

# Determinants of Rural Women's Access to Food Security Information in the Niger Delta, Nigeria

Agwu Ekwe Agwu and Ifeoma Irohife<sup>+</sup>

Department of Agricultural Extension, University of Nigeria, Nsukka

**Abstract:** This study sought to determine factors influencing rural women's access to food security information, using Tobit model. Multi-stage sampling technique was used to select 120 for the study. Majority (55%) of the respondents had low access to food security information. Results of the Tobit model showed that information seeking behaviour ( $t = 2.22$ ;  $p < 0.01$ ) had a positive significant influence on rural women's access to food security information, while household size ( $t = -2.87$ ;  $p = 0.004$ ) negatively, influenced rural women's access to food security information significantly. Improved access to credit services and loan ( $M = 1.60$ ) and capacity building and training of women on food security issues ( $M = 1.47$ ), among others were perceived as strategies to improve access to food security information. The study therefore recommends that training programmes on food security issues should be organized so as to increase rural women's access to food security information.

**Key words:** Agriculture, Food Security, Information Access, Rural Women.

## 1. Introduction

In this dynamic world, rural women's information requirement is increasing constantly, especially as they are the key to household food security. Rural women make significant contributions to agricultural production and household food security. [1] noted that rural women are involved in almost all phases of food production and undertake as high as 86, 87 and 62% in planting, weeding and harvesting of crops. [2] further reported that about 60% of agricultural processing in Nigeria was supplied by rural women. Women often play a greater role in ensuring nutrition, food safety and quality, and are also responsible for processing and preparing food for their households [3]. In the Niger Delta region where fishing and crop farming are the dominant agricultural activities, rural women are more involved in processing and marketing of artisanal fisheries and food production than their male counterparts [4].

Given the enormous role played by women, their quick and easy access to information is important for the achievement of household food security. It is noteworthy that many programmes with good intentions, especially in developing countries like Nigeria, often overlook women's needs to access food security information, mainly because researchers, policy-makers and planners lack adequate data, information awareness and methodologies to address them [5]. Hence, this study was conducted to ascertain determinants of rural women's access to food security information in the Niger Delta region of Nigeria. Specifically, the study addressed the following objectives which were to: describe the socio-economic characteristics of the respondents; ascertain their level of access to food security information; identify determinants of rural women's access to food security information; determine perceived constraints to rural women's access to food security information and; ascertain perceived strategies for improving rural women's access to food security information.

## 2. Materials and Methods

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<sup>+</sup> Corresponding author. Tel.: +2348065435735  
E-mail address: ifeoma.irohife@unn.edu.ng

The Niger Delta covers an area of 70,000 square kilometres of marshland, creeks, tributaries and lagoons that drain the Niger River into the Atlantic at the Bight of Biafra. Officially, the Niger Delta consists of nine states namely; Abia, Akwa-ibom, Bayelsa, Cross-river, Delta, Edo, Imo, Ondo and Rivers. The study was purposively conducted in Bayelsa State because it has the highest human poverty index (HPI) in the region [6]. According to the 2006 census, Bayelsa State had a population of 1,704,515 people, out of which 874,083 were males and 830,432 were females [7]. The state has eight (8) local government areas namely Yenogoa, Southern Ijaw, Kolokuma/Opokuma, Nembe, Brass, Ogbia, Sagbama and Ekeremor [8].

A multi-stage sampling technique was employed in selecting 120 rural women across 12 town communities in four local government areas of the state. A structured interview schedule was designed to generate information in the following areas: personal and socio-economic characteristics of the respondents; access to food security information, perceived constraints and strategies for improving rural women's access to food security information.

To determine factors influencing rural women's access to food security information, Tobit Model was used. This model was chosen because it reveals both the probability of access and the intensity of information access. Following [9], the Tobit model for the continuous variable (information access) was defined as:

$$AI_i^* = B_0 + B_i X_i + U_i$$

$$AI_i = AI_i^* \text{ if } B_0 + B_i X_i + U_i > 0$$

$$= 0 \text{ if } B_0 + B_i X_i + U_i \leq 0$$

$AI_i$  = is ratio of information use index for  $i^{\text{th}}$  farmer

$AI_i^*$  = is the latent variable and the solution to utility maximization problem of intensity of information access subjected to a set of constraints per household and conditional on being above certain limit,

$B_i$  = Vector of unknown parameters, and

$U_i$  = is the error term which is normally distributed with mean 0 and variance  $\sigma^2$ .

$X_i$  = Vector of factors affecting access and intensity of information access. The factors were thus;  $X_1$  = Age in years;  $X_2$  = Number of years spent in school;  $X_3$  = Household size in number of persons;  $X_4$  = Farm size (hectares);  $X_5$  = Total household income in naira;  $X_6$  = Access to credit (Access = 1; no access = 0);  $X_7$  = Participation in social activities (Social participation scores);  $X_8$  = Extension visit (1= if visited; 0 = otherwise);  $X_9$  = Mass media exposure (1= if exposed; 0 = otherwise);  $X_{10}$  = Information seeking behaviour (2 = high information seekers; 1 = low information seekers);  $X_{11}$  = Market distance in kilometres;  $X_{12}$  = Innovation proneness (1 = farmers who accept innovation; 0 = if otherwise); and  $X_{13}$  = Achievement motivation (2 = high achievers; 1 = low achievers).

Rural women's level of access to 25 food security activities was rated in a 3 level frequency (always = 2, sometimes = 1 and never = 0), and depending on the need to access information, each respondent was evaluated out of 50 scores. The respondents were asked to indicate their frequency of accessing such information (out of 50). This was categorized into no access (0), low (1 – 16), medium (17 – 32) and high access (33 - 49). To ascertain perceived constraints to rural women's access to food security information, a list of possible constraints was provided and the respondents were required to indicate their responses using a three-point Likert type of: very serious (3), serious (2) and not serious (1). The cut-off mean was 1.0. Data on the socio-economic characteristics were analyzed using frequency, mean and percentages. Tobit Model was used to determine the factors influencing the rural women's access to food security information.

### 3. Results and Discussion

#### 3.1. Rural Women'S Level of Access to Food Security Information

Findings in Table 1 show that majority (56.7% and 50.8%) of the respondents had access to information on crop management activities, food preparation and food processing respectively, while 44.2%, 35% and 30% had access to information on farming system, health and nutrition education, respectively. Also, 26.6%, 22.7%, 20.8% and 19.2% of the respondents had access to information on pest and disease management, harvest management, new agro-technologies, sanitation and sources of safe water, respectively. Those who

had access to information on productive resources, sources of safe water, food prices, marketing of food products, transportation system, food storage and fish marketing constituted 16.7%, 15.8%, 11.7%, 10% and 8.3% respectively.

The results reveal that the women had access to information on crop production and food preparation probably because of their roles as crop farmers and home makers and the fact that these were information they mostly sought from their families as a result of their interest in such information.

Table 1: Percentage distribution of respondents by access to food security information

Agricultural information	Percentages (%)	
	Yes	No
Crop management	56.7	43.3
Livestock management	8.3	91.7
Food preparation	50.8	49.2
Food processing	50.8	49.2
Farming system	44.2	55.8
New agro-technologies	20.8	79.2
Harvest management	21.7	78.3
Pest and disease management	26.7	73.3
Productive resources such as land, inputs and capital	16.7	83.3
Food prices	11.7	88.3
Marketing of food products	11.7	88.3
Transportation system	10.0	90.0
Agricultural support services	7.5	92.5
Nutrition education	30.0	70.0
Health care	25.0	65.0
Sources of safe water	15.8	84.2
Sanitation	19.2	80.8
Government policies/regulations on food	5.0	95.0
Food storage	8.3	91.7
Fish breeding and spawning	3.3	96.7
Fish farming technologies	3.3	96.7
Fish construction and management	3.3	96.7
Fish processing	7.5	92.5
Fish storage	5.0	95.0
Fish marketing	8.3	91.7

Fig. 1 further reveals that majority (55%) of the respondents had low access to food security information, while 30.8% had no access to information on food security. The remaining 12.5% and 1.7% had medium and high access to information on food security, respectively. This implies that the women generally have limited access to agricultural information and this may have contributed to the food insecurity situation in the area. [10] opined that although rural women are actively involved in the process of food production, processing and marketing, social and economic constraints have placed barriers around their access to scientific and technological information. Such constraints could be inadequate access to extension services and other sources of agricultural information. These poor conditions faced by rural women may result to low productivity in crop and animal production and hence, food insecurity.

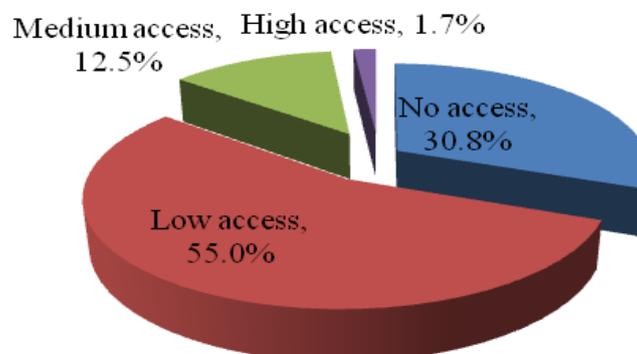


Fig. 1: Respondents' level of access to food security information

### 3.2. Factors Influencing Rural Women's Access to Food Security Information

Estimates of the parameters of the variables expected to determine the access and intensity of information access to household food security of the respondents are presented on Table 2. A total of 13

explanatory variables were considered to be included into the econometric model, out of which two variables were found to significantly influence access and intensity of food security information access. These include information seeking behaviour ( $p < 0.01$ ) and participation in social organization ( $p < 0.05$ ).

Results of the study show that the information seeking behaviour ( $t = 2.22$ ;  $p < 0.01$ ) of the respondents positively influences access and intensity of information access to food security issues and accounted for about 17.7% of the variation. The probable reason for this is that when a person is eager to get information from various sources, she will be motivated to access food security information. Similarly, [11] found that there was a significant and positive relationship between information seeking behaviour of rural women and knowledge of food security issues. As indicated in Table 3, a unit increase in the information seeking behaviour of the respondents will increase the probability of access and intensity of food security information access by 12.3% and 23%, respectively. This shows that information seeking behaviour has a great influence on information access to household food security as it is only when women seek for information so as to satisfy their information needs that they are able to access such information. The result also shows that participation in social organization ( $t = 6.61$ ;  $p < 0.05$ ) has a positive and significant influence on access and intensity of access to food security information and accounted for 40.1% of the variation. This shows that women who participate in social organizations have the opportunity to access food security information in the course of interacting with other farmers during meetings. The findings of [11] also indicated a positive relationship between social participation and enhanced knowledge of dairy women farmers as a result of their access to information on dairy production. Furthermore, Table 3 shows that a unit increase in participation in social organization by the respondents will increase access and intensity of information access to food security issues by 38.1% and 76.4%, respectively. This also shows that women who are involved in various formal and informal institutions or organizations are more likely to be aware of different types of new information.

Table 2: Maximum likelihood estimates of Tobit model for access dependent variable

Explanatory variables	Estimated coefficient	Standard error	T-ratio	P-value
Constant	4.569	6.428	0.71	0.481
Age	0.025	0.069	0.36	0.721
Number of years in school	0.181	0.169	1.06	0.292
Household size	0.019	0.214	0.09	0.931
Farm size	0.002	0.487	0.00	0.997
Participation in social organization	0.401	1.807	2.22	0.031**
Total income	1.42e-06	1.10e-06	1.29	0.203
Achievement motivation	0.795	0.884	0.90	0.373
Mass media exposure	0.282	0.212	1.32	0.192
Innovation proneness	-0.147	1.734	-0.85	0.400
Credit access	-0.194	0.337	-0.06	0.954
Extension visit	0.520	0.358	1.45	0.152
Market distance	-0.439	0.280	-1.57	0.123
Information seeking behaviour	0.177	0.267	6.61	0.000***
Sigma	4.963	0.450		

Log likelihood function= -185.07055  
ANOVA based fit measure(R<sup>2</sup>)= 0.2056  
P= 0.000

LR chi<sup>2</sup>(13)= 95.80

\*\*\*, \*\*= Significance at 1% and at 5% probability level respectively

Table 3: Marginal effects of food security information access

Variables	Change in the probability of food security information access	Change in the probability of the intensity of food security information access	Total change
Participation in social organization	0.381	0.764	1.145
Information seeking behaviour	0.123	0.230	0.353

### 3.3. Perceived Strategies for Improving Rural Women's Access to Food Security Information

Data in Table 4 reveals that the perceived strategies as indicated by the respondents to improving rural women's access to food security information include: improved access to credit services and loan ( $M = 1.60$ ); capacity building and training of rural women on food security issues through seminars, workshops, etc ( $M =$

1.47); improved access to productive resources such as land, input, etc (M = 1.45); reduced cost of food security information and improved access to agricultural research and extension services (M = 1.43), respectively. Others were: capacity enhancement for women farmer organization (M = 1.42); participation of rural women in the identification, design, implementation and monitoring of agricultural programmes (M = 1.38); engaging in off-farm jobs to increase household income (M = 1.37); improved access to communication infrastructure (M = 1.36); and improved rural electrification so as to increase access to food security information via mass media channels (M = 1.33), among others.

Table 4: Mean scores on perceived strategies for improving rural women's access to food security information

Strategies	Mean	Std. deviation
Improved access to agricultural research and extension services	1.43*	0.51
Capacity enhancement for women farmer organization	1.42*	0.53
Improved access to market information and infrastructure	1.21*	0.71
Improved access to communication infrastructure	1.36*	0.56
Participation of rural women in the identification, design, implementation and monitoring of agricultural programmes	1.38*	0.57
Establishment of rural libraries and information centres	1.02*	0.81
Improved access to credit services and loan	1.60*	0.53
Capacity building and training of rural women on food security issues through seminars, workshops, etc	1.47*	0.58
Allocation of more time to information on food security issues in radio and television programmes	1.14*	0.75
Preparation of food security information in simple formats	1.16*	0.71
Establishment of local FM radio station that would broadcast food security information in a non-technical format	1.12*	0.77
Improved rural electrification so as to increase access to food security information via mass media channels	1.33*	0.65
Improved access to productive resources such as land, input, etc	1.45*	0.55
Reduced cost of food security information	1.43*	0.53
Engaging in off-farm jobs to increase household income	1.37*	0.55

\*Perceived strategies

## 4. Conclusion

The findings of this study revealed that rural women generally have low access to food security information. Based on the foregoing, it was recommended that in order to improve rural women's access to food security information, training programmes on food security issues should be organized and conducted based on the information needs of rural women considering timing, duration and location. Also, extension services should focus their dissemination of information on food security issues to rural women since they are the pillar to achieving household food security.

## 5. Acknowledgement

I write to acknowledge the support of my research collaborator, Prof. Agwu Ekwe Agwu.

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