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The Roles Played by Gender in the Production Activities of Rice Farmers in Abia State, Nigeria.

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Abstract

The study evaluated roles played by gender in the production activities of rice farmers in Abia State, Nigeria, focusing on demographic characteristics. Data was collected from 204 respondents using structured questionnaires and analyzed using descriptive statistics, regression models, and z-tests. Findings reveal that an average age for both men and women rice farmers was 37 years. Result further showed that the majority (38.7%) are aged between 26 – 30 years. 62.8% had secondary education, which might positively influence their ability to adopt modern farming techniques in rice production. Most respondents (58.8%) were married. According to the survey males has a percentage distribution of 55.9% while females had 44.1%. Most farmers engage in farming and trading (38.2%), majority (73.5%) cultivates between 1 – 3 hectares of land and farmers (77%) are full-time participants. The findings revealed the distinct roles of men and women in rice farming. Men dominate labor-intensive activities such as land preparation and pest control, while women are heavily involved in planting, weeding, and marketing. The hypothesis revealed that significant relationship between gender roles and engagement was significant at 5% level, women's engagement in nurturing and marketing contrasts with men's dominance in physical and technical tasks. The study recommends gender inclusive policies, improved access to farming resources, and capacity-building initiatives to enhance productivity and equity in rice farming. Addressing these issues can optimize productivity, promote economic growth, and ensure sustainable development for rice farmers in Abia State.

Keywords: Agriculture, Rice production, Gender, Activities, Roles.

Introduction

Agriculture plays a pivotal role in the economies of many developing nations, serving as the foundation of development strategies. It employs nearly two-thirds of the workforce across the continent and contributes between 30% and 60% to national GDPs, while also accounting for roughly 30% of export revenues (World Bank, 2020). By addressing poverty, boosting incomes, and ensuring food security for 80% of the global poor-primarily rural residents reliant on farming-agriculture is a powerful tool for promoting sustainable development. It is essential for achieving global development goals, addressing hunger, advancing

industrialization, diversifying economies, managing resources sustainably, and creating jobs to improve overall food and human security.

Food, as a central agricultural product, is vital for maintaining health and combating disease. Cereal crops, such as rice, wheat, and maize, play a critical role in food security, supplying over 60% of daily caloric intake in developing nations (Mckevith, 2004).

Nutrition and health are key aspects of development policy, and dietary patterns often reflect a nation's developmental status. Rice, as a staple cereal crop, is crucial for meeting dietary energy needs and supporting healthy growth in Nigeria. Globally, rice feeds approximately half the population and is a dietary staple for over 750 million people in Sub-Saharan Africa (USDA, 2018).

In Nigeria, improved rice varieties have been developed and are suitable for various climatic conditions in regions like Abia State. The National Cereal Research Institute (NCRI), Badeggi, has classified these varieties into four categories: early-maturing types (e.g., FARO 27 and FARO 44), medium-maturing types (e.g., FARO 29, FARO 35, and FARO 57), late-maturing types (e.g., FARO 7, FARO 12, and FARO 15), and deep-water varieties (e.g., FARO 14 and FARO 15) (NCRI, 2009). Among these, FARO 44 is the most widely distributed and adopted (Adesina, 2012).

Gender, defined as the roles, behaviors, and expectations assigned by society to different identities, significantly influences agricultural practices (Agarwal, 2003). Historically tied to biological sex, gender is now understood as a dynamic social and cultural construct that varies across communities.

In agriculture, gender roles are shaped by cultural, economic, and regional contexts, influencing task division, responsibilities, and access to resources (FAO, 2011). These differences impact productivity, economic outcomes, and social dynamics.

Gender in Agriculture

Crop Cultivation: Men often undertake physically demanding tasks such as plowing and harvesting, especially for cash crops. Women focus on household crops, like grains and vegetables, while also contributing to commercial farming. Women are typically involved in planting, weeding, and post-harvest processing.

Animal Husbandry: Men manage large livestock (e.g., cattle, camels), while women care for smaller animals (e.g., chickens, goats) that provide household income or food.

Decision-Making and Land Ownership: Men generally control land ownership, farm income, and major agricultural decisions. Women's decision-making roles are often limited, especially in patriarchal settings, though they sometimes lead agricultural ventures.

Household Roles: Women often juggle agricultural labor with household duties like childcare and food preparation, while men focus primarily on income-generating farming tasks.

Access to Resources: Men typically have better access to resources such as credit, training, and advanced farming technologies. Women's limited access reduces their ability to expand agricultural activities.

Adaptation to Change: Women play a critical role in responding to environmental changes due to their knowledge of crop diversification and water management. However, men often have better access to large-scale adaptation tools like irrigation systems and machinery.

Gender Roles in Rice

In rice farming, gender influences labor division, decision-making, and resource access:

Land Preparation: Men handle labor-intensive activities like plowing and land leveling, often using machinery, while women assist with tasks like clearing debris or weeding (FAO, 2011). Planting and Transplanting: Women frequently transplant rice seedlings, a labor-intensive task requiring precision, with occasional support from men (Saito et al., 2019). Weeding and Fertilization: Women handle weeding and

applying fertilizers during the crop cycle, while men manage chemical fertilizers and pesticide applications requiring specialized knowledge (International Rice Research Institute, 2020).

Water Management: Men oversee irrigation systems, particularly technical ones, while women contribute to smaller-scale or traditional water management practices (Pari and Chi, 2005). Harvesting and Post-Harvest Activities: Both men and women are involved in harvesting. Men typically use machinery and handle transportation, while women focus on cutting, bundling, and post-harvest tasks like threshing and storage (Agarwal, 2003). Decision-Making and Income Control: Men dominate decisions regarding land use and large-scale equipment purchases, while women manage smaller-scale sales, particularly for home consumption (Saito et al., 2019).

Access to Resources: Men have better access to tools, training, and credit, which enables them to adopt modern farming practices. Women's limited access restricts their productivity, despite their significant labor contributions (FAO, 2011). Efforts to address gender inequalities in rice production include improving women's access to training, credit, and decision-making power. These measures can enhance productivity and promote economic growth in rice-producing areas (Pari and Chi, 2005). In agricultural households, men and women participate in various rice production activities, from land preparation and planting to harvesting and marketing. However, their roles often differ, with men performing tasks like chemical application and land clearing, while women focus on transplanting, weeding, and post-harvest processing (Dalai et al., 2020, cited in Maduka et al., 2023).

Problem Statement

Despite the significant contributions of both men and women in rice farming, there may be gender disparities in the distribution of roles, access to resources, and decision-making power in Abia State, Nigeria. These disparities could impact overall productivity, in Land Preparation where Men handle labor-intensive activities like plowing and land leveling, also Planting and Transplanting, where Women take a pivotal role in transplanting rice seedlings, it could also affect women handle Weeding and Fertilizer during the crop cycle, while men manage chemical fertilizers and pesticide applications. During Harvesting and Post-Harvest period, if the gender roles were not properly managed, it will result to poor harvest. According to Food and Agricultural Organization, 2011 Men have better Access to Resources like tools, training, and credit, Women's limited access restricts their productivity, despite their significant labor contributions to sustainability, and equitable economic benefits within the rice farming community in Abia State, understanding the dynamics of gender roles in rice farming production activities is essential for designing policies and interventions that support both male and female farmers effectively. This study, therefore, seeks to investigate the specific roles associated with gender in rice farming activities to promote balanced development and improve productivity among rice farmers in Abia State. It is therefore, necessary to Evaluate the Roles played by Gender in the Production Activities of Rice Farmers in Abia State, Nigeria.

The following objectives will be analyzed;

i. Describe the demographic characteristics of the respondents;
ii. identify gender roles in rice production activities;

Hypothesis of the Study

H_1 = Roles play by gender has no significant influence on the extent of engagement in rice farmers production in Abia State.

Methodology

Study Area

Nigeria, located in West Africa with a population exceeding 230 million, is the most populous nation on the continent. The tropical regions in the south receive annual rainfall between 1,500 to 2000 millimeters, which support various agricultural enterprises (Iowa, 2009).

Abia State is a state in the South-East geopolitical zone of Nigeria, it is bordered to the Northwest by Anambra State and Northeast by the states of Enugu, and Ebonyi, Imo State to the west, Cross River State

to the East, Akwa Ibom State to the Southeast, and Rivers State to the South. The predominant languages speak in Abia State are Igbo and English languages. Abia state is in the humid forest zone of Nigeria. The Local Government Area has an average rainfall of 2351 mm, average minimum diurnal temperature of 28 °C and relative humidity range between 80 and 90%. The vegetation of the area is predominantly lowland rainforest, which makes it suitable for growing rice, and others etc. This has led to the area becoming the food basket of Abia State. The area is inhabited primarily by the Igbo people (allnews, 2023). It experiences an average weather temperature of 28 °C. The area witnesses two distinct seasons which are the rainy and dry seasons. The average humidity level is put at 62% (Meteotrend, et: al, 2023).

Data Collection

Data for this study were generated from primary source through the administration of questionnaire, and use of oral interview schedule.

Sampling Technique

A multi-stage sampling procedure was adopted in selecting a sample of 204 respondents. The first stage was a purposive selection of Umuahia, Ohaifia and Aba Agricultural zones from the three agricultural zones in Abia State. These zones were purposively selected because of the high level of rice farm production activities they undertake. In the second stage Ikwuano, Bende and Ukwa–ngwa Local Government Area were purposively selected based on the number of rice farmers in the area. The third stage involved a random selection of two (2) extension blocks from each of the selected LGAs, given a total of 6 blocks. Two (2) cells were randomly selected from each of the six (6) extension blocks to get the total number of twelve (12) cells. Seventeen (17) rice farmers were randomly selected from each of the twelve (12) selected cells 10 males and 7 females to get a total of 204 respondents. Thus, a sample size of 204 rice farmers production was selected for the study; hundred and four (104) men and hundred (100) women.

Data Collection

Data for the study were collected using a structured questionnaire, for the effective, some extension agent were trained on how to administer the questionnaire and they served as enumerators who helped in the distribution and retrieval of the questionnaire.

Measurement of variables

Objective i, and ii, was realized using frequencies and percentage. A benchmark mean of 2.5 was used in decision making. X_m was used to represent the mean score for male while X_f was for female.

Hypothesis

The hypothesis was tested using z-test at 5 % α- level

$Z = \frac{x-\mu}{\sigma/\sqrt{n}}$

X = sample mean

μ = population mean

σ = population standard deviation

n = sample size.

Hypothesis 1:

Ho_1: There is no significant relationship in roles play by gender and the extent of engagement in rice farmers production. The regression model as used by Nwankwo (2021) was fitted as:

$Y = (X + X_1, \mathbf{X_2}, \mathbf{X_3}, X_4, X_5, X_6, X_7, e)$. 1

Where

Y = extent of engagement

$X - X_n$ = Gender roles

X_1 = Site selection

X_2 = Recommended rice varieties

X_3 = Land preparation
X_4 = Seed preparation
X_5 = Time of sowing
X_6 = Fertilizer application
X_7 = Compost from rice residues
X_8 = Weed control (hand weeding and use of herbicides)
X_9 = Pest and disease control
X_{10} = Harvesting (threshing and winnowing)
X_{11} = Storage
X_{12} = Parboiling
X_{13} = Transportation
X_{14} = Packaging
X_{15} = Marketing of rice
e = error term.

Results and Discussion

Table 1. the socio-economic characteristics of the rice farmer's production in Abia state.

Variable	Frequency	Percentage	Mean
Age			
≤ 20	23	11.3	
21 – 25	41	20.1	
26 – 30	79	38.7	
≥ 40	61	29.9	
Levels of education			
No schooling	29	14.2	
Primary	43	21.1	
Secondary	65	31.9	
Tertiary	63	30.9	
Marital status			
Yes	120	58.8	
No	84	41.2	1.41
Gender			
Female	90	44.1	
Male	114	55.9	0.56
Occupation			
Farming	64	31.4	
Trading	33	16.2	
Civil servant	29	14.2	
Farming and trading	78	38.2	1.59
Unemployment			
1 – 3	108	52.9	
4 – 5	96	47.1	3.17
Farming experiences			
1 – 2	69	33.8	
3 – 5	135	66.2	3.17
Levels of participation			
≥ 4	107	52.5	
≤ 8	97	47.5	5.90
Hectares of land			
1 – 3	150	73.5	
4 – 5	54	26.5	2.88
Nature of participation			
Part-Time	47	23.0	
Full-Time	157	77.0	1.77

Cooperative membership			
Yes	100	49.0	
No	104	51.0	0.49

Source: field survey, 2024.

Table 1 highlights the demographic diversity among rice farmers in Abia State. The majority (38.7%) are aged between 26 – 30 years with mean age of 37, reflecting a relatively young and active farming workforce. Those aged 40 and above constitute 29.9%, suggesting significant involvement of middle-aged farmers. Educational levels, a combined 62.8% have secondary (31.9%) or tertiary education (30.9), which might positively influence their ability to adopt modern farming techniques in rice production. The high level of education supports the likelihood of adopting improved farming methods. Most respondents (58.8%) are married, implying potential family labor support in farming activities. According to the survey males has a percentage distribution of 55.9% while females contributed 44.1%. Most farmers engage in both farming and trading (38.2%), indicating the diversification of income sources as a coping strategy against agricultural risks. A significant majority (73.5%) cultivate between 1 – 3 hectares of land, show casing the dominance of smallholder farmers. Most farmers (77%) are full-time participants, suggesting that rice farming is their primary livelihood.

Table 2. Gender roles in rice production activities;

Gender roles in rice production	**Men**		**Women**		Total	Std.	Total
	F	%	F	%	Mean	Devia.	sum
Site Selection	162	79.4	42	20.6	1.21	.405	246
Recommended Rice Varieties	105	51.5	99	48.5	1.49	.501	303
Land Preparation	184	90.2	20	9.8	1.10	.298	224
Seed Preparation	105	51.5	99	48.5	1.49	.501	303
Time Of Sowing	45	22.1	159	77.9	1.78	.416	363
Fertilizer Application	45	22.1	159	77.9	1.78	.416	363
Compost From Rice Residues	45	22.1	159	77.9	1.78	.416	363
Weed Control (Hand Weeding And Use of Herbicides)	45	22.1	159	22.1	1.78	.416	363
Pest And Disease Control	184	90.2	20	9.8	1.10	.298	224
Harvesting (Threshing and Winnowing)	184	90.2	20	9.8	1.10	.298	224
Storage	184	90.2	20	9.8	1.10	.298	224
Parboiling	184	90.2	20	9.8	1.10	.298	224
Transportation	184	90.2	20	9.8	1.10	.298	224
Packaging	45	22.1	159	77.9	1.78	.416	363
Marketing Of Rice	45	22.1	159	77.9	1.78	.416	363
Total Mean					**21.47**		
Grand mean					**1.43**		

Source: field survey, 2024.

Table 2 reveals the distinct roles of men and women in rice farming. Men dominated activities: site selection (79.4%), land preparation (90.2%), pest and disease control (90.2%) and transportation (90.2) are predominantly male tasks, likely due to their physical demands aligning with the traditional gender roles that assign men the more physically demanding farm tasks. Women domination activities: sowing (77.9%); fertilizer application (77.9%); and marketing (77.9%) are activities demanding precision and consistency, skills often associated with women in agricultural settings. Shared roles: tasks like seed preparation and recommending rice varieties show near-equal participation, suggesting collaboration in decision-making. The roles of gender in rice farming, with men dominating physical tasks while women contribute to processing and marketing. The high level of education supports the likelihood of adopting improved rice farming methods. The grand mean of 1.43 indicates a slight overall male advantage in the number of roles

performed. Gender specific roles reflect societal norms where men handle physically taxing activities while women manage precision-driven repetitive tasks.

Table 3. Two-sample z test

Variables	Obs.	Mean	Std. Err.	Std. Dev.
Gender Role	14	1.405714	.2672612	.8818919
Extent of Engagement	4	3.565	.5	2.585018
Diff		-2.159286	.5669467	-3.270481

Source: field survey, 2024.

According to Table 3, there was significant relationship between gender roles and engagement ($z = -3.81$, $p < 0.0001$). Women's engagement in nurturing and marketing contrasts with men's dominance in physical and technical tasks.

Recommendations

Based on the findings, the following recommendations are made:

I. Improved Resource Access: government and agricultural stakeholders should enhance women's access to resources such as credit, training, and modern farming tools to bridge gender gaps in productivity.
II. Promotion of Improved Rice Varieties: efforts should focus on the distribution and awareness of early and medium-maturing rice varieties to improve yield and reduce risks associated with deep-water varieties.
III. Gender-inclusive strategies: design gender-sensitive agricultural policies to ensure equitable participation and benefits in rice production activities.
IV. Support women in farming: increase access to land, credit, and training for women to enhance their productivity in areas where they already excel, such as sowing and marketing.

Conclusion

The study concludes that rice farming in Abia State is a vital economic activity influenced by gender dynamics and socio-economic factors. While men dominate labor-intensive tasks, women play crucial role in ensuring productivity and sustainability through planting, marketing, and processing. Strengthening gender inclusion and supporting farmers with improved technologies and consistent policies can significantly improve productivity, income, and overall livelihood outcomes for rice farmers in the region.

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