling

A multistage sampling was employed for this study. First stage – out of the 33 local government areas in Oyo State, Akinyele local government was purposively selected because of its considerable farming population (Balogun, 2011). There are 11 wards in Akinyele local government namely *Ajibade/Alabata/Elekuru, Akinyele/Isabiyi/Irepodun, Arulogun/Eniosa/Aroro, Ijaye/Ojededeji, Ikereku/Iroko, Iwokoto/Talontan/Idi Oro, Ojo Emo/Moniya, Ojoo/Ajibode/Laniba, Olanla/Oboda/Labode, Olode/Amosun/Onidundun, Olorisa*

Oko/Okegbemi/Mele and Iroko. Second stage - simple random sampling was used to select 20% of the wards in Akinyele local government namely *Arulogun* and *Moniya*. There are 9 and 18 cells in *Arulogun* and *Moniya* respectively. Third stage - simple random sampling was used to select 10% of the cells. The number of respondents in the cells was 21 and 39 in *Arulogun* and *Moniya* respectively, totalling 60 respondents.

Population of the Study

The study population comprises of households in the study area.

Data Collection

The study related household food insecurity (insufficient access to adequate food) with malnutrition (underweight, stunting and wasting) among children aged from 6 to 23 months. In assessing food insecurity, the study adapted the Household Food Insecurity Access Scale (HFIAS) (Coates, *et al.*, 2006). For instance, following Osei *et al.* (2010), the study streamlined the original nine questions in the scale into five which were deemed to capture key elements of household food insecurity. The questions included (1) whether they experienced anxiety over food running out in the house while cash-strapped in the past 6 months (2) whether they were unable at any time to feed their children rich diets (e.g. that includes eggs and meat) in the past 6 months (3) whether they exhausted the stock of household food at any time in the past 6 months (4) whether they had to eat less than the usual quantity of food any time in the past 6 months and (5) whether the household skipped meals at any point in the past 6 months.

The response options to each question was— rarely (once or twice), sometimes (three to ten times), or often (more than ten times) and never. A household was considered food insecure if it responded “rarely,” “sometimes,” or “often” to any of the five questions. Otherwise, it was considered food secure.

Anthropometry measurements captured weight, height/length and age of mothers and children. Weight was measured in kilograms using an electronic floor scale (SECA, United Kingdom). Heights and lengths were measured in centimeters using a UNICEF measuring device (*stadiometer*). For accuracy, measurements were made repetitively for each person and the mean values picked. The anthropometry measurements were largely conducted in line with World Health Organisation (WHO) guidelines (WHO, 2008). The information on weight, age and height were used to generate z-scores for

weight-for-age (WAZ), weight-for-length (WHZ), and length-for-age (HAZ). Underweight, wasting, and stunting among children were defined as WAZ, WHZ, and HAZ (< -2 SD from the mean) (WHO, 2006, Osei, *et. al.*, 2010, De Onis, *et. al.* 2007). Descriptive statistics were used to analyse data for household food insecurity, socio-demographic characteristics, and nutritional status.

RESULTS

Table 2 reports percentage of people that had food security issues 6 months prior to the survey. Almost 60 per cent of the households had some measure of unease or concern over household food supply in the 6 months leading to the survey. More than half (55%) were not often able to feed their children nutritious

diets that typically includes foods such as eggs and meat. In general, rich foods were missing in the diet of the children at one point or the other during the reference period for 86 per cent of the households due to lack of money to provide them. About one-quarter of the households exhausted their stock of food at different times during the same period, while more than 40 per cent of the households reported that at least one household member did not have enough food to eat at some point within the 6 months preceding the survey. Finally, less than 22 per cent skipped meals, suggesting that for the preponderance of the households, the problem was more of anxiety over food stream, nutritious diet and adequacy of food intake.

Table 2: Percentage of people that had food security issues 6 months prior to the survey (%)

Frequency	Anxious about household food supply	Unable to feed children rich diet	Household food was exhausted	Household Food provided was not enough	Household skipped meals
Rarely	0	0.7	15.2	4.7	8.7
sometimes	35.8	30	5.6	35.2	9.3
often	23.6	55.4	3.3	2.5	3.5
never	40.6	13.9	75.9	57.6	78.5

Source: Field Survey, 2018

The socio-demographic characteristics presented in Table 3 shows that the average age of all children sampled was 17.6 months, and 16.9 and 17.8 months for food secure and food insecure households respectively. Male children were 66.7 per cent for all sample, 61.2 per cent for food secure and 69 per cent for food insecure households respectively. The average age for mothers in the sampled households was 39.27 years; with average weight of 61.52 kilograms and average height of 163.35 centimeters. More than 85 per cent of mothers were educated.

The average household size was 6.2 members, female-headed households were 8.2 per cent, 92.8 per cent of whom were married; 34.6 per cent of them had no steady or regular income source either from paid employment or viable businesses. In general,

smaller households have a higher likelihood of achieving food and nutrition security while steady and consistent income flows increase probability of attaining security on both fronts (FAO, *et. al.*, 2018; Akinyele, 2009)

Overall, the socioeconomic conditions of food insecure households were worse than food secure ones. For instance, while 91.3 per cent of mothers in food secure households had formal education, 75.1 per cent of them had formal education in food insecure households. Similarly, 42.7 per cent of household heads had regular income source in food secure households, while only 28.5 per cent of them did in food insecure households. These results are consistent with those of earlier studies (Babatunde *et al.*, 2007; Atoloye, 2015)

Table 3: Socio-demographic characteristics for all and stratified (food secure and food insecure) samples

Characteristics	All	Food secure	Food-insecure
Child			
Age (months)	17.608 (6.3)	16.988 (6.1)	17.98 (6.4)
Sex (% ,male)	66.7	61.2	69.0

Mother			
Age (year)	39.27 (8.2)	37.422 (7.4)	40.04 (8.5)
Education (% educated)	85.0	91.3	75.1*
Weight (kg)	51.52 (6.7)	52.192 (7.1)	51.184 (6.5)
Height (cm)	163.35 (6.9)	163.9 (6.9)	163.02 (7.0)
Household			
Household size	6.2 (3.8)	6.65 (5.0)	5.7 (3.3)
Sex of HH (% female)	8.2	6.2	10.5
Marital status of HH (% married)	92.8	91.1	93.6
Income of HH (% with no regular income)	34.6	42.7	28.5*

Note: Figures in parentheses are standard deviations, * indicates significant at 5%
Source: Field Survey, 2018.

Table 4 presents result of anthropometric measurements of children and their juxtaposition with food security status of the households. The negative HAZ, WAZ, and WHZ indicate poor nutritional status of the children covered in this study. Significantly, the mean HAZ and WAZ were higher for children in food-insecure households than for those in food-secure households. Prevalence of stunting was 37.67 per cent, while prevalence of

wasting and underweight children was 8.37 and 22.02 per cent respectively. Children from food insecure households had higher prevalence of stunting, wasting and underweight. While the difference in stunting and wasting between children in food secure and food insecure households was significant, the difference for underweight was not significant at 5 per cent level.

Table 4: Stunting, wasting, and overweight among children aged 6 to 23 months from food-secure and food-insecure households

Indicator	All	Food secure	Food-insecure
Stunting			
Height-for-age z-score (HAZ)	-1.6012 (1.01)	-1.4196 (1.13)	-1.6744 (0.94)*
% <-2 to ≥ -3 (moderate)	28.48	22.39	31.30
%<-3 (severe)	9.19	8.74	9.37
Wasting			
Weight-for-height z-score (WHZ)	-0.5915(0.96)	-0.5096 (0.94)	-0.6279 (0.97)*
% <-2 to ≥ -3 (moderate)	6.64	4.82	7.55
%<-3 (severe)	1.73	1.64	1.82
Underweight			
weight-for-age z-score (WAZ)	-1.2649 (0.92)	-1.1102 (0.94)	-1.3286 (0.91)
% <-2 to ≥ -3 (moderate)	17.29	12.01	19.75
%<-3 (severe)	4.73	5.55	4.28

Note: values are means or percentages and figures in parenthesis are SD. * indicates significance at 5%.

CONCLUSION

This study revealed prevalence of food insecurity and malnutrition for households and children aged 6 to 23 months in two farming communities of Akinyele Local Government, Oyo state. It also showed that food insecure households generally had inferior socioeconomic status than food secure households. The significance of mothers' education and income of households heads in food secure households relative to food insecure households points to the need to invest in educating mothers through formal or informal schooling; as well as enhance income earning opportunities for heads of households in order to improve nutritional outcomes.

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