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Gender-based differences in the utilization of agricultural information sources for rice production in Oyo State, Nigeria

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Abstract

Gender plays a crucial role in agricultural innovation decisions related to food production, and the source through which information is accessed is essential for meeting a nation's food demand. The female gender is important in the rice production value chain, and the roles they play should not be neglected due to gender differences. Data were collected through structured interview schedules from a sample of 145 registered rice farmers using multi-stage sampling techniques in local government areas (Atiba, Ido, Ona-Ara, Lagelu) in Oyo State, Nigeria. This study is subjected to Descriptive statistics and an independent sample T-test. The results showed that 65% of the farmers were male and 35% female. The result indicated that female farmers utilized friends, relatives, and radio more than their male counterparts as their primary source of receiving information on rice production. The T-test indicated no significant difference in the utilization of agricultural information sources between male and female farmers. There should be gender balance when designing and implementing programs by considering accessible sources of information to ensure equal accessibility and utilization of the information for rice production.

Keywords: Gender; Rice production; Agricultural information; Utilization

1. Introduction

Rice production is essential in the economic development of Nigeria. Interest in rice value chain is especially important for policy makers, government, agricultural extension agents in supporting rural dwellers and farming communities providing food for the nation (1,2). To achieve self-sufficiency and less dependency on rice importation, there is a growing need to use information sources, and resources more efficiently in rice production. Despite several national efforts by different governments and administrations to boost local rice output, Nigeria still depends heavily on imported rice to feed her citizen. This arises from challenges due to poor water supply, the use of low-yielding seeds, and the high cost of labour (3,4,5).

Rural women are highly involved in rice farming and post-harvest processes making them a key stakeholder in rice value chain, but they often lack access to land, credit, and extension services. These limitations are mainly caused by socio-economic, information sources and cultural barriers (6,7,8,9). Since women contribute so much to rice production, it is important to understand how both male and female farmers' access agricultural information. This helps in creating policies and programs while utilizing efficient information source that ensures fair access to resources and promote sustainable rice production.

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This study is driven by the need to reduce rice importation and improve policy through gender-sensitive approaches. The aim is to make sure that government-supported agricultural programs benefit both male and female farmers equally (10,11,12).

2. Material and methods

2.1. Study Area and Design

This study was conducted in Oyo State, the southwestern part of Nigeria. It is a region where rice farming and production is widely practiced. A descriptive statistics and independent sample T-test was used to examine how male and female rice farmers access and use agricultural information.

2.2. Sampling Procedure

Multi- stage sampling method was employed in selecting male and female rice farmers that registered with Oyo State Agricultural Development Programme (OYSADEP). The first stage was purposive selection of 15% of the 27 Local Government Areas (LGAs) where rice is cultivated to give four LGAs which are: Atiba, Ido, Ona-Ara and Lagelu. In Atiba there are 122 rice farmers, Ido 67 rice farmers, Ona-Ara 60 rice farmers and Lagelu 41 rice farmers. The second stage was proportionate random sampling to size of rice farmers in the selected local government area to give 61, 34, 30 and 20 respondents in Atiba, Ido, Ona-Ara and Lagelu respectively which give a total sample size of 145 rice farmers. Data was collected with the use of questionnaires through structured interview schedule comprising of both open and ended questions.

2.3. Data Collection

Data were collected using a structured questionnaire that included both open-ended and closed-ended questions. With focus on the sources of agricultural information used by the male and female rice farmers and the frequency at which they access the source of information.

The questionnaire was subjected to face validity by agricultural extension experts and professors in agricultural field. A reliability test was also carried out with a small group of farmers from a different local government area, which helped identify areas needing revision. Trained enumerators, fluent in the local language, conducted face-to-face interviews to ensure the questions were properly understood and accurately answered.

2.4. Data Analysis

Descriptive statistics such as frequencies, percentages, and charts were used to summarize the data. An independent samples t-test was used to compare male and female farmers' use of agricultural information sources. The threshold for statistical significance was set at a p-value of 0.05.

3. Results

Table 1 revealed that majority of the respondents were male rice farmers in Atiba, Ona-Ara and Lagelu with 73.8%, 66.7%, and 65% respectively while in Ido there were more female rice farmers with 52.9% against 47.1% male farmers. The result revealed that females were also involve in rice production. This implies that if women have access to productive resources like male they will be highly involved in agricultural activities.

Table 1 Gender Distribution by local government Area of Oyo State, Nigeria

Gender	**Atiba**		**Ido**		**Ona-Ara**		**Lagelu**		**Total(N=145)**
	n	Percentage (%)	N	(%)	N	(%)	N	(%)	N
Male	45	73.8	16	47.1	20	66.7	13	65.0	94
Female	16	26.2	18	52.9	10	33.3	7	35.0	51

Figure 1 shows that majority of the respondents 65% were male and 35% were female. The proportion of registered male to female was 6:4. This suggests that there were more male registered rice farmers and female are also stakeholders in rice production.

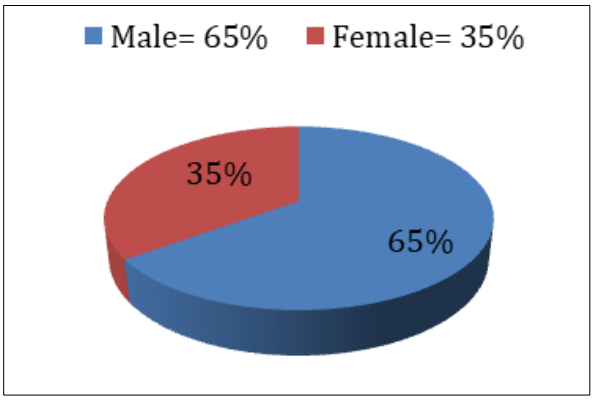

Figure 1 Pie-chart showing gender distribution

Table 2 shows that the prominent sources of information utilized among the respondents were friends or relatives and radio by 69.7% and 65.5% of the respondents respectively. Utilization of trainings/workshop, newspaper and internet source were extremely low. This suggests that respondents appreciate information in local sources and in their local language. Radio has been reported as one of the most widely used sources of information among farmers and rural dwellers at large (13). Considering the critical role of media in information dissemination, it is essential to tap into readily available means within the reach of farmers in order to achieve a widercoverage and possible impacts.

Table 2 Distribution of respondent according to frequency of use of sources of information

Sources of Information	**Daily**		**2-3 times per week**		**Weekly**		**Monthly**		**2-3 times yearly**		**Yearly**		**Not at all**	
	N	%	n	%	N	%	N	%	N	%	n	%	N	%
Radio	95	65.5	16	11.0	27	18.6	2	1.4	1	0.7	3	2.1	1	0.7
Television	20	13.8	16	11.0	19	13.1	29	20.0	9	6.2	9	6.2	1	0.7
Friends and relatives	101	69.7	19	13.1	19	13.1	1	0.7	1	0.7	3	2.1	1	0.7
Internet source	6	4.1	3	2.1	9	6.2	3	2.1	7	4.8	14	9.7	103	71.0
Private Extension agent	26	17.9	21	14.5	38	26.2	29	20.0	10	6.9	7	4.8	14	9.7
Newspaper	4	2.8	4	2.8	27	18.6	27	18.6	11	7.6	11	7.6	6	142.1
Trainings/workshops	1	0.7	13	9.0	38	26.2	45	31.0	33	22.8	9	6.2	6	4.1
Extension agent	17	11.7	15	10.3	53	36.6	24	16.6	13	9.0	9	6.2	14	9.7

Table 3 showed the study analyzed utilization of agricultural information sources among 50 females and 95 males. All females (100%) scored above the mean cutoff (9.25), showing high utilization, with none in the low or equal-to-mean categories. Among males, 92.6% scored above the mean cutoff (16.8), while 7.4% scored low; none scored exactly at the mean. Although scoring scales differ, both genders show strong utilization, with females consistently reporting higher frequencies. These results revealed gender differences in agricultural information sources which is important to consider in rice production.

Table 3 Score Distribution and Mean Comparisons by Gender in the Utilization of Agricultural Information Sources

Category(Scores)	Females n=50		Category(Scores)	Males n=95	
Scores	N	%	Scores	N	%
Low(≤9.25)	0	0	≤16.8	7	7.4
Equal to Mean(=9.25)	0		=16.8	0	0
High(>9.25)	50	100	>16.8	88	92.6
Mean(9.25)	___		Mean(16.8)	__	__

Hypothesis Testing

There is no significant difference in rice production by male and female rice farmers and their utilization of agricultural information sources

Table 4 T-Test for male and female rice farmers level of utilization of Agricultural information sources

Variables	No of cases	Mean	Sd	Standard Error	Mean Difference	T-test	p-value	Decision
Male	95	7.43	2.34	0.24	-0.408	-1.033	0.303	Not significant
Female	50	7.84	2.10	0.29				

4. Discussion

Male rice farmers outnumbered their female counterpart. This suggests that gender roles seems to be influenced by social, cultural or economic factors in the local area. Noticing these variations shows why methodologies and research need to be adapted to encourage women participation in rice production, and a need for radio programs centered on female motivation to engage in rice production. (14) emphasizes the importance of adapting research methodologies that consider gender disparities and the role of media in motivating women's involvement in rice production.

The results indicated that agriculture information on inputs and services spreads mainly through the help of networks and media that everyone can access. Many people depend on friends and relatives for information which points to the central role of informal knowledge-sharing among rice farmers. Many times, information shared on the radio will get passed through these kinds of informal networks. With this, it is easier to spread information by indirect means, especially in areas with little education and where most people rely on close talks. By contrast, internet, newspapers and extension agents were much less commonly used by respondents. Because of this, important paths that farmers use often should be chosen and supported. So, when giving out important information about agriculture or the government, radio is a good method since farmers tend to spread it with their families and other farmers. If these various data exchange patterns are identified and integrated, development activities will be more precise and effective. Listening to radio programs leads farmers to change their practices and discover new information in agriculture thereby passing it to their fellow farmer (15).

The study revealed both total scores and means were higher for males than for females. 100% of the women obtained better scores than the average for their group, indicating everyone participated to a high level, while also maintaining lower averages. Meanwhile, males scored higher (16.8) but did not vary much, as just 7.4% scored lower than the required cut-off. From the results, it can be deduced that females tend to stay at one level, whereas males vary in their performance more broadly, suggesting that for proper participation in agricultural programs toward rice production there is need for gender consideration and the appropriate sources of information. Considering gender when designing agricultural programs to ensure effective communication and participation in rice production in very essential (16).

The results showed no statistical difference between how men and women farmers get agricultural information. The average utilization score for male farmers was 7.43 and for female farmers was slightly higher, at 7.84. Yet, the mean difference of -0.408 was not significant at the 0.05 level, suggesting that the observed variation arose due to luck rather than any true difference. In other words, both women and men use rice information sources at roughly the same rate, according to this study. It seems that agricultural information programs and similar programs have helped male and female farmers use available information equally. The research challenges the widely believed notion that having less

information is a result of being a woman in agriculture. Here, steps to help women receive information seem to have been effective. But, it is still important to keep monitoring and use special strategies to help equal access for both genders in under-served parts of the country. Gender does not significantly affect the utilization of agricultural information sources by emphasizing the effectiveness of agricultural information programs in promoting equal access for both men and women (17).

5. Conclusion

This study uncovered that both men and women in Oyo State mainly gather rice farming information from friends, relatives and radio. This shows the value of using available and easily reached platforms to distribute agricultural information. If agricultural development programs use gender-sensitive ways of providing information, more people are likely to take part and the work will be more effective. As a result, this research helps ensure every farmer can access crucial agricultural advice, boosting farmers and aiding Nigeria's plan to become independent in rice production. The lessons from the research will point policymakers and stakeholders in the right direction for enhancing impactful gender-sensitive communication strategies that reach every part of the farming community.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest for this manuscript.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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