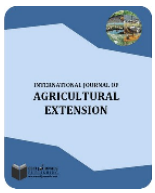

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# RURAL WOMEN'S INFORMATION SEEKING BEHAVIOUR ON HOUSEHOLD FOOD SECURITY ISSUES IN BAYELSA STATE, NIGERIA

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**A B S T R A C T**

Knowledge and information on scientific and technological issues is a necessary condition for rural women to achieve household food security. Therefore, the purpose of this study was to assess the information seeking behaviour of rural women on household food security issues in Bayelsa State, Nigeria. Multistage random sampling procedure was opted to select 120 rural women across twelve town communities in the State. Structured interview schedule was used for collection of data from the sampled respondents. The collected data were analysed using descriptive statistical tools in software Statistical Package for Social Sciences (SPSS). Food security index was used to analyze the food security status of the respondents in the study area. Findings revealed that 61% of the respondents were food insecure, while 39% were food secure. Information on food security issues were mainly sourced from families (52.5%), friends/neighbours (46.7%) and other farmers (30.8%). The respondents perceived information on productive resources such as land, inputs and capital (M =1.18); as their most important information needs. The study further revealed that the respondents sought information on food preparation (88.5%), food processing (84.7%), and farming system (80.8%) from their families. They also had a low information seeking behaviour. The respondents perceived poor income (M = 1.55), and concealment of information by information providers (M = 1.35), among others, as barriers to seeking information. The study underlined the importance of a well-organized institutional information provision on agricultural technologies through extension services to rural women.

**Keywords**: Extension services, food security, information needs, information seeking behaviour, rural women.

## INTRODUCTION

Information can be seen as the basic element in any development activity and it must be available and accessible to all farmers in order to bring the desired development. The role of information in enhancing food security cannot be over emphasized as it is vital for increasing food production and improving marketing and distribution strategies (Oladele, 2006). It is also an indispensable factor in the practice of farming and the basis for extension delivery. Information also open windows of sharing experiences, best practices, sources of financial aids and new markets. It is also a key component in improving agricultural production (World Bank in Brhane *et al.,* 2017), thus leading to improved rural livelihoods and food security. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preference for an active and healthy life (Food and Agriculture Organization, FAO, 2008).

In this dynamic world, rural women's information requirement is increasing constantly, especially as they are the key to household food security. This is because they play significant roles in ensuring nutrition, food safety, and quality and are also responsible for processing and preparing food for their households (Anugwa & Agwu, 2016). Rural women also play an indispensable role in small holder farming systems especially weeding, harvesting, processing and storage (Oladejo *et al.,* 2011).

In Bayelsa State 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 (Alfred-Ockiya, 2000) than their male counterparts. Given the enormous role played

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by women, their access to information on food security issues is, therefore, key to assuring food security for all.

Manda (2002) notes that there is a positive relationship between the increased flow of information and food production, access and utilization. Thus, armed with adequate information, rural women can reduce inputs costs, improve transport links and can have collective negotiations with buyers, hence widening the market for their products (Siyao, 2012). Masuki *et al*. (2010) were of the views that improvement of agricultural productivity and food security will be realised when rural women are linked to market information. Hence, quick and easy access to information is of vital importance for the achievement of food security among rural women. Lwoga (2010) adds that, quick access to relevant knowledge and information can enable rural women to make informed decisions regarding their agricultural production activities, nutrition, health and sanitation. Moreover, according to FAO (2002), improved household food security requires good decision making by rural women, for which better grassroots information availability is imperative. Therefore, access to knowledge and information is an important resource for female farmers who have access to only 10% of agricultural extension programmes (Siyao, 2012).

Rural women's access to information on food security is dependent on their information seeking behaviour. Information seeking behaviour is a broad term encompassing the way individuals articulate their information needs, seek, evaluate, select, and use information (Gundu, 2009). In other words, information-seeking behaviour is purposive in nature and is a consequence of a need to satisfy some goal. In the course of information seeking, Habtemariam, Tegegni & Azage (2015) report that rural farmers, especially women, mainly source for information from neighbours, friends, relatives and children mainly through informal discussion, experience sharing and inviting other farmers to visit their own farms. Brhane *et al.* (2017) further add that information seeking behaviour is an essential component in designing and developing a need-based information sharing technique to meet the information needs of users. Lack of access to needed information by rural women reduces their information seeking behaviour.

However, Munyua (1999) observe that lack of reliable and comprehensive information for rural female farmers is a major hindrance to the achievement of household food security. Furthermore, empirical studies (Prakash, 2003; Sadaf *et al.,* 2006) have shown that they are comparatively less informative than their male counterparts on agricultural technologies that can help them improve their household food security status. Thus, knowledge about the information seeking behaviour of female farmers is crucial for effectively meeting their agricultural information needs on food availability, accessibility and utilization. Based on the foregoing, the study addressed the following research questions: what is the household food security status in the study area? what are the information needs of rural women on food security issues? what is the information seeking behaviour of rural women on food security issues? and what perceived barriers do rural women face in seeking information on food security issues?

The specific objectives of the study were to:

1. determine the household food security status in the study area;
2. identify the perceived information needs of rural women on food security issues;
3. ascertain the information seeking behaviour of rural women on food security issues; and
4. ascertain perceived barriers rural women face in seeking information on food security issues.

**Theoretical Framework:** The concept of information seeking behaviour was coined in the late 1990s, but it traces its roots to the concept of information needs and uses that arose in the 1960s (Case, 2006). Information seeking is a human process that requires adaptive and reflective control over the afferent and efferent actions of the information seeker (Ikoja-Odongo & Mostert, 2006). Kuhlthau (1991) conceives information seeking as a user's constructive effort to derive meaning from information in order to extend their state of knowledge on a particular issue or topic. Information seeking may also be understood as a rational problem-solving process where a gap in knowledge triggers a conscious search for information. It may be defined as physical and psychological characteristics that a person engages in when seeking for information (Mama, 2010). Information seeking behaviour is a broad term encompassing the ways individuals articulate their information needs, seek, evaluate, select, and use information (Gundu, 2009). Wilson in Case (2002) sees it as the purposive search for information in order to satisfy certain goals, while Johnson (1997) defines it as

the purposive acquisition of information from selected information carriers. Case (2002) describes it as a conscious effort to acquire information in response to a need or gap in one's knowledge. Wilson (1999) broadly conceptualises information seeking behaviour as activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring the information.

In the study of information seeking behaviour, the discovery of people's strategies, expectations, attitudes, and anxieties promotes their relationships as they live and work with other information users. Information seekers should begin with finding out what is stopping progress and creating an information gap/vacuum (Mama, 2010). In other words, information-seeking behaviour is purposive in nature and is a consequence of a need to satisfy some goals perceived by the information user, who make demands upon formal or informal information sources or services, resulting in either success or failure (Wilson 1999).

Information need is understood in information science as stemming from a vague awareness of something missing and as culminating in locating information that contributes to understanding and meaning. It is an anomalous state of knowledge, or a gap in individual's knowledge in sense making situations. For a person to experience an information need, there must be a motive behind it (Ajiboye & Tella, 2007). According to Ikoja-Odongo & Mostert (2006), an information need is a requirement that drives people into information seeking and it evolves from an awareness of something missing, which necessitates the seeking of information that might contribute to understanding and meaning. Information need is also construed in the sense of data or a set of data specially required, enabling the user to make an appropriate decision on any related problem facing him or her at any particular time (Solomon, 2002). Laloo (2002) further opine that a need means what a person ought to have, circumstance under which something is lacking, that which one cannot do without and that which is necessary for an organism's health and wellbeing. Case (2009) describe information need as an individual's or group's desire to locate and obtain information to satisfy a conscious or unconscious need. Ekoja (2010) further explains that information needs are the information, which information seekers require to conduct their businesses and live their daily lives. Krikelas (1983) observes over three decades ago that an information need is perceived within the context of an individual's environment. The individual recognises an inadequacy in his/her knowledge that needs to be resolved in order to deal with a problem. The effort to satisfy the perceived need results in information seeking behaviour.

Over the years, information science has produced numerous theories and models that explain the information seeking behaviour. With the advancing technologies, theories of information seeking behaviour have overlapped in parts, and conflicted in others (Fourie, 2004). For instance, in his model, commonly described as the Macro-model, Wilson shows how the information need arises, the actual searching process for information and the testable information behaviour; for example, the information needs differ depending on the work roles or personal characteristics. This model identified 12 components involved in the information seeking process (Aina 2004). Therefore, this model can be viewed as a well-established theory (Wilson 1999). Dervin's model is not only seen as an information seeking behaviour model, but 'a set of assumptions, a theoretic perspective, a methodological approach, a set of research methods, and a practice' (Wilson 1999). The model consists of four different aspects. The first aspect is situation, when the information problem arises. The second aspect is gap, which describes the individual's awareness of the current situation, and the preferred situation. The third aspect is outcome, which reflects the results of the sense-making process, and finally, bridge, which is a closing-gap element (Wilson 1999).

Krikelas (1983) suggests that a user perceives a need within the context of his/her environment. The individual recognises an inadequacy in his/her knowledge which requires resolution in order to deal with a problem, thus leading the user on a search for information through various information sources. These could be human sources, information systems or any other information resources. The process may result in either success or failure; in the latter's case the process can be repeated (Hayden in Ikoja-Odongo & Mostert, 2006). The effort to satisfy a perceived need results in information-seeking behaviour. However, according to Krikelas (1983), unconscious needs do not necessarily lead to eventual action. On the other hand, Kuhlthau ascribes definite stages to the information seeking process of an individual. She identified six stages, i.e.

initiation, selection, exploration, formulation, collection, and search closure/presentation that are followed in sequence (Kuhlthau, 1991). Rather than just mechanically searching for information, this model incorporates the affective (feelings), the cognitive (thoughts) and the physical (actions and strategies) (Hayden in Ikoja-Odongo & Mostert, 2006).

Ingwersen's (1996) model emphasises the role of the cognitive process in the information seeking process. Additionally, it incorporates Information Retrieval (IR) systems as possible information collection strategies. This suggests that an information seeking model should include a system pointing the searcher to possible information objects that could be of interest (Järvelin & Wilson in Ikoja-Odongo & Mostert, 2006). As with most other information seeking models, the concern of this model lies with the active search for information. Choo et al. (in Ikoja-Odongo & Mostert, 2006) identify four modes used specifically in organisations which can be used to explain the searching and acquisition process. The modes consist of undirected viewing, conditioned viewing, informal search and formal search. With undirected viewing the user is exposed to information with no need in mind. This is mainly an exploration exercise that can involve a wide range of information sources which may or may not be of relevance. This form of information retrieval and acquisition is based on previous experience and acquisition (Ikoja-Odongo & Mostert, 2006).

Järvelin and Wilson in Ikoja-Odongo & Mostert (2006) note that most information seeking models are not always based on empirical tests, thus acting more as theoretical models than as ones that can be practically applied (2003). However, the models by Kuhlthau, Ellis and Wilson (1996), are based on empirical tests, while the 1981 model of Wilson has the ability to supply a set of testable hypotheses on information behaviour (Ikoja-Odongo & Mostert, 2006). Generally, most of the models assume that information is actively sought even though they neglect the information retrieval aspect.

In this study, Wilson general behaviour model was applied since it explains how needs prompt people's information seeking behaviour, source preference, why some pursue a goal more successfully than others as well as constraints to the information seeking process. The model also expanded on different types of information seeking behaviour, including 'passive' methods of seeking information, i.e. 'passive search', where unintentional searching leads to the acquisition of relevant information, and 'passive attention' where no intentional information seeking takes place, but information is still unconsciously acquired through listening to the radio or watching television (Mckenzie in Ikoja-Odongo & Mostert, 2006). The aspects of Wilson's model that was applied in this study was that the identification of the information needs on food security issues by rural women prompts them to seek for information (passively or actively) from varied formal and informal sources. However, there were certain barriers (personal, socio-economic and environmental) that intervened against their conscious or sub-conscious search for information on food security issues.

**METHODOLOGY**

The study was conducted in Bayelsa State, which is one of the oil rich States in the Niger Delta Region of Nigeria. It lies between latitudes 4° 15' North and 5° 23' South of the equator and longitudes 5° 22' West and 6° 45' East of the Greenwich Meridian. The southern part of the State experiences equatorial type of climate while the northern part covers the tropical rain forest zone (Nigeria Galleria, 2015). 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 (National Bureau of Statistics, (NBS), 2007). The rural women engage in fishing and subsistence production of crops such as rice, yam, plantain, banana, cassava, cocoyam, coconut, pear, oil palm and raffia palm. The State has eight (8) local government areas namely Yenogoa, Southern Ijaw, Kolokuma/Opokuma, Nembe, Brass, Ogbia, Sagbama and Ekeremor (Nigeria Galleria, 2015). A multi-stage random sampling technique was employed in selecting the respondents. In the first stage, four local government areas (Yenogoa, Southern Ijaw, Ogbia and Sagbama) were purposively selected from the eight local government areas in the State based on the intensity of agricultural production. In the second stage, three town communities were selected at random from each of the local government area, giving a total of twelve (12) town communities.

The town communities selected were:

a) Yenogoa – Tombia, Okitiama and Gbaranturu
b) Southern Ijaw – Ayama, Amatolo and Amasoma
c) Ogbia– Ewoi, Otuasegha and Oruma
d) Sagbama – Tumgbo, Bolorua and Ofoni

In the third stage, the community leaders were asked to make a list of rural women farmers in their

communities. From the list, ten (10) rural women farmers were selected through simple random sampling technique from each of the communities, giving a total of thirty (30) rural women farmers per local government area. Thus, the total sample size for the study was one hundred and twenty (120) respondents.

To determine the household food security status, two methods were employed in this study so as to complement each other. The respondents were required to give their perception of their current food security situation when compared to the previous year. Also, the food security index was used to classify the respondents into food secure and food insecure households (Omonona et al., 2007). The food security index formula is given as under:

$$Fi = \frac{\text{Per capita food expenditure for the ith household}}{\frac{2}{3}\text{mean per capita food expnediture of all households}}$$

Where Fi = Food security index

When Fi > 1= Food secure ith household

Fi < 1= Food insecure ith household

A food secure household is therefore that whose per capita monthly food expenditure fall above or is equal to two third of the mean per capita food expenditure for all the households in the sampled population. On the other hand, a food insecure household is that whose per capita food expenditure falls below two-third of the mean monthly per capita food expenditure of all the households in the sampled population. Additionally, the number of food secure/insecure households in the state was determined by taking the frequency of the food secure/insecure households. The headcount ratio (H) of food security was calculated to measure the percentage of the population of households that are food secure/insecure. The headcount index formula is given by;

Headcount index (H) = M/N

Where M = number of food secure/insecure households

N = the number of households in the sample

To identify the perceived information needs of rural women, the respondents were required to indicate their areas of information needs on a three-point Likert-type scale with options namely: very important; important and; not important. Values assigned to these options were; 2, 1 and 0 respectively. These values were added to obtain 3, which was further divided by 3 to obtain 1.0, regarded as the mean. Variables with mean score less than 1.0 were not regarded as perceived information needs. On the other hand, variables with mean score equal to or above 1.0 were regarded as perceived information needs. To ascertain the information seeking behaviour of the women, a list of information sources was provided, and the respondents were required to indicate the type of information on food security sought from those 14 sources. They were also required to indicate their frequency of seeking for such information which was measured on a five-point rating scale, thus: always =4; often = 3; sometimes = 2; rarely = 1 and never =0. The cut-off mean was 2. Variables with mean scores greater than or equal to 2 were regarded as frequently sourced information. On the other hand, variables with mean scores less than 2 were regarded as not frequently sourced information. To compute the information seeking behaviour of the respondents, each information sought from any source was given one mark; also, any frequently sourced information was also awarded one mark. This was added to give a total of two marks. Thus, each source used by the respondents to seek information was given two marks. The maximum score for each respondent was 28 (14 information sources multiplied by 2 marks each), while the minimum score was 0. Finally, the information seeking behaviour of the respondents was categorized into no (0), low (1 - 9), medium (10 – 18) and high (19 – 27). To ascertain the perceived barriers rural women, face in seeking information on food security issues, a list of barriers were made and the respondents were required to indicate their opinions on a three point Likert-type scale by checking any of the options namely: very serious; serious and; not serious constraints. Values assigned to these options were; 2, 1 and 0 respectively. These values were added to obtain 3, which was further divided by 3 to obtain 1.0, regarded as the mean. Variables with mean score less than 1.0 were not regarded as perceived barriers to seeking information, while variables with mean score equal to or above 1.0 were regarded as perceived barriers. The quantitative data were analysed using descriptive statistical tools such as percentage, frequencies and mean scores. Food security index was used to analyze the food security status.

**RESULTS**

**Socio-demographic Characteristics of Respondents:** Entries in Table 1 reveal that a greater percent (27.5%) of the women were between the ages of 41 and 50 years and 32.5% of them had no formal education. The average household size for the respondents was 8 persons. The average farm size cultivated by the

respondents was about 2 hectares. A greater percent (28.3%) of the respondents earned an income of less than N200,001 annually. Furthermore, the majority (95.8%) of the women did not have access to credit facilities. Also, 92.5% of them indicated that they had not been visited by extension agents in the past one year.

**Perception of household food situation:** Results in Table 2 show that 30% of the respondents opined that their household food situation was a little worst now when compared with that of the previous year, while 29.2% of them indicated that their household food situation was a little better this year.

Table 1. Distribution of respondents according to socio-demographic characteristics.

| Variables | Frequency | Percentage (%) | Mean |
|---|---|---|---|
| Age (years) | | | |
| Below 20 | 2 | 1.7 | |
| 21 – 30 | 12 | 10.0 | |
| 31 – 40 | 27 | 22.5 | |
| 41 – 50 | 33 | 27.5 | |
| 51 – 60 | 27 | 22.5 | 47.2 |
| 61 – 70 | 14 | 11.7 | |
| 71 and above | 5 | 4.1 | |
| Educational status | | | |
| No formal education | 39 | 32.5 | |
| Primary school attempted | 15 | 12.5 | |
| Primary school completed | 24 | 20.0 | |
| Secondary school attempted | 15 | 12.5 | |
| Secondary school completed | 12 | 10.0 | |
| Vocational education | 3 | 2.5 | |
| Tertiary education | 12 | 10.0 | |
| Average number of years in school | | | 8.2 |
| Household size (persons) | | | |
| 1 – 5 | 35 | 29.2 | |
| 6 – 10 | 61 | 50.8 | |
| 11 – 15 | 21 | 17.5 | 8 |
| Above 15 | 3 | 2.5 | |
| Farm size (hectares) | | | |
| Less than 2 | 80 | 68.4 | |
| 2 – 4 | 26 | 22.2 | 1.8 |
| More than 4 | 11 | 9.4 | |
| Income | | | |
| Below 200,001 | 30 | 28.3 | |
| 200,001 – 400,000 | 18 | 17.0 | |
| 400,001 – 600,000 | 20 | 18.9 | |
| 600,001 – 800,000 | 14 | 13.2 | 410,360.2 |
| 800,001 – 1,000,000 | 8 | 7.5 | |
| Above 1,000,000 | 16 | 15.1 | |
| Access to credit | | | |
| Yes | 5 | 7.5 | |
| No | 115 | 92.5 | |
| Extension contact | | | |
| Yes | 9 | 7.5 | |
| No | 111 | 92.5 | |

Also, 28.3% and 5.8% of them were of the opinion that their household food situation was the same as the previous year and worse than the previous year, respectively.

**Household Food Security Status of the Respondents:** Furthermore, 5% of the respondents indicated that their household food situation was much better, while the remaining 1.7% indicated that they do not know their present household food situation.

Table 2. Distribution of respondents according to perception of household food situation.

| Variables | Frequency | Percentage |
|---|---|---|
| Household food situation | | |
| Much worst | 7 | 5.8 |
| Little worst | 36 | 30.0 |
| Same | 34 | 28.3 |
| Little better | 35 | 29.2 |
| Much better | 6 | 5.0 |
| Don't know | 2 | 1.7 |

**Food security status of the respondents using the food security index:** Households were profiled into food secure and food insecure groups based on their per capita food expenditure. The food insecurity line is defined as two-third of the mean per capita food expenditure of the total households studied. The food insecurity line as defined is shown in Table 3.

Table 3. The food insecurity line for the households.

| Deciles | Mean per capita food expenditure – MPCFE (N) |
|---|---|
| First | 3666 |
| Second | 3390 |
| Third | 4169 |
| Fourth | 3122 |
| Fifth | 9160 |
| Sixth | 4078 |
| Seventh | 4961 |
| Eighth | 3894 |
| Ninth | 3230 |
| Tenth | 7229 |
| Eleventh | 4222 |
| Twelfth | 3652 |
| MPCFE | 54773 |
| 2/3 MPCFE | 36516 |

*MPCFE = Mean per capita food expenditure.

Therefore, households whose per capita food expenditure falls below N36, 516.00 were designated food insecure, while households whose per capita food expenditure equals or is greater than N36, 516.00 were food secure. It was observed that 39.2% of the households were food secure while 60.8% were food insecure.

Table 4 further shows that the households could be regarded as food insecure given the fact that based on the headcount ratio, 61% had their per capita food expenditure below N36, 516.00, while 39% had their per capita food expenditure equal to or above N36, 516.00.

**Perceived information needs of rural women on household food security issues:** Entries in Table 5 indicate the perceived information needs of rural women on household food security issues. The information needs perceived as being important by the respondents include:

information on productive resources such as land, inputs and capital (M =1.18); crop management activities such as irrigation, weeding, fertilizer application, planting distance etc., (M=1.09) and; pest and disease

management such as herbicide application, insecticide application, etc., (M = 1.06).

The standard deviation shows that the responses of the respondents do not vary so much from the mean, thereby indicating uniformity in the perceived information needs of the women.

Table 4. Summary statistics of food security status of the households.

| Food security status | Mean | | |
|---|---|---|---|
| | Food secure | Food insecure | All |
| 2/3 Mean per capita food expenditure is N36,516 | | | |
| Percentage of households | 39.2 | 60.8 | 100 |
| Number of households | 47.0 | 73.0 | 120 |
| Head count ratio (H) | 0.39 | 0.61 | - |

Table 5. Mean scores of respondents' perceived information needs.

| Information needs | Mean | Std. deviation |
|---|---|---|
| Crop management | 1.09* | 0.86 |
| Livestock management | 0.67 | 0.82 |
| Food preparation | 0.73 | 0.79 |
| Food processing | 0.78 | 0.83 |
| Farming system | 0.85 | 0.85 |
| New agro-technologies | 0.88 | 0.86 |
| Harvest management | 0.80 | 0.86 |
| Pest and disease management | 1.06* | 0.87 |
| Productive resources such as land, inputs and capital | 1.18* | 0.86 |
| Food prices | 0.57 | 0.80 |
| Marketing of food products | 0.49 | 0.76 |
| Transportation system | 0.51 | 0.78 |
| Agricultural support services | 0.61 | 0.82 |
| Nutrition education | 0.62 | 0.82 |
| Health care | 0.85 | 0.91 |
| Sources of safe water | 0.55 | 0.81 |
| Sanitation | 0.51 | 0.79 |
| Government policies/regulations on food | 0.36 | 0.69 |
| Food storage | 0.49 | 0.77 |
| Fish breeding and spawning | 0.58 | 0.83 |
| Fish farming technologies | 0.58 | 0.83 |
| Fish construction and management | 0.58 | 0.83 |
| Fish processing | 0.57 | 0.83 |
| Fish storage | 0.57 | 0.83 |
| Fish marketing | 0.57 | 0.83 |

*Perceived information needs

**Information seeking behaviour of rural women on household food security issues:** Data depicted in the Table 6 reveals that the majority (88.5%, 84.7%, 80.8% and 71%) of the respondents sourced for information on food preparation, food processing, and farming system and crop management activities from their families.

Also, those who sourced information from friends/neighbours on transportation to ease food access; marketing of food; food price; and fish marketing constituted 75%, 66.7%, 63.6% and 41.7% of the respondents, respectively. The respondents further indicated that they sourced for information on government policies/regulations on food (66.7%), fish farming (50%), sanitation (15.8%) and fish construction and management (14.3%) from the radio. A greater proportion (50%, 43.6%, 27.5% and 22.2%) of the

respondents sourced for information on fish farming, health, nutrition education, sources of clean water and agricultural support services from the private sector which includes catering schools, churches and hospitals. **Categorization of the information seeking behaviour of the respondents:** Figure 1 shows the categorization of the respondents based on their information seeking behaviour. The majority (70%) of the respondents had a low information seeking behaviour, while 26.7% of them did not seek for information on food security. The remaining 3.3% had a medium information seeking behaviour.

Table 6. Percentage distribution of respondents by agricultural information and sources

| Variables | Percentage (%) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Radio | Television | Friends/neighbours | Farmers | Agricultural cooperatives | International organizations | Private sector | Telephone | Community leaders | Extension agents | Research institutes | Families |
| Crop management | 4.3 | 5.8 | 5.8 | 1.4 | - | - | - | 4.2 | - | 7.5 | - | 71.0 |
| Livestock management | - | 8.3 | 16.7 | - | - | - | 16.7 | - | - | - | 8.3 | 50.0 |
| Food preparation | - | 3.3 | 6.6 | - | - | - | 1.6 | - | - | - | - | 88.5 |
| Food processing | - | 1.7 | 8.5 | 3.4 | - | - | 1.7 | - | - | - | - | 84.7 |
| Farming system | 5.8 | 1.9 | 3.8 | 5.8 | - | - | 1.9 | - | - | - | - | 80.8 |
| New agro-technologies | 8.0 | 8.0 | 28.0 | - | - | - | 12.0 | - | - | - | 8.0 | 28.0 |
| Harvest management | 12.5 | 4.2 | 4.2 | - | - | - | - | - | - | - | - | 75.0 |
| Pest and disease management | 11.1 | 5.6 | 33.3 | 22.2 | - | - | 5.6 | - | - | - | - | 22.2 |
| Productive resources such as land, inputs and capital | 5.3 | 5.3 | 26.3 | 26.3 | 10.5 | - | - | - | 10.5 | - | 5.3 | 10.5 |
| Food prices | - | - | 63.6 | 18.2 | - | - | - | - | - | - | - | 18.2 |
| Marketing of food products | - | - | 66.7 | 16.7 | - | - | - | - | 8.3 | - | - | 8.3 |
| Transportation system | - | - | 75.0 | 16.7 | - | - | - | - | - | - | - | 8.3 |
| Agricultural support services | 11.1 | - | 22.2 | 11.1 | - | - | 22.2 | - | - | - | - | 33.3 |
| Nutrition education | - | 5.0 | 20.0 | 5.0 | - | - | 27.5 | - | - | - | - | 42.5 |
| Health care | - | - | 33.3 | - | - | - | 43.6 | - | 2.6 | - | - | 20.5 |
| Sources of safe water | 5.6 | - | 33.3 | 5.6 | - | - | 22.2 | - | 11.1 | - | - | 22.2 |
| Sanitation | 15.8 | 5.3 | 5.3 | - | - | 1.7 | 3.6 | - | 10.5 | - | - | 57.9 |
| Government policies/regulations on food | 66.7 | - | 33.3 | - | - | - | - | - | - | - | - | - |
| Food storage | 12.5 | 12.5 | 12.5 | - | - | - | - | - | - | - | - | 62.5 |
| Fish breeding and spawning | - | - | 25.0 | - | - | - | 12.5 | - | - | - | - | 62.5 |
| Fish farming technologies | 50.0 | - | - | - | - | - | 50.0 | - | - | - | - | - |
| Fish construction and management | 14.3 | - | - | - | - | - | 14.3 | - | - | - | - | 57.1 |
| Fish processing | - | - | 33.3 | - | - | - | 11.1 | - | - | - | - | 44.4 |
| Fish storage | - | - | 28.6 | - | - | - | 14.3 | - | - | - | - | 42.9 |
| Fish marketing | - | - | 41.7 | - | - | - | 8.3 | - | - | - | - | 41.7 |
| Grand Mean | 17.2 | 5.6 | 27.2 | 12.0 | 10.5 | 1.7 | 15.9 | 4.2 | 8.6 | 7.5 | 7.2 | 44.9 |

*Multiple responses

**Perceived barriers rural women face in seeking information on household food security issues:** Data on Table 7 reveal that the perceived barriers to rural women meeting their food security information needs

are: poor income (M = 1.55); inappropriate information by information providers (M = 1.35) and; high cost of acquiring information (M = 1.30).

Other perceived barriers were: poor access to sources of information such as television, radio, internet (M=1.24); poor extension services (M=1.22); poor communication infrastructure (M=1.18); poor participation in social organization (M=1.17); time constraints due to domestic work load, insufficient/lack of power supply and inadequate information system (M=1.15), respectively; age (M=1.12); technical language format of agricultural information and inappropriate airing time of agricultural information (M=1.07), respectively and; poor educational status (M=1.06). The standard deviation did not vary so much from the mean, thereby indicating uniformity in the response of the respondents concerning their perceived barriers to seeking information.

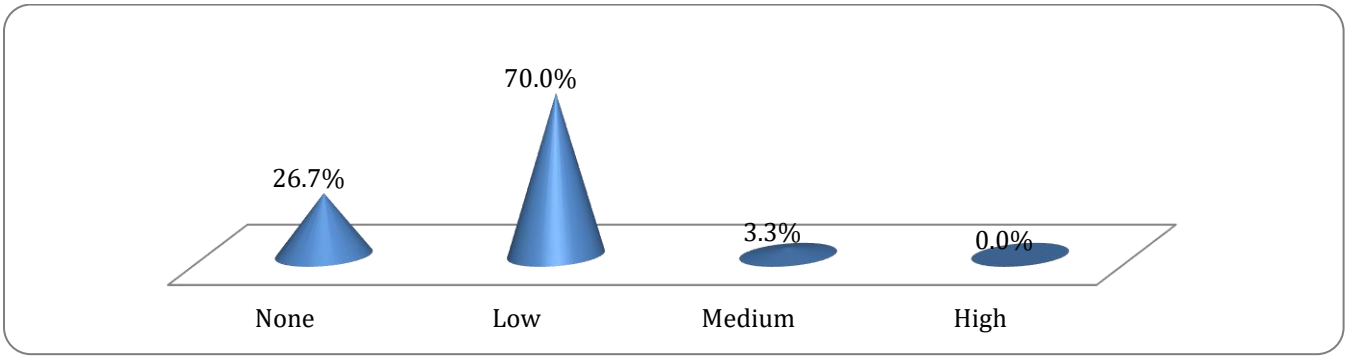


Figure 1. Categorization of the information seeking behaviour of the respondents.

Table 7. Mean scores on perceived barriers to rural women seeking information on household food security issues.

| Perceived constraints | Mean | Std. deviation |
|---|---|---|
| Poor income | 1.55* | 0.66 |
| Poor educational status | 1.06* | 0.78 |
| Large family size | 0.73 | 0.83 |
| Age of the farmer | 1.12* | 0.78 |
| Poor participation in social organizations | 1.17* | 0.75 |
| Poor access to sources of agricultural information | 1.24* | 0.69 |
| Poor health status of rural women | 1.05* | 0.55 |
| Poor extension services | 1.22* | 0.69 |
| Lack of rural agricultural libraries and telecenters | 0.82 | 0.86 |
| Cultural and religious taboos that constrain women's access and use of information | 0.91 | 0.79 |
| High cost of acquiring information | 1.30* | 0.63 |
| Poor communication infrastructure | 1.18* | 0.64 |
| Technical language format of agricultural information | 1.07* | 0.76 |
| Inadequate information system | 1.15* | 0.74 |
| Distance from market | 0.95 | 0.84 |
| Insufficient /lack of power supply | 1.15* | 0.71 |
| Inappropriate information by information providers | 1.35* | 0.68 |
| Inappropriate airing time of agricultural programmes | 1.07* | 0.78 |
| Time constraints due to domestic work load | 1.15* | 0.71 |

*Perceived constraints

**DISCUSSION**

The women generally had low educational level and this could impact negatively on their household food security status. Tadesse (2008) reports that the low educational status of rural women limits their application of modern information that would improve food production. The small farmland cultivated by the women could have implications for their use of food security information as this may discourage them from readily sourcing for and applying information that could increase crop output.

The low income could affect their seeking of information for improving household food security as they may not afford to apply modern technologies to their farming activities. Furthermore, the low extension contact may reduce their chances of seeking food security information on better crop production techniques, improved inputs as well as other production incentives, provided by extension agents. The women affirmed that their food security situation was deteriorating and as such this reinforces the need for adequate information on food security issues to be disseminated to them since they are a key to ensuring household food security. Furthermore, the food insecurity situation in the study area may be attributed to factors such as: poor income; inadequate access to farmland which resulted to limited crop production; inadequate access to credit facilities; and limited extension contact which affects the use of modern food technologies. Sanusi *et al.* (2006) report that 70% of the sampled households in Lagos and Ibadan were food insecure as a result of their poor income and inadequate extension contact. The areas where women needed information on food security issues were identified. Since the respondents are farmers, they obviously need information on farming activities that will boost their food production. The result also show that the women mostly needed more information on productive resources which they have inadequate access to, thereby indicating their willingness to improve their food security situation. In line with this, Munyua (2000) opines that rural women need information on productive resources such as input supply as well as pest and disease management. Similarly, the study conducted by Achugbue & Anie (2011) on the information needs of rural women in Delta State further reveal that women need information on crop management activities such as preservation of harvested products and fertilization application. Saleh & Lasisi (2011) also state that majority of the rural women in Borno State needed information on fertilizer application as well as herbicide and pesticide application. The farmers also reported that they needed information on pest and disease management because of the poor harvest attributed to pest and disease infestation on their crops. It is important to reach rural women with this identified information so that their food needs would be met and their food security situation improved greatly. It was further discovered that the respondents mostly seek for information from close family members and friends probably because they have easier access to them than other sources. However, they have low information seeking behaviour which may be attributed to some socio-economic and cultural constraints such low level of education, inadequate access to farmland and inadequate access to agricultural information from a variety of sources. These factors could affect their willingness to seek for agricultural information and subsequently use it so as to improve their food security situation. Asres (2005) asserted that the information seeking behaviour of rural women enables them to be more productive in their roles of achieving household food security. Perceived barriers to rural women seeking information were identified. Poor income restricts women's access to information as it will make it difficult for them to purchase communication gadgets so as to access information. Opara (2010) note that most small scale rural women farmers have poor income and this constrains their seeking information. Also, Siyao (2012) in his study conducted on barriers to agricultural information access discover that small-scale sugar cane female growers could not seek agricultural information because of lack of enough income to buy communication ICTs. The farmers also reported that information providers such as extension agents conceal information from them because they want them to pay for such information. However, their poor income makes it difficult for them to pay for such information, which comes in form of trainings and printed materials. Poor access to sources of information such as television, radio and extension services has been identified as constraints to the respondents seeking information. The cost of purchasing television and radio, which are major sources of information among rural farmers, is quite high and as such many women cannot afford them. Also, the unstable electricity supply prevalent in most rural areas in Nigeria makes it difficult for those who have these gadgets to access information on food security issues. The situation is made worst as rural women have inadequate access to extension services (Akinyele, 2009). It is a well-known fact that men have more access to agricultural extension services than women. This is because rural women may have to spend long hours working outside the home to raise extra money to buy food, have the pressures of managing its distribution within the family and are most likely to go without food themselves so that their children can get enough and as such they are constrained time-wise to attend extension

trainings programmes, which would enable them access relevant agricultural information.

**CONCLUSION**

The majority of the women have low information seeking behaviour and need information particularly in the areas of productive resources and crop management activities. Furthermore, the major sources of information were informal and as such the reliability of messages through them may not be guaranteed. The situation is further worsened by the fact that the women do not have adequate access to professional extension advisory services on food security information.

The study underlined the importance of a well-organized institutional information provision on agricultural technologies through demand-led extension and advisory services to rural women. Therefore, it is recommended that extension agents should transfer appropriate agricultural technologies to rural women based on their identified information needs. Also, since families, friends/neighbours and other farmers were the most important, close and frequently used sources of information for women farmers, it is recommended that policy makers, extension agents, NGOs and related organizations should consider the impact and influence of informal sources of agricultural information and as such they should be viewed as essential sources of information and trained so as to disseminate information effectively.

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