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Relationship between Socio-economic Characteristics, Use of Family Planning and Household Food Security among Rural Farmers in Ifelodun Local Government, Kwara State Nigeria

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Abstract
The study assessed the relationship between socio-economic characteristics, use of family planning and household food security among rural farmers in Ifelodun Local government Area, Kwara State, Nigeria. A random sampling technique was adopted and a sample size of 240 respondents was used. Percentage, ratio, bar chart and logistic regression analysis were used as tools for analyzing data. The result of the study revealed that about 85% of the total farmers samples were under 45 years, 83% were female and mostly married, 51% had 10 years of farm experience, 70% can read and write, 30% of the farmers often had shortage of food supply while about 72% never went hungry all day long without food. The study further revealed that unmarried persons (70%) were food secured than married couples. Generally, 51% of the farmers were food secured. Gender, age, household size and family planning were determinants of household food security status in the study area. 48% of respondents choose not to practice family planning for religious reasons while 56% agreed that limited land has hampered farming practices.

Key words: Family-planning, Consumption, Food, Household, Meal, Security,

Introduction

Food production comprises factors as land use and tenure, soil management, crop breeding and selection, crop management, livestock breeding and management and harvesting. Food distribution involves a series of post-harvest activities including the processing, transportation, storage, packaging and marketing of food as well as activities related to household purchasing power, traditions of food use (including child feeding practices), food exchanges, giving of gift and public food distribution. Activities related to food utilization and consumption includes those involved in the preparation, processing and cooking of food at both the home and community levels, as well as household decision-making regarding food, household food distribution practices, cultural and individual food choices and access to health care, sanitation and knowledge (FAO, 2014)

However, the current financial crisis seems to have affected food consumption attitudes in many countries. The economic uncertainty and insecurity have led consumers to take decisions minimizing their costs, even for basic needs such as food quantity and quality. This is especially the case in recent time - a period marked with inflation and unemployment, forcing consumers to adjust to economic reality and change the composition of their expenditures (Francisco et al., 2013; Liu et al., 2013); therefore there is a strong shift towards consumption for cheaper products with lower nutritional value.

The thrust of the Millennium Development Goals launched in 1996 by the World Food Summit among other things was to eradicate extreme poverty and hunger. The targets here are to reduce by half the proportion of people who suffer from extreme hunger and people whose income is less than $1 a day between 1990 and 2015 (FAO 2005). This is because hunger perpetuates poverty by reducing productivity, whereas poverty prevents people from producing or acquiring the food they need (Babatunde et al. 2007).

The FAO year 2014 estimates indicates that global hunger reduction continues: about 805 million people worldwide are estimated to be chronically undernourished in 2012–14, down more than 100 million over the last decade, and 209 million lower than in 1990–92. In the same period (2012-2014), the prevalence of undernourishment has fallen from 18.7 to 11.3 percent globally and from 23.4 to 13.5 percent for developing countries. In Africa a total number of 226.7 million people were undernourished between 2012-2014. Sub-Saharan Africa is the region with the highest *prevalence* of hunger. It is estimated that one in four persons in this region is undernourished.

Since 1990-92, 63 countries have reached the hunger target of MDG-1 and 25 countries have achieved the more stringent World Food Security (WFS) target. Of the 63 developing countries, 11 already had undernourishment levels below 5 percent (the methodological limit that can assure significance of the results different from zero) in 1990-1992 and have been able to keep it in that interval. These figures demonstrate that the hunger target of the Millennium Development Goal – of halving the proportion of undernourished people in developing countries by 2015 – is within reach (FAO, 2014). The socio-economic and resources available to individual household has been identified as basic factors influencing the food security status of many households (Sanusi et al. 2006)

Rapid populations growth which is a result of lack of family planning affect the food production system, depleting food supply and its availability, particularly in conjunction with limited land resources, climate change, and shrinking plot sizes. Population growth can influence food demand and prices, limiting food access. Fertility rates can change the age structure in a given population, which affects its caloric needs, food utilization, and consumption (Ellen 2013).

The review on food security showed that voluntary family planning can decrease fertility rates and slow the pace of population growth, thus reducing food needs as well as strains on agricultural resources. In this way, family planning supports the four main pillars of food security—availability, access, utilization/consumption, and stability—and can help ensure that people have both physical and economic access to sufficient food (Ellen et al. 2015)

The overall objective of the study was to investigate the relationship between the socio-economic characteristics and use of family planning as it relates to food security status of rural farmers in the study area. The specific objectives include; (1) Describe the socio-economic characteristics in the study area, (2) examine the household food security status of rural farmers in the study area, (3) examine the correlation between household food security, use of family planning and some socio-economic characteristics and (4) examine the constraints limiting the use of family planning and farming practices.

Materials and Methods

Study Area

The study was conducted in Ifelodun Local Government Area of Kwara State Nigeria. Ifelodun is known for its vast arable and agricultural activities aside the fact that it is the largest local government area in Kwara State in terms of land mass (3,435 km^2) and population (206, 042) according to NPC (2006) and Kwara State Ministry of Internal Affairs (KWSMI, 2002).The major source of livelihood and occupation of the people in the area is farming. Farming is traditional in nature with emphasis on the cultivation of crops such as maize, cassava, yam, melon and Sorghum (KWSMI, 2002).

Sampling Technique

In order to achieve the study objectives, adequate data on demographic characteristics of farmers, use of family planning, household food supply etc and other relevant information were required. The study was especially gender sensitive since it wishes to address the use of family planning. Therefore priority was given to female inclusion in the sampling technique. To achieve sizeable sample size, 30 farmers were randomly drawn from 1 village in each of the 8 districts in Ifelodun local government, resulting to a total of 240 farmers. Approximately 80% of these Farmers were purposely chosen as female.

Data collection

Both primary and secondary data were collected for this study. Structured questionnaire and interviews were used to collect qualitative and quantitative data from the rural farmers in Ifelodun Local Government Area of Kwara State. To ensure quality responses devoid of bias, an interpreter was engaged to interpret questions asked to the understanding of the affected farmer.

The data collected centered on socio-economic characteristics of the farmers namely; age, gender, level of education, years of farming experience, marital status, gender of household head and household size. Other relevant information includes; use of family planning, frequency and variety of food intake based on 12 months of recalled period.

The household hunger and food consumption scale module by Food and Nutrition Technical Assistance (FANTA III, 2011) was adopted. This module was used to highlight information on available food item and dietary diversity within the reach of the family members, the frequency of food consumption within the last 7 days and household food vulnerability.

Statistical Analysis

The study utilized percentage ratio and bar chart to describe the socio-economic characteristics of the farmers. Depending on the objective being addressed, Likert scale of various points was also used.
Logistic regression was employed to investigate factors associated with household food security.
Logistic regression is useful for situations in which the investigator wants to be able to predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables. It is similar to a linear regression model but is suited to models where the dependent variable is dichotomous. Logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model. The empirical model for logistic is given as;

$$P = \frac{e^{\alpha+\beta x}}{1+e^{\alpha+\beta x}}$$

Where; P is the probability of a 1, *e* is the base of the natural logarithm (about 2.718), $\alpha$and β are the parameters of the model (as in normal linear regression). The value of α yields P when x is zero, and β indicates how the probability of a 1 changes when x changes by a single unit. Because the relation between x and P is nonlinear, β does not have as straightforward an interpretation in this model as it does in ordinary linear regression. For simplicity, the linear form of this model is given as;

$$ln = \left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7,$$

Where,
pi- the probability of the ith occurrence
x_1-Gender of the household head (Dummy 1-male, 0-female)

x_2-Age of respondents
x_3-Marital status of the respondents (Dummy 1-married, 0-otherwise
x_4-Educational status of the respondents(Dummy 1-formal education, 0-no formal education
x_5-Household size
x_6-Farm size
x_7-Household Income
x_8-Farmily Planning (Dummy 1-use family planning, 0 not use family planning)

Results and Discussion

The modal age of household head engaging in farming practices falls within 36-45 years (43.6%), this was followed by those within 26-35 years (23.5%). Cumulatively, household head within the ages of 45 years and below account for approximately 85% of the total farmers' sample. This suggests that farmers in the study area cover a wide variance of age brackets from as young as below 25 years to as old as above 45 years. The mean age of respondents actively engaged in farming activities in the study area was 38 years suggesting that an average farmer chosen at random will be a young folk with the ability to expand his or her farm businesses and demonstrate possible technical expertise if trained.

The survey deliberately focus on female farmers to enable us elucidate responses bothering on family planning and food security status. This explains why 83% of farmers investigated were female who are mostly married.

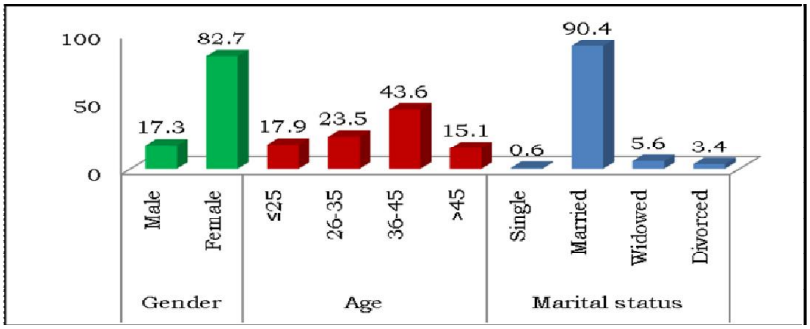

Fig 1: Gender, Age and Marital Status of the Respondents (% Reporting)

The analysis of the years of experience of farmers in the study area shows that majority (51%) had spent an upward of 10 years practicing farming while about 35% had spent 17 years in the farming enterprise. This supports our earlier findings that farmers in the study area are young folks. On the average, more than 86% of the farmers in the study area have spent about 20 years or less practicing farming.

The analysis of household size shows that household size varies from as small as less than 5 persons per household to as much as 10 or more persons in a household. The average size of household members or size was 10 persons per household excluding immediate parents. This is typical of rural farmers who still view large household members as sources of cheap labor. Large household size is usually due to practice of polygamy and /or lack of use of family planning by couples in rural settings. However, studies have shown that the task of providing basic life necessities for such large household size exceeds the gain of cheap labor (Aduba et al, 2013).

Farmers in Ifelodun Local Government Area belong to any of the three most popular religion practiced in north central Nigeria namely; Christianity, Islam and Traditional religion. Cumulatively, more than 99% of farmers in this region are religiously inclined. It is therefore assumed that these religiously inclined farmers will no doubt be judicious in utilizing information especially when it comes through their religious leader. This is an avenue through which new ideas in the agricultural sector can easily be transmitted. The study further revealed that individual farmer agreed to have engaged in other occupations such as trading, artisan and white collar job.

Majority of the respondents appear to be well educated. Cumulatively, more than 70% of the farmers sampled had one form of formal education or the other. Specifically, 29% had a post-secondary education (Tertiary), approximately 21% had attended secondary school while 23% had attempted primary school education. As few as 23% had no record of formal education. Unarguably, literacy levels of the participants at present will no doubt make communication and transmission of ideas aimed at improving agricultural practices easy. Therefore adoption of most recent agricultural technologies in the study area will prove to be advantageous in advancing agricultural practices. Most agricultural land or farms are acquired either through inheritance or leasehold.

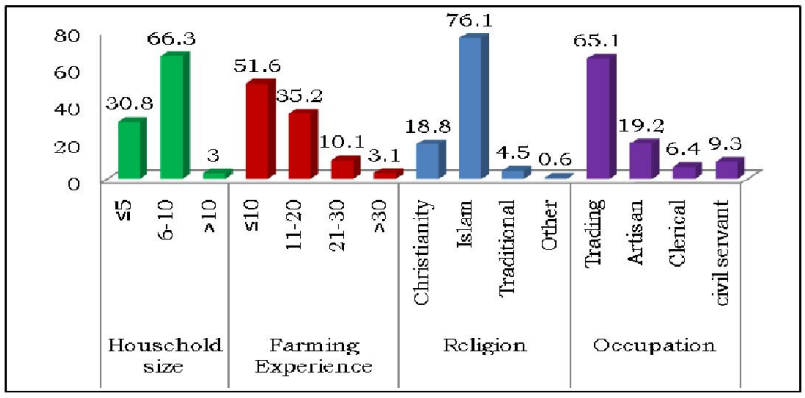

Fig 2: Household Size, Farming Experience, Religion and Occupation of the Respondents (% Reporting)

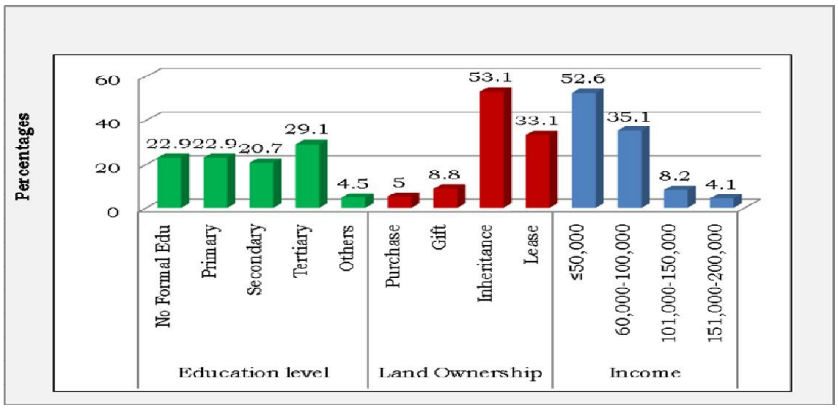

Fig 3: Educational Level, Land Ownership and Annual Income of the Respondents

Household Food Security Status

The household food security status of respondents was investigated using a module adopted from Food and Agricultural Organization (FAO). Table 2 shows the responses of all the 240 rural farmers. Approximately half of the respondents at one time or the other worried that household food will run out before they could get money to buy more. A little above 30% of respondents often or sometime had shortage of food supply as food purchase for household consumption did not last long enough for the next purchase period. The same fraction of respondents also could not afford to eat balanced diet often or sometimes due to food shortages.

34% of respondents or household members had at one time or the other cut size of meal or skip a whole meal because there wasn't enough to go round the household members. Similarly, the same fraction (34%) also indicated to have eaten less food than they should because there was not enough finance to purchase more. Although 72% of respondents never went hungry all day long without food, 28% had gone a whole day hungry because there wasn't enough finance for food. As expected, the same fraction of respondents indicated to have lost weight due to malnutrition.

Not less than 28% of respondents had often or sometimes resolved to low cost food as alternative to a nutritiously viable food items in the household. Table 1 shows that children in some household are not nutritionally viable as 27% of respondents agreed that this is often or sometimes the case. In fact, besides children not having enough to eat in some household, 28% of respondents confessed to have cut down size of children meal due to inadequate food. Generally speaking, it can be inferred from the foregoing that more than one quarter of the respondents had at one time or the other had serious problem with food supply within their household settings.

Effect of Family Planning and Socio-economic Characteristics on Food Security

Using the Household Hunger Scale Indicator and Measurement Guideby Food and Nutrition Technical Assistance (FANTA III 2011), the household food security status was calculated. Respondents were grouped into food secure or food insecure. Table 2 presents the result of the grouping with respect to some selected socio-economic thought to influence food security status. 55% of female respondents were food secure whereas only 20% of male respondents were food secure. This may imply that female in the study area are more food secure than their male counterpart. Gender is therefore mostly likely to influence food security in the study area.

Table 1: Household Food Security Status in the Study Area

	Response			
Variable	Often	Sometimes	Cum.	Never
Worry about food?	3	45	49	51
Food did not last	6	32	38	62
Could not afford balance meal	6	32	38	62
Ever cut the size of your meal	7	27	34	66
Eat less than you felt	8	25	34	67
Were you ever hungry	7	21	28	72
Did you lose weight	6	19	25	75
Did not eat for a whole day	5	17	22	78
Few kind of low cost food	7	21	28	72
Could not feed children balanced meal	8	21	28	72
Children were not eating enough	2	24	27	73
Ever cut the size of children's meal	5	22	28	72
Were the children ever hungry	3	24	27	73
Did the children ever skip a meal?	3	25	28	73
Did any child not eat for a whole day?	4	19	22	78

Table 2 shows that unmarried persons in the study area are more food secured than married couples. This is based on the fact that more than 70% of unmarried respondents are food secure whereas only 46% of married couples are food secured. The reasons for this scenario might be due to large dependants or household size and other family responsibilities. It is reasonable to believe that the larger the household size the more the food items required within the household settings.

Furthermore, those who practice family planning in the study area are found to be more food secured than those who do not practice family planning. This is expected because family planning enables couple to limit child birth to a desired number and also control child spacing during their productive age. With fewer household sizes, the household item requirement is thought to be convenient for household heads in terms of provision of this very important necessity.

Generally, out of the total of 180 respondents interviewed, approximately 51% of the respondents were found to be food secure where as 49% were currently food insecure.

Table 2: Household Food Security Status of Respondents Disaggregated by Some Socio-economic Characteristics (% Reporting)

Variable	**Category**	**Food Security Status**	
		Food Secured	Food Insecure
Gender	Male	20	80
	Female	55	45
Marital Status	Single	79	21
	Married	46	54
Household Size	≤5	58	43
	6-10	47	53
	>10	17	83
Family Planning	Yes	52	48
	No	44	56
Farm Size	≤5 acre	51	49
	6-10 acre	20	80
	>10 acre	15	85
Total		51	49

Factors Affecting Food Security in the Region

In order to establish factors affecting household food security in the study area, the logistic regression was employed. The coefficient of Wald statistic of 14.221 was significant at 1% level implying that logistic regression models can be used to investigate relationship between food security and socio-economic variables. The dependent variables food security was coded to a binary outcome (0 for food secure and 1 for food insecure).

It can be inferred from Table 4 that gender, age of household head, household size, and family planning were determinant of household food security status in the study areas. Table 3 shows that gender is determinant of food security in the study area. This suggests that food security status of respondents is dependent on whether respondents belong to either of male or female category. This corroborates the earlier findings that female are more food secure than male in the study area.

The age of household head has a negative coefficient that was significant at 10% level. This could mean that the older the household head, the lower the chances of the household being food secured. Oni et al, 2011 in assessing the contribution of smallholder irrigation famers on household food security found that age of household head was one of the determining factors and that households with older household head are less food secured.

The coefficient of household size was also found to be negative and significant at 5% level indicating that as household size gets larger, the probability of food security in such household decreases. This implies that larger household size are more food insecure

than small household size. Similarly, Paddy (2003) found that as household size increases, it puts pressure on available food within the household settings thereby making the household vulnerable to food insecurity. Lastly, Family Planning was found to be determinant of food security in the study area. This may be due to the fact that the practice of birth control has two advantages namely; (1) it control child spacing and (2) it limit household size to desired number. As earlier asserted, it is reasonable to conclude that household with fewer household size are more likely to be food secure.

Table 3: Factors Affecting Food Security Status of Respondents in the Study Area

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	2.050	0.662	9.577	1	0.002	7.767
Age	-0.065	0.026	5.996	1	0.014	0.937
Marital Status	0.356	0.801	0.198	1	0.656	1.428
Education	-0.358	0.474	0.571	1	0.450	0.699
Household Size	-0.431	0.176	6.017	1	0.014	1.539
Farm Size	-0.545	0.225	5.888	1	0.015	0.580
Income	0.000	0.000	0.217	1	0.641	1.000
Family Planning	0.124	0.022	5.0564	1	0.037	0.534
Constant	2.248	1.328	2.864	1	0.091	9.467

Wald Statistic = 14.221, Sign = 0.001

Constraints Faced by Rural Farmers

1. *Use of Family Planning*

Respondent were asked to indicate to what extent they agree or disagree with some hypothetical problems generally faced with the use of family planning. Table 4 summarizes the findings. Very few respondents (9%) claimed the non-availability of family planning within their locality. Approximately 48% chose not to practice family planning for religious reasons. About same fraction also cited customary reasons for not practicing family planning.

46% of respondents registered their displeasure with use of family planning as they claim that contraception is risky. This might be due to lack of proper orientation or non-availability of family planning specialist within their immediate locality. Other challenges with use of family planning attested to were; dislike by marriage partner, and accusing spouse of infidelity.

Table 4: Constraints Associated with Use of Family Planning (% Reporting)

	Response					
Variable	A	SA	A*SA	D	SD	U
Non Availability	5	4	9	47	38	5
Religious Reasons	39	9	48	26	23	3
Customary Reason	39	8	47	28	23	2
Contraception is risky	38	8	46	26	19	8
I don't know	31	6	37	35	23	6
My spouse doesn't like it	37	7	44	30	22	4
I may be accused	34	8	42	26	26	6

A-agree, SA-strongly agree, D-disagree, SD-strongly disagree, U-undecided

2. *Farming Practices*

The constraints militating against farming practices were summarized in Table 5. 56% of respondents agreed that limited land has hampered farming practices in the study area. Not less than 59% cited labour as one of the constraints limiting agricultural production in the study area. Similarly, 72% decried limited fund as well as limited credit facilities. Farm inputs which are thought to improve production significantly were cited by 70% of respondents as being limited and thus have hinder farming practices significantly.

Table 5: Constraints Limiting Farming Practices in the study Area

Variable	A	SA	A*SA	D	SD	U
Limited land	36	20	56	18	25	1
Limited labor	35	24	59	18	21	2
Limited fund	39	33	72	14	14	1
Limited credit	37	32	69	12	15	4
Limited inputs	41	29	70	12	15	2

A-agree, SA-strongly agree, D-disagree, SD-strongly disagree, U-undecided

Conclusion

Both children and adult alike have skipped food on several occasions. This has led to more than one quarter of the respondents at one time or the other to have serious food problem. Results of the grouping with respect to some selected socio-economic thought to influence food security status shows that 55% of female respondents were food secure whereas only 20% of male respondents were food secure. Generally, out of the total of 180 respondents interviewed, approximately 51% of the respondents were found to be food secure where as 49% were currently food insecure. Those who practice family planning in the study area are found to be more food secured than those who do not practice family planning. This use of birth control is therefore advocated in the study area. Factors such as gender, age, household size and use of family planning are contributed immensely to food security.

Awareness on safety use of birth control is advocated. Also certain constraints to improved farming practices such as limited land, labour, fund, inputs and credit facilities should be addressed if sustained food security is to be maintained or improved.

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