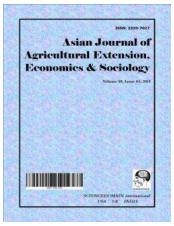

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Determinants of Household Food Insecurity in Rural and Urban Districts of a Southwest State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author FAA designed the study, wrote the protocol and performed the statistical analysis. Authors AAF and AMA managed the analyses of the study. Author AMA wrote the first draft of the manuscript. Authors FAA and AAF managed the literature searches and edited the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aims: To compare food security status of households in Ondo East (a rural) and Ondo West (a urban) Local Government Areas (LGAs) of Ondo State, Nigeria.
Study Design: A comparative cross-sectional study design was adopted for the study.
Place and Duration of Study: The study was conducted in the two LGAs in September, 2012.
Methodology: A multi-stage stratified cluster sampling technique was used to select 420 (rural) and 406 (urban) households' primary caregivers in the LGAs. A structured questionnaire, administered at interview was employed to assess socio-economic characteristics and food security status among participants. Household wealth index, estimated using principal component analysis was classified into five quintiles (1 indicating lowest to 5, highest) while households that

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affirmed to 3 or more of 18-statement food-insecure conditions were classified as being food insecure. Data were analyzed using descriptive statistics, Chi-square test and logistic regression, with the level of significance set at 0.05.

Results: A total number of 850 households were visited, out of which interview took place in 826 (420 rural and 406 urban households), giving a response rate of 97.2%. Slightly above a quarter (28.1%) of the households in the urban areas were food secured compared to 10.5% in the rural. Household food insecurity status was determined by low educational status of care givers in both areas (rural: OR=0.4, 95% CI=0.2-0.6, urban: OR=0.6, 95% CI=0.5-0.9) and being in the first wealth quintile in the rural (OR=8.3, 95% CI=2.7-25.7) and third for urban areas respectively (OR=2.8, 95% CI=1.1-7.3).

Conclusion: Rural-urban inequality in accessing safe and nutritious foods observed could be improved by implementing nutritional programmes focusing on school feeding, particularly in the rural areas.

Keywords: Food insecurity; nutrition; households; primary care givers.

1. INTRODUCTION

Food insecurity has emerged as a major problem facing developing countries [1]. Despite a reduction in the global prevalence of malnutrition from 20 percent in 1990–92 to 16 percent in 2010 [2], an estimate of 795 million people in the world still does not have enough food to lead a healthy active life [3]. Of these people, 12.9% lives in developing countries with vast majority in sub-Saharan Africa, including Nigeria. The level of poverty in Nigeria was reported to increase from 27.2% in the 1980's to 65.6% in 1996. Although, this reduced to 54.4% in 2004 [4], about 6.4% of the population were estimated to be undernourished in 2013 [5]. In Ondo State, the prevalence of household food insecurity ranges between 57-82% as reported in studies conducted in 2005, 2009 and 2011 [6,7].

Households are food insecure when, members of the households, at all times, lack physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life [8]. According to the World Food Summit, Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life [9]. Food security has a global dimension and four scopes which include food availability, access to food, stability of supply and safe and healthy food utilization. It is a fundamental factor in good nutrition, along with health, sanitation and care practices, and is associated with socio-economic and political environment; the performance of the food economy; care practices; interplay of biological factors, sanitation, health and nutrition [9], and poverty [10,11].

The importance of food security has continuously attracted global attention, and as a result the United Nations listed it as the number-one goal in the Millennium Development Goals (MDGs) i.e. "eradicate extreme poverty and hunger" and "halve, between 1990 and 2015 the proportion of people who suffer from hunger" [12]. However, progress on attainment of the MDGs varies widely at countries level, with several countries unable to attain the given target in 2015. Building on the MDGs, the Sustainable Development Goals (SDGs), its successor, had its first and second goals on ending "poverty in all its forms everywhere" and "end hunger, achieve food security, and improved nutrition and promote sustainable agriculture" [13].

Nigeria was among the country that did not attain the MDG goal one, with more than 70% of the population living below the poverty line of less than one dollar a day [14]. A preliminary report on World Bank Global consultation with the poor indicated that communities in Nigeria have a rich, complex and comprehensive experience of poverty. In addition, the Nigeria Demographic and Health Survey (NDHS) 2013, attested to the contribution of poor nutrition and hunger on high toll rates of disability, morbidity and mortality in Nigeria [15]. Ondo State in the southwest of Nigeria was reported to have high proportion of undernourished children (Stunting (24%), wasting (6.6%) and underweight (13.4%). Moreover, previous authors also reported high prevalence of household food insecurity such as 57% [6], 63% [7] and 65% [16] in Ondo State particularly among the rural households where 60.9% of the population lives [17]. This study

was therefore conducted to compare food security status among households in a rural and an urban LGAs of Ondo State as well as identify factors influencing food insecurity among the households.

2. METHODOLOGY

2.1 Study Area

The study was conducted in two Local Government Areas (LGAs) of Ondo State; Ondo East (rural) and Ondo West (Urban). The State has a land mass of 14,788.723 square Kilometres (Km^2) and population of 3,460,877, consisting of male population of 1,745,057 and Females 1,715,820. The State has 18 LGAs and is located in the South western zone of Nigeria. Ondo-East LGA is one of the 18 LGAs of Ondo State. It is located in the Central Senatorial zone of the state. The populations of males and females in the LGA are 38,851 and 37,241 respectively [18]. It is made up of 10 political wards consisting of 3-5 settlement per ward. It is predominantly a rural LGA. The major occupation of inhabitants is farming. On the other hand, Ondo West LGA, an urban area, has a land mass area of 970 km² and a population of 288,868. The populations of males and females are 141,759 and 147,109 respectively. The occupants are predominantly traders and civil servants. There are 12 political wards and each ward having varied numbers of settlements ranging from 27-93 [18].

2.2 Study Design

A comparative cross-sectional study was carried out within four months from September 2012. Food insecurity status of householdsin the urban and rural areas of Ondo State was compared. The study population consisted of household caregiver in two LGAs of Ondo State, Nigeria. Only mothers/primary caregivers (biological and foster mother) who had lived in the areas for one year were included. Eligible participants who were not at home or were ill during the study were excluded.

2.3 Sample Size Determination and Sampling Technique

A sample size of 400 participants was estimated for each of the study area (800 participants for the two areas) to detect a 2% difference in nutritional status among urban and rural children at a type 1 error (α) of 0.05, (in a two-sided test). A multi-stage stratified cluster sampling technique was used to select the households. In the first stage, a list of all the settlements/streets (settlements for rural and streets for urban) was obtained from each ward in the LGAs. Settlements/streets were selected per ward based on probability proportional to size. The selected settlements/streets were used as clusters for the study. In the second stage, the number of houses selected per cluster was also based on probability proportional to size. Mapping of the houses in each cluster was conducted, the number of houses per selected cluster were determined and divided by the total houses in the clusters hence, multiplied by the sample size to determine the number of houses to be selected per each cluster. In the third stage, only one household was selected per house using simple random sampling method by balloting. In any selected household, one eligible caregiver was identified.

2.4 Data Collection and Analysis

A semi-structured interviewer administered questionnaire was used to collect data on socio-demographic characteristics of the household caregiver/head, household wealth index and household food insecurity. Variables focusing on socio-demographic characteristics of respondents were extracted from results of previous study in Nigeria [6,7,8,11,12]. Household wealth index was estimated using principal component analysis as done in previous study [19], and households were further classified into five groups (quintiles) with group-5 belonging to the highest household wealth index and group-1 belonging to the lowest household wealth index [19]. Assessment of household food insecurity was conducted using the Household Food Insecurity Access Scale (HFIAS) as developed in the indicator guide for measuring household food access [20]. The HFIAS was based on responses to a series of 18 questions that described household's food accessibility problems. Each question asked whether food-insecure conditions occurred during the previous 12 months; with responses including often true, sometimes true or never true. Participants that responded to the food security module as 'often true' and 'sometimes true' were grouped together as 'true' (food insecure). Households that denied all or affirmed 1 or 2 items only were categorized as 'false' (food secure), while those that affirmed to 3 or more of the items were categorized as food insecure. Specifically, households that

affirmed to 3 to 7 items were food insecure without hunger, those that affirmed to 8-12 were food insecure with moderate hunger, while those that affirmed to more than twelve items were food insecure with severe hunger.

Data were sorted out, cleaned, edited and coded. It was entered into computer and analysed using SPSS Statistical packages version 20. Descriptive statistics such as frequencies and percentages were used to explain demographic variables of the respondents and explore the food security of the households. Multivariate analysis using logistic regression was used to determine factors associated with household, food insecurity status. Difference of means was tested using t-test, while Chi-square test was employed for differences in proportion. Variables that had a *P*-value of <0.20 on the test of significance were entered into the logistic regression model to determine the predictors of the nutritional status of the children [21]. Results were reported using odds' ratios and their 95% confidence interval.

3. RESULTS

3.1 Socio-demographic Characteristics of Respondents' Households

A total number of 850 households were visited, out of which interview took place in 826 (420 rural and 406 urban households), giving a response rate of 97.2%. The mean age of the household caregivers in the rural communities was 29.3±7.5 compared to the urban ones (31.6±16.6 years) (Table 1). Higher proportion of the caregivers in the urban areas were married (94.0%), compared to the rural communities (93.8%) (p=0.035). Significantly, higher proportion (27.3%) of primary care givers in the urban communities had a tertiary level of education compared to 3.4% in rural communities (*P*< .001).

3.2 Socio-economic Characteristics of Respondents

As shown in Table 2, all the households in the rural areas were in the low wealth quintiles of 1 (160; 38.1%), 2 (159; 37.9%) and 3 (101; 24.0%), compared to the urban communities which have all households members in the higher wealth quintiles: 3 (62; 19.8%), 4 (172; 42.3%) and 5 (172; 42.3). Also, higher proportion (153; 37.7%) of respondents in the urban areas earns 18,000 naira or more annually compared to those (20.2%) in the rural areas that earns less than 18,000 naira (20.2%).

3.3 Pattern of Responses to Household Food Security Questions

Table 3 shows the respondents responses to modules items of food security queries. Significantly, higher proportion of household members in the rural areas affirmed to the module items of food insecurity compared to the urban areas. For instance, majority of the respondents affirmed to; being worried that food would run out [rural (294; 70.0%) vs urban (225; 55.4%)], cutting meal size/skipped meals [(rural (225; 53.6) vs urban (106; 26.1)], feeding their children only on low-cost food [rural (321; 76.4%) vs urban (214; 52.7%)], couldn't feed their children balanced meal [rural (288; 68.6%) vs urban (195; 48.2%)] and children were not eating enough [rural (287; 68.3%) vs urban 181 (44.6%)].

3.4 Prevalence of Household Food Insecurity by Location

Fig. 1 shows the diagrammatic representation of rural-urban comparisons of household, food security status. Higher proportions of the households in the rural area were food insecure without hunger (219; 52.2%), food insecure with moderate hunger (145; 34.5%) and food insecure with severe hunger (12; 2.9%) compared to the urban areas [154 (37.9%), 133 (32.8%) and 5 (1.2%)] respectively (*P*< .001).

3.5 Factors Influencing Household Food Security among Respondents

Table 4 shows the factors influencing household food security among respondents. Significantly, in the rural areas, household caregivers who were below 30 years of age (121; 53.5%) were more food insecure compared to those that were 30 years and above (64; 33.0%), *P*= .001. A significant proportion (46; 82.1%) of the primary care givers in the rural communities who have no formal education were more food insecure compared to those with formal level of education (250; 68.7%), *P*=.04. In the rural areas, higher proportion (60; 37.5%) of respondents from households in the first wealth quintile were food insecure compared to those in the third wealth quintile (20; 19.8%), *P*= .003. In the urban communities, respondents in households in the

third wealth quintile (50; 80.6%) were more food insecure compared to those in the fifth wealth quintile (112; 65.1%), *P*= .02. Higher proportion of respondents that earns below 10,000 naira in the rural areas (192; 78%) were food insecure compared to those that earns 10,000 naira and above (90; 51.7%), *P*=.001.

3.6 Determinants of Household Food Insecurity by Location

The logistic regression was performed to ascertain the effects of educational status, age of primary caregivers, household wealth index and income on the likelihood of occurrence of food insecurity among the households. Among the rural communities, the logistic regression model was statistically significant, X^2 (10) = 44.079, P<0.001. The model explained 21% (Nagelkerke R^2) of the variance in food insecurity and correctly classified 77.8% of cases. In the urban communities, the logistic regression model was statistically significant, X^2 (8) = 31.070, P<0.001. The model explained 12% (Nagelkerke R^2) of the variance of household food insecurity and correctly classified 83.5% of cases.

Table 1. Socio-demographic characteristics of respondents' household

Variable	Location		Total (n=826)	X^2	*P*-value
	Rural (n=420)	Urban (n=406)			
Socio-demographic of care givers					
Age (years)					
<20	15 (3.6)	4 (1.0)	19 (2.3)	81.6	< .001
20-29	211 (50.2)	181 (44.6)	392 (47.4)		
30-39	165 (39.3)	180 (44.3)	345 (41.8)		
40-49	25 (5.9)	31 (7.6)	56 (6.8)		
≥50	4 (1.0)	10 (2.5)	14 (1.7)		
Mean±SD	29.3±7.5	31.6±16.6	30.5±12.2	* 2.5	.59
Marital status					
Single	7 (1.6)	18 (4.4)	25 (3.0)	15.1	.04
Married	394 (93.8)	381 (94.0)	775 (93.8)		
Divorced	6 (1.4)	4 (1.0)	10 (1.2)		
Widow	13 (3.1)	3 (0.8)	16 (2.0)		
Educational level					
No formal education	56 (13.3)	20 (5.1)	76 (9.2)	139.8	< .001
Primary	189 (45.1)	82 (20.2)	271 (32.8)		
Secondary	161 (38.3)	193 (47.5)	354 (42.8)		
Tertiary	14 (3.4)	111 (27.3)	125 (15.1)		
Occupation					
Farming	169 (41.4)	27 (6.9)	196 (24.5)	162.4	< .001
Trading	167 (40.9)	194 (49.4)	361 (45.1)		
Civil servants	14 (3.4)	70 (17.8)	84 (10.5)		
Artisans	48 (11.8)	63 (16.0)	111 (13.4)		
Others	22 (5.4)	52 (13.2)	74 (9.0)		
Educational levels of household heads					
No formal	55 (13.1)	21 (5.2)	76 (9.2)	139.8	< .001
Primary	189 (45.0)	82 (20.2)	271 (32.8)		
Secondary	161 (38.3)	193 (47.5)	354 (42.9)		
Tertiary	15 (3.6)	110 (27.1)	125 (15.1)		
Number of individuals in the household					
<3	21 (5.0)	17 (4.1)	38 (4.6)	60.2	< .001
3-4	128 (30.4)	179 (44.2)	307 (37.3)		
5-6	155 (37.0)	169 (41.6)	324 (39.3)		
>6	116 (27.6)	41 (10.1)	157 (18.9)		
	5.7±3.2	4.7±2.1	5.2±2.4		

** t-test, X2=Chi-square*

Table 2. Socio-economic characteristics of respondents

Variable	Location		Total (n=826)	X^2	*P*-value
	Rural (n=420)	Urban (n=406)			
Household wealth Index quintiles					
1	160 (38.1)	0 (0.0)	160 (19.4)	684.2	< .001
2	159 (37.9)	0 (0.0)	159 (19.2)		
3	101 (24.0)	62 (15.4)	163 (19.8)		
4	0 (0.0)	172 (42.3)	172 (20.8)		
5	0 (0.0)	172 (42.3)	172 (20.8)		
Household monthly income					
<10,000	246 (58.6)	149 (36.7)	510 (61.7)	124.4	< .001
10,000-17,999	89 (21.2)	104 (25.6)	115 (13.9)		
≥18,000	85 (20.2)	153 (37.7)	201 (24.4)		

Table 3. Pattern of responses to household food security queries

*Variable	Location		Total 826 (%)	X2	*P*-value
	Rural 420 (%)	Urban 406 (%)			
Worried food would run out	294 (70.0)	225 (55.4)	519 (62.8)	39.0	< .001
Food bought did not just last	327 (77.9)	345 (84.9)	672 (81.4)	48.5	< .001
Can't afford balanced meal	320 (76.2)	320 (78.8)	640 (77.5)	79.0	< .001
Adult cut meal size/skipped meals	225 (53.6)	106 (26.1)	331 (40.1)	77.9	< .001
Cut meal occurs in 3 or more months	193 (45.9)	90 (22.2)	283 (34.3)	31.7	< .001
Eaten less than they wanted to	239 (56.9)	128 (31.5)	367 (44.4)	56.8	< .001
Hungry but did not eat	185 (44.0)	106 (26.1)	291 (35.2)	35.9	< .001
Lost weight due to no food	114 (27.1)	67 (16.5)	181 (21.9)	26.8	< .001
Did not eat for a whole day	117 (30.4)	53 (13.9)	170 (20.5)	30.7	< .001
Did not eat occurs in ≥ 3 months	100 (23.8)	43 (10.6)	143 (17.3)	22.8	< .001
Fed their children only on low-cost food	321 (76.4)	214 (52.7)	535 (64.8)	72.9	< .001
Couldn't feed their children balanced meal	288 (68.6)	195 (48.2)	483 (58.5)	58.5	< .001
Children were not eating enough	287 (68.3)	181 (44.6)	468 (56.7)	80.9	< .001
Cut size of their children meals	215 (51.2)	105 (12.7)	320 (38.7)	64.4	< .001
Children hungry but no food	83 (19.8)	85 (20.9)	168 (20.3)	0.4	.81
Children skipped meals	128 (30.5)	75 (18.5)	203 (24.6)	18.1	< .001
Children skipped meals occurs in ≥ 3 months	112 (26.7)	70 (17.2)	182 (22.0)	22.4	< .001
Children did not eat for a whole day	21 (5.0)	30 (7.4)	51 (6.2)	2.7	.45

** Multiple response*

Significantly, households where the caregivers had formal education were less likely to be food insecure compared to those that have caregivers with no formal education, in both the rural (OR=0.4, 95% CI=0.2-0.6) and urban communities (OR=0.6, 95% CI=0.5-0.9) (Table 5). In the rural households, respondents in the first wealth quintile were more likely to be food insecure compared to those in the third wealth quintile (OR=8.3, 95% CI=2.7-25.7). Likewise; in the urban households, respondents in the third wealth quintile were more likely to be food insecure compared to those in the fifth wealth quintile (OR=2.8, 95% CI=1.1-7.3).

4. DISCUSSION

This community-based comparative study assessed food security status among households in Ondo East and Ondo West LGAs of Ondo State, as well as identified determinants of food insecurity among the households. The result revealed that averagely, 5.2±2.4 of individuals' lives in the households, with the rural communities having more household members (5.7±3.2) compared to the urban communities (4.7±2.1). This finding invariably indicates that larger quantity of food items would be needed in the rural households compared to the

urban with fewer household members. This result is similar to that of Lagos and Ibadan [22] where the mean household member was 5.3 and that of a study in Uganda where the mean household member was 5.4 [23].

Table 4. Socio-demographic factors associated with household food insecurity

Variables	Location					
	Rural		Total n=420	Urban		Total n= 406
	Food insecure			Food secure		
	Yes	No		Yes	No	
Age of primary care giver in years						
<30	121(53.5)	105 (46.5)	226	54 (29.2)	131 (70.8)	185
≥30	64 (33.0)	130 (67.0)	194	79 (35.7)	142 (64.3)	221
P-value	.001			.16		
Educational level of primary caregiver						
No formal	46 (82.1)	10 (17.9)	56	17 (85.0)	3 (15.0)	20
Formal education	250(68.7)	114 (31.3)	364	260(67.4)	126 (32.6)	386
P-value	.04			.68		
Educational level of household heads						
No formal	50 (90.9)	5 (9.1)	55	14 (66.7)	7 (33.3)	21
Some education	312(85.5)	53 (14.5)	365	273(70.9)	112 (29.1)	385
P-value	.28			.68		
Number of individuals in the household						
≤4	114(76.5)	35 (23.5)	149	120 (61.2)	76 (38.8)	196
>4	221(81.5)	50 (18.5)	271	135(64.3)	75 (35.7)	210
P-value	.22			.52		
Household wealth quintile						
1	60 (37.5)	100 (62.5)	160	0 (0.0)	0 (0.0)	0
2	64 (40.2)	95 (59.8)	159	0 (0.0)	0 (0.0)	0
3	20 (19.8)	81 (80.2)	101	50 (80.6)	12 (19.4)	62
4	0 (0.0)	0 (0.0)	0	113 (65.7)	59 (34.3)	172
5	0 (0.0)	0 (0.0)	0	112 (65.1)	60 (34.9)	172
P-value	.003			.02		
Estimated Household monthly income(₦)						
<10,000	192(78.0)	54 (22.2)	246	101 (67.8)	48 (32.2)	149
≥10,000	90 (51.7)	84 (48.3)	174	151(58.8)	106 (41.2)	257
P-value	.001			.07		

Table 5. Adjusted odds of predictors for household food insecurity

Variables for total population	Odds ratio	95% confidence Interval	*P*-value
For rural population			
Primary Care giver educational status			
Formal education	0.4	0.2-0.6	< .001
*No formal education	1		
Household wealth index			
Quintile(1)	8.3	2.7-25.7	< .001
*Quintile (3)	1		
For urban population			
Primary Care giver educational status			
Some education	0.6	0.5-0.9	.01
*No formal education	1		
Household wealth index			
Quintile(3)	2.8	1.1-7.3	.04
*Quintile (5)	1		

** Reference group*

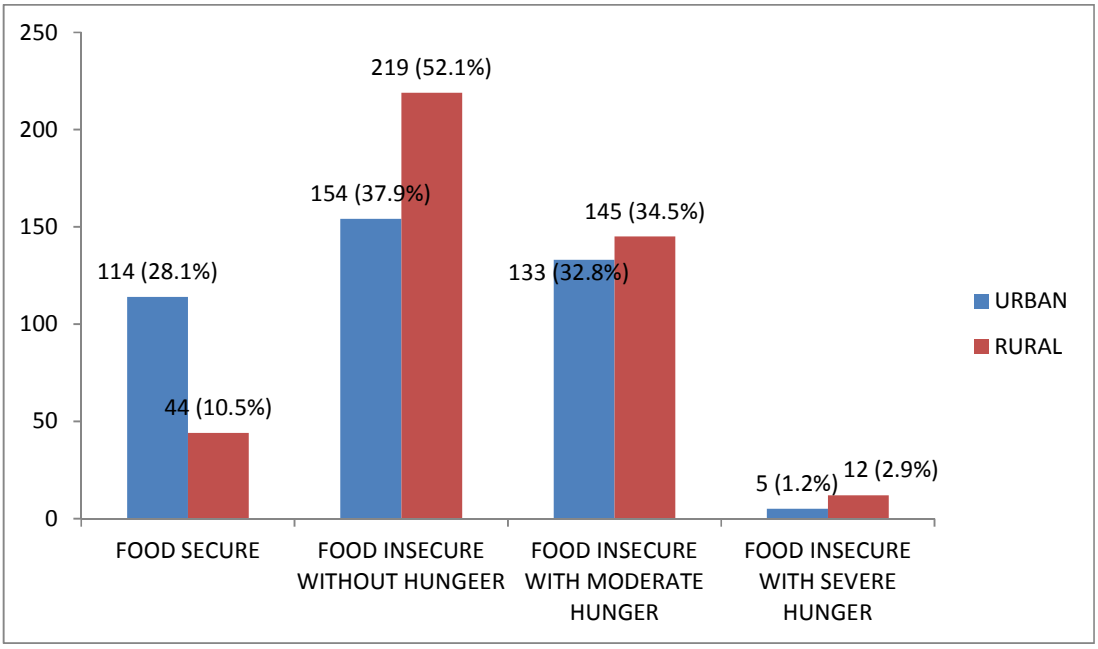

Fig. 1. Food security status of the respondents' household by location

The scope of household food insecurity using the food security assess scale modules covers three very important and interacting phenomena which include: household experiencing uncertainty or apprehension that the household food budget or food supply was insufficient and might result in early food depletion; Insufficiency in quality or quantity of diet, that is, not being able to afford to eat "balanced meals" for the household adult and the children; and household experiencing reduced food intake such as adjusting food intake to the extent of relying on "a few kinds of low-cost food" for the children and reduction in food intake including skipping meals and cutting the size of the meals. We observed that higher proportions of the rural households affirmed to majority of these food insecurity items in the module compared to the urban. Similar observations were also made in previous studies [24,25]. Furthermore, the overall prevalence of household food insecurity in this study was high (80.9%), and this was higher than those of the studies among primary and secondary school teachers in Ibadan and Lagos (74.1%) [23]; cocoa farmers in Ondo State (57%) [6]; urban and rural communities in Ile-Ife (65%) [11]. This finding may be as a result of the current poverty level in Nigeria, where more than 70% of over 140 million population lives below the poverty line of one dollar per day [14]. Thus, resulting to situations where household members can't afford adequate nutritious food. In general, we found that the prevalence of food insecurity was higher in the rural areas compared to the urban respectively. This finding was expected given by the high level of poverty reported to be more pronounced among communities in the rural areas [14]. Furthermore, the prevalence of food insecurity was also high in the urban areas (where 37.9% were food insecure without hunger and 32.8% were food insecure with moderate hunger). The upsurge in the rural-urban migration over the years may have resulted to the high prevalence of food insecurity in the urban areas coupled with the rise in the level of poverty from 28.3% in 1980 to 63.3% and 70% in 2004 and 2010 and unemployment rate in these areas [15].

Factors that significantly influenced household food insecurity in this study include mainly the age and educational level of primary care givers in the rural areas as well the wealth index and monthly income in both the rural and urban households. Similar to earlier observations in the United States of America [26], higher proportion of respondents that were in the younger age group were food insecure compared to those in the rural areas, and this may suggest lack of experience on different coping strategies required to minimize the impact of food insecurity and maintain adequate food access in the home among them. Furthermore, similar to the findings of earlier studies on household food

insecurity [27,28,29], primary caregivers with no formal education were more food insecure than those with formal education in this study. This finding is also similar to the NDHS 2013 report, where 49.7% and 39.7% of under-five children in families with no formal education of mothers were stunted and underweight respectively [17]. The influence of lack of education of the caregivers on household food security may be attributed to the fact that non-educated parents are usually from the poorest segments of the population which are more likely to be food insecure and malnourished [30]. Also, low level of educational attainment may serve as a restriction to better job opportunities and income sources and hence, enhances food insecurity conditions.

Empirical evidence has shown that children living in wealthier households have better health conditions than those living in poorer households [31]. In line with this observation, this study found higher prevalence of food insecurity among households that earns below 10,000 naira as monthly income compared to those earning, 10,000 naira and above. This finding is consistent with those of previous studies in Australia [32], Ibadan and Lagos [22]. This suggests that children in low-income household may lack access to better nutrition, good medical care services and safer environments. Also, in corroboration with an earlier report [33], this study found a positive relationship between wealth status of household and food security status. Households in the lower wealth quintile were more likely to be food insecure compared to those in the higher wealth quintile in both the rural and urban areas. Households in the lower wealth quintile may have limited access to and procurement of foods of high quality and wider variety that is relatively expensive, which often resort to consuming limited food choices and cheaper food items, which are more likely to lack the nutritious values.

5. CONCLUSION

This study is influenced by some limitations which are related to the methods used in this study and these are well recognized. The data obtained from the primary caregivers in this study could have been influenced by recall bias given that they could not be independently validated. However, information in the last one year prior to the study was obtained from the respondents to reduce such bias. Also, the study was conducted only in two LGAs of Ondo State hence, it could be difficult to make generalizations to other areas. The study was conducted in the areas in order to initiate preliminary points for interventions and further studies in a similar context. Food insecurity was high among households in the studied rural areas compared to the urban. Lower level of education of primary care givers and wealth index of households were identified as major determinants of household food insecurity in both areas. All tiers of government should form food assistant programme to help alleviate household food insecurity particularly in the rural areas. Also, government at all levels should provide universal access to education, create jobs for the unemployed graduates and reduce prices of staple food.

ETHICAL APPROVAL

Ethical approval for the study was obtained from the Ondo State Health Research Ethics Review Committee of the Ministry of Health, Nigeria.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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