

Gender Specific Factors Associated With Forest Products' Utilization Among Rural Dwellers in Osun State, Nigeria

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Abstract

This study assessed the gender specific factors associated with forest products' utilization among rural dwellers in Osun State, Nigeria. It specifically described the socio-economic characteristics of male and female rural dwellers and isolated factors associated with forest products' utilization. Multi-stage sampling procedure was used in selecting a total of 240 respondents. Structured interview schedule was used to elicit data. Data collected were analyzed using descriptive and inferential statistical tools. The results show that the mean ages of male and female respondents were 50.28 ± 11.65 and 43.88 ± 10.82 respectively, while the mean total annual income for male and female respondents in the study were respectively $\text{N}374925.58 \pm \text{N}40000.13$ and $\text{N}345100.01 \pm \text{N}20000.96$. Kaiser-Meyer-Olkin (KMO) value of 0.659 for male and (KMO) value of 0.633 for female respondents showed that the patterns of the correlation were relatively compact and the analysis yielded distinct and reliable factors. Varimax factor rotation pattern was used to isolate crucial factors associated with forest products' utilization on gender basis. It was concluded that the greatest factor influencing males on their utilization of forest products was 'experience-knowledge' factor contributing 25.84 percent of variance, while that mostly influencing female respondents was 'experience' factor contributing 20.35 percent of variance. It was therefore, recommended that gender inclusion in forestry programmes and policies are essential for sustainable rural livelihood development.

This is to ensure that males and females are given liberty by eliminating social and cultural barriers acting as impediments to gender utilization of forest products.

Key words: Forest products; Gender specific factors; Rural dwellers; Utilization

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INTRODUCTION

Forests have been supportive to human existence in terms of ecosystem stability for centuries. Forest products are natural resources, which have many inherent advantages, especially when viewed from an environmental perspective since they are renewable, recyclable, biodegradable and carbon neutral. This indicates the fact that forest products are genuinely sustainable (Bradley, 2001; Olatunji, 2012). According to Centre for International Forestry Research (CIFOR) (2015) report, dry forests provide a variety of foods (from bush meat to fruits and mushrooms) for human nutritional requirements and numerous medicines to prevent and cure illnesses.

Despite the increasing awareness of the great potentials of gender equity in development, females all over Africa still face the age-old problems of neglect, inequality, inadequate access to productive resources and dependency on males for survival resulting in gender imbalance (Amo-Aido, Hensel and Sturm, 2020). It is unfortunate to note that despite the level of civilization in the world today, gender inequality and disparities between males and females are still prominent in many countries of Africa. Being born a male or a female affects one's life chances and opportunities in most societies in Africa (World Economic Forum, 2020).

According to World Economic Forum (WEF) (2020), gender disparities in rights constraint the set of choices available to both males and females in many aspects of their lives, often profoundly limiting their ability to partake in or benefit equitably from developments in Africa. Hence, females in rural communities of African countries command less range of productive resources than males, especially land and other forest resources.

Obviously, society and the global economy are dependent and closely linked to forests. Data from the Food and Agriculture Organization of United Nations (FAO, 2015) show that over 1 billion people depend on forest for their livelihoods and forest ecosystems play a critical role in climate stabilization and consequent improvement of quality of life of the people, protection of water sources, food supply, timber and medicinal products, while at the same time maintaining much of the world's biodiversity. However, deforestation has led to damages on water sources, trees and silting of rivers around the world (da Silva et.al, 2016).

According to Aguitar, Quesada-Aguitar and Shaw (2011) females across the developing world, especially Africa are major users of forest resources and their sale of non-timber forest products (NTFPs) is vital to help cover household expenditures and tide them through the leaner times of the year. The heavier dependence of rural dwellers on forests also implies that females have more at stake than males when forests are deforested or forest access denied. Yet the balanced needs and concerns of males and females are often neglected and the ownership of forests and the sale of valuable forest products (especially timber) are largely under the control of males (Food and Agriculture Organization, 2014). However, there is a dearth of gender focused empirical evidence on specific factors associated with forest products' utilization among rural dwellers in the study area.

Objectives of the study

1. To identify the socio-economic characteristics of rural dwellers; and
2. To isolate the gender specific factors associated with forest products' utilization in the study area.

Hypothesis of the study

In line with the above objectives the following hypothesis was tested in the null form: there is no significant relationship between the socio-economic characteristics of the respondents and their level of forest products' utilization.

METHODOLOGY

This study was carried out purposively in Ife/Ijesa agro-ecological zone of Osun State due to the availability of natural open forests. Multi-stage sampling procedure was used in selecting respondents. At the first stage,

four rural Local Government Areas (LGAs) having natural open forests were purposively selected viz: Ife South, Atakumosa East, Obokun and Oriade LGAs. At the second stage, three rural communities from each of the LGAs were randomly selected, resulting in 12 communities. At the third stage, twenty respondents (10 males and 10 females) were purposively interviewed since it was difficult to know the population size for gender equality and fairness in each of the rural communities through snowball sampling technique to give a total of 240 respondents. Structured interview schedule was used in eliciting information from the respondents. Frequency counts, percentages, mean and standard deviation were used to describe data; chi-square and Pearson product moment correlation were used to establish associations and relationships with the dependent variable, while factor analysis was used to isolate relevant gender specific factors for this study.

Theoretical Framework

The adopted theory for the study is Gender Schema Theory. Gender schema theory was proposed by Sandra Bem in 1981 as a cognitive theory to explain the ways by which individuals within societies become gendered, and how sex-linked characteristics are maintained and transmitted to other members of a culture. Gender-associated information is mainly transmitted through society by way of schemata (singular schema) which are well integrated networks of information about the world, people, events and actions which allow for some information to be more easily assimilated than others (Eysenck, 2004). According to Eysenck (2004) schemata are an aspect of cognition which are a hypothetical construct. Cognition has been defined as an individual's thought process, comprising many mental activities such as analyzing, evaluating synthesizing and remembering, as well as the subsequent beliefs about the real world which those mental activities produce (Thomas, 1999). Bem (1981) maintains that there are individual differences in the degree to which people hold gender schemata. These differences are manifested through the extent to which individuals are sex-typed.

Gender schema theory proposes that metaphorical gender is derived when a child internalizes the society's gender schema to form their own network of associations (Bem, 1981). Metaphorical gender is the phenomenon of associating characteristics or features to gender (Leinback et al., 1997). When an individual internalizes information from the external world (society) it is organized into different schemata which help regulate the individual's behaviour (Martin and Halverson, 1981). They went further that a schema does this by providing an individual with the basis of hope for the future, developing and implementing plans and setting targets/goals.

Apart from features or characterises such as anatomy, personality, reproductive function and division of labour

which can be directly linked to sex, features of a more metaphorical relation were also seen to have gender associations (Bem, 1981). These according to her include more obvious, well known social examples such as pink colour for female and blue for male, along with very abstract ideas such as the angularity of males and roundness of a shape for females. Bem (1981) suggested that these characteristics can be metaphorically related to the distinction of male and female due to the individual's network of associations.

For the purpose of this study, this theory helps in understanding an individual differences schema, where individuals within communities' process information and were queried on a person-by-person basis rather than make wide assumptions about groups based on information from individuals. This would strengthen our knowledge of why and how individuals utilize forest products by their distinction of male and female characteristics as processed from the society's gender schema. By putting sex-typing in perspective with a consideration of the existence of different internalized schemata that shape an individual's behaviour, one can predict future outcomes, develop and implement plans,

design policies, as well as set goals that would encourage males and females in equitable utilization of forest products by an understanding of utilization schema. Utilization schema explains what forest products really mean to male and female rural dwellers in terms of the roles they play, opportunities, benefits and privileges available to them in their use of forest products. This eventually revealed the level of utilization of forest products by males and females.

RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

Results in Table 1 shows gender disaggregated ages of respondents. The mean age of male respondents was 50.3±11.7 while that of female respondents was 43.9±10.8. This study reveals that majority (69.6%) of the users of forest products in the study area were within the age group 30-60. This finding indicates that a good number of the people who involved in the utilization of forest products were both active youths and the weak adults respectively due to importance of forest products.

Table 1
Distribution of respondents by their socio-economic characteristics

Variables	Male (n=120)		Female (n=120)		Total (n=240)		
	Freq.	%	Freq.	%	Freq.	%	
Age (Years)	<30	7	5.8	21	17.5	28	11.7
	30-60	80	66.7	87	72.5	167	69.6
	61+	33	27.5	12.0	10.0	45	18.8
Mean	50.28		43.88		47.08		
Standard deviation	11.65		10.82		11.67		
Religion	Christianity	70	58.3	83	69.2	153	63.8
	Islam	50	41.7	37	30.8	87	36.3
Marital status	Single	1	0.8	1	0.8	2	0.8
	Married	112	93.3	109	90.8	221	92.1
	Separated	0	0.0	1	0.8	1	0.4
	Divorced	4	3.3	2	1.7	6	2.5
	Widowed	3	2.5	7	5.8	10	4.2
Household size	1-5	44	36.7	35	29.2	79	32.9
	6-10	70	58.3	84	70.0	154	64.2
	>10	6	5.0	1	0.8	7	2.9
Mean	6.57		6.61		6.59		
Standard deviation	2.34		2.05		2.19		
Literacy	No	56	46.7	44	36.7	100	41.7
	Yes	64	53.3	76	63.3	140	58.3
Years of formal education	0	56	46.7	44	36.7	100	41.7
	1-6	14	11.7	16	13.3	30	12.5
	7-12	29	24.2	40	33.3	69	28.8
	>12	21	17.5	20	16.7	41	17.1
Mean	6.10		7.12		6.61		
Standard deviation	6.22		6.00		6.12		

Source: Field survey, 2015.

Results in Table 1 also show that many of the male respondents (58.3%) and majority of the female respondents (69.2%) were Christians, while 41.7% of male and 30.8% of female respondents were Muslims respectively. This indicates that majority of the rural dwellers were Christians, with more females who more or less have no religious barriers in their utilization of forest products. Similarly, results in Table 1 show that the mean household size was 7 ± 2.34 for male respondents and 7 ± 2.05 for female respondents respectively. This indicates that the household sizes of male and female respondents were almost the same with respect to the utilization of forest products

Results in Table 1 further reveal that while many (53.3%) of male and majority (63.3%) of female respondents could read or write, some male respondents (46.7%) and few of the female respondents (36.7%) could

not read or write respectively. This indicates that more female respondents could read or write than their male counterparts. This result is in conformity with Akubuilu and Omeje (2012) assertion that educational inequality between male and female in Nigeria has been a perennial issue, since the introduction of western education. Achievement of equal status in educational attainment by males and females has continued to be elusive (Akubuilu and Omeje, 2012). Finally, results in Table 1 show that 24.2% of male and 33.3% of female respondents had 7-12 years of formal education, while 17.5% of male and 16.7% of female respondents had above 12 years of formal education respectively. This indicates that while females had more secondary education than males, males had more tertiary education than females respectively.

Table 2
Distribution of respondents by their socio-economic characteristics

Variables	Male (n=120)		Female (n=120)		Total (n=240)		
	Freq.	%	Freq.	%	Freq.	%	
Type of organization	None	31	25.8	12	10.0	43	17.9
	Religious	7	5.8	31	25.8	38	15.8
	Social	9	7.5	5	4.2	14	5.8
	Cooperative	33	27.5	31	25.8	64	26.7
	Community development	3	2.5	2	1.7	5	2.1
	Descendant union	6	5.0	2	1.7	8	3.3
	Trade	31	25.8	37	30.8	68	28.3
Occupation	a. Major						
	Farming	49	40.8	20	16.7	69	28.8
	Trading	49	40.8	80	66.7	129	53.8
	Civil service	9	7.5	11	9.2	20	8.3
	Artisan	13	10.8	9	7.5	22	9.2
	b. Minor						
	None	77	64.2	69	57.5	146	60.8
	Farming	27	22.5	39	32.5	66	27.5
	Trading	12	10.0	7	5.8	19	7.9
	Security	4	3.3	0	0.0	4	1.7
	Artisan	0	0.0	2	1.7	2	0.8
	Computer operator	0	0.0	3	2.5	3	1.25
Total income (Naira)	<100,000:00	21	17.5	13	10.8	34	14.2
	100,001:00-300,001:00	28	23.3	38	31.7	66	27.5
	300,001:00-600,000:00	19	15.8	26	21.7	45	18.8
	600,001:00+	52	43.3	43	35.8	95	39.6
Mean	374925.58		345100.01		360012.71		
Standard deviation	4.13		2.96		3.59		
Ethnicity	Yoruba	113	94.2	111	92.5	224	93.3
	Foreigner	4	3.3	2	1.7	6	2.5
	Hausa	1	0.8	2	1.7	3	1.3
	Igbo	2	1.7	5	4.2	7	2.9

Source: Field survey, 2015.

The results in Table 2 show that of those who belonged to social organizations, 27.5% of male and 25.8% of female respondents belonged to cooperative societies. Only 2.5% of male and 1.7% of female respondents respectively belonged to community development associations, while 5.0% of male and 1.7% of female respondents were of descendant unions respectively. This indicates that cooperative societies offered greater benefits to both males and females than other social organizations with males benefiting more. This finding is in line with Adisa (2013) assertion that averagely, community members are fully involved socially in issues which help to improve their level of interaction within the community. Also, the finding in Table 2 shows that some male respondents (40.8%) and few of the female respondents (16.7%) chose farming as their major occupation, while some (40.8%) of male and majority (66.7%) of female respondents had trading as their major occupation respectively. This indicates that more males were farmers while more females were traders respectively. The finding is in contradiction with Ekong (2010) who averred that farming is the major occupation in rural areas with various forms of secondary occupations which serve as extra sources of income to help their standard of living.

The results in Table 2 also show that while some of the male respondents (43.3%) and few of the female respondents (35.8%) had as their total annual income ₦600,001:00 and above, 23.3% of male and 31.7% of female respondents had as their total annual income between ₦100,000:00-₦300,000:00. This indicates that males had higher total annual incomes than females in the study area. This is in tandem with Arun *et al.* (2013) report that forest products are not just for hard times, but are of daily value for both males and females, for richer people as well as for poorer people. Similarly, most of the male respondents (94.2%) and female respondents (92.5%) from the data in Table 2 were of Yoruba ethnic origin, while very few of the male respondents (0.8%) and female respondents (1.7%) were Hausas, very few of the male respondents (1.7%) and female respondents (4.2%) were Igbos. This finding indicates that most of the males and females were able to communicate more easily in their various communities.

Factors Associated With Forest Products' Utilization

Findings in Tables 3 show the rotated component matrix of factors analysis for male and female rural dwellers. Kaiser-Meyer-Olkin (KMO) value of 0.659 for male respondents and Kaiser-Meyer-Olkin (KMO) value of 0.633 for female respondents show that the patterns of the correlation were relatively compact and the analysis yielded distinct and reliable factors respectively. Bartlett's tests of sphericity yielded χ^2 of 515.9 at $p \leq 0.01$ for male respondents and χ^2 of 472.7 at $p \leq 0.01$ for female respondents indicating that there were some relationships

between the variables analyzed respectively. Four factors extracted accounted for a total of 67.32 percent of variance while the remaining 32.68 percent of variance was accounted for by unknown factors for male respondents. On the other hand, the four factors extracted accounted for a total of 65.39 percent of variance while the remaining 34.61 percent of variance was accounted for by unknown factors for the female respondents respectively

Naming of the factors was based on a collective interpretation derivable from the combination of highly loaded variables on each factor. Thus, the extracted factors were named as follows for further understanding: factor 1-'experience-knowledge' factor (25.84%), factor 2-'social-resource' factor (17.13%), factor 3-'network' factor (14.08%) and 4-'economic benefit' factor (10.28%) for male respondents. Also, the extracted factors were named as follows; factor 1-'experience' factor (20.35%), factor 2-'social-economic' factor (16.65%), factor 3-'resource' factor (15.94%) and factor 4-'network' factor (12.46%) for female respondents respectively.

The major factor associated with forest products' utilization among male respondents is experience-knowledge factor (Eigen value=3.446) while experience factor (Eigen value=3.206) was the major factor for female rural dwellers. The difference might have been as a result of the variation in knowledge of the importance of forest resources which made male and female respondents utilize forest products distinctly. Social-resource factor (Eigen value=1.838) was the second highest loaded factor among male rural dwellers while social-economic factor (Eigen value=2.018) was the second highest loaded factor for female respondents. The difference might be as a result of the value so placed on forest, with males looking at the importance of forest resources while the economic status of females made them utilized forest products.

The results in Table 3 also reveal that the third factor among male respondents was network factor (Eigen value=1.607) while it was the fourth factor (Eigen value=1.253) for female rural dwellers respectively. This might have been due to the variation in how the respondents linked up with others, with males having more engagements with others in the utilization of forest products than females. The similarities in these factors indicate that the same factor is associated with forest products utilization for both males and females but at varying levels. Economic benefit factor (Eigen value=1.188) ranked fourth for males while resource factor (Eigen value=1.370) ranked third among female respondents. The difference might have been as a result of how economically viable the males took forest products to being while females focused more on the value of forest resources.

This finding indicates that different factors affected males and females either positively or negatively in their utilization of forest products in the study area. Hence, such factors might have either encourage or hindered the respondents in making adequate use of forest resources in

their localities. This is in tandem with Eneji, Mubi, Husain and Ogar (2015) assertion that ten factors; sex, age, marital status, educational status, cultural factors, religion,

household income, occupational status, household heads and property rights were suggested as being responsible for gender participation in the management of forest resources.

Table 3
Factors name, Eigen value and percentage variation accounted for by each factor for male and female rural dwellers utilizing forest products

Male					Female				
No.	Factors Names	Eigen values	% Variance	% Cummulative variance	No.	Factors Names	Eigen values	% Variance	% Cummulative variance
1	Experience~knowledge Factor	3.446	25.84	25.84	1	Experience Factor	3.206	20.35	20.35
2	Social~resource Factor	1.838	17.13	42.97	2	Social~economic Factor	2.018	16.65	36.99
3	Network Factor	1.607	14.08	57.05	3	Resource Factor	1.370	15.94	52.93
4	Economic Benefit Factor	1.188	10.28	67.32	4	Network Factor	1.253	12.46	65.39
5	Other Factors		32.67	100.00	5	Other Factors		34.60	100.00

Source: Field survey, 2015.

Hypothesis testing

There is no significant relationship between males and females' socio-economic characteristics and their level of utilization of forest products. To analyze this data, Chi-square and Pearson Product Moment Correlation analyses were used.

Results in Table 4 for Chi-square analysis of male respondents show that the type of organization ($\chi^2 = 69.489$, $C = 0.606$) and ethnicity ($\chi^2 = 31.786$, $C = 0.458$) associated with level of utilization of forest products at $p \leq 0.01$ significant level respectively. A contingency coefficient (C) of 0.606 for type of social organizations the male rural dwellers belonged shows a strong association with level of utilization of forest products. It could be said that type of organizations of the male respondents

influenced their level of utilization of forest products due to co-operative availability of information, financial opportunities, group skills, knowledge sharing, access to collective resources, goal setting etc. which could improve their level of utilization through group influence. Also, a contingency coefficient (C) of 0.458 for ethnicity implies that it had a weak association with level of utilization of forest products. Hence, it could be said that ethnicity of male rural dwellers influenced their level of utilization of forest products. This is so because the fact that most of the male respondents were of the Yoruba ethnic origin and the study was conducted in the Southwestern part of Nigeria which made communication easier among the respondents.

Table 4
Results of Chi-square analysis between some personal and socio-economic characteristics of male and female respondents and their level of utilization of forest products

Male				Female			
Variables	χ^2 value	Df	Contingency coefficient (C)	Variables	χ^2 value	Df	Contingency coefficient (C)
Religion	1.842	2	0.123	Religion	0.252	2	0.046
Marita status	2.559	6	0.145	Marital status	9.546*	6	0.271
Educational level	4.511	8	0.190	Educational level	3.349	8	0.165
Type of organization	69.489**	12	0.606	Type of organization	6.887	12	0.233
Position in organization	7.747	6	0.246	Position in organization	0.724	6	0.077
Major occupation	5.818	6	0.215	Major occupation	8.471*	6	0.257
Minor occupation	5.810	8	0.215	Minor occupation	6.174	8	0.221
Ethnicity	31.786**	6	0.458	Ethnicity	1.900	6	0.125

** - Significant at $P \leq 0.01$ level

* - Significant at $P \leq 0.05$ level

Source: Field Survey 2015.

On the other hand, results in Table 4 for Chi-square analysis of female respondents reveal that marital status ($\chi^2 = 9.546$, $C = 0.271$) and major occupation ($\chi^2 = 8.471$, $C = 0.257$) were associated with level of utilization of forest products at $p \leq 0.05$ significant level respectively. A contingency coefficient (C) of 0.271 for marital status of the female rural dwellers shows a weak association with level of utilization of forest products. This indicates that

marital status has a little influence on level of utilization of forest products. This finding is in tandem with Adedokun and Akinyemi (2003) report that most females involved in forestry activities are married. Also, contingency coefficient (C) of 0.257 for major occupation reveals that it had a weak association with level of utilization of forest products. This finding indicates that the major occupation of female rural dwellers influenced their level of utilization

of forest products This is in agreement with Carr *et al*, (2010) report that “relatively little has been written on the impact of globalization on females who work in the informal sector and suggested that females working from home possess inadequate market knowledge, required mobility and competitiveness of large companies operating in a transitional world. This means that most females in Africa are not employed in the formal forestry sector and consequently limit the extent of their forest utilization.

Results in Table 5 show that at $p \leq 0.05$, household size ($r=0.234$) and total annual income ($r=0.259$) of the male respondents and their utilization of forest products significantly correlated positively with their utilization of forest products. This indicates that the higher the household size, the higher their utilization of forest products and vice versa. This finding is in agreement

with Odebiyi and Ogunjobi (2003) results that the larger the family size, the more the rural dwellers were able to utilize forest products.

On the other hand, results in Table 5 also show that at $p \leq 0.05$, only age ($r=0.209$) of the female respondents and their utilization of forest products significantly correlated positively. This indicates that the higher the age, the more their utilization of forest products. The results of this finding is in tandem with Adereti (2005) report that age accounted for the ability of the rural females to make use of productive resources. He went further that it could be inferred that younger rural females of less than 20 years and those that are over 60 years may not have the full strength of being involved actively in various agricultural activities. The implication of which is the fact that age plays a key role in the utilization of forest products in the study area.

Table 5
Results of Pearson product moment correlation analysis of the relationship between some personal and socio-economic characteristics of male and female respondents and their level of utilization of forest products

Variables	Male		Variables	Female	
	Correlation coefficient (r)	p-value		Correlation coefficient (r)	p-value
Age	0.080	0.383	Age	0.209*	0.022
Household size	0.234**	0.010	Household size	-0.080	0.387
Years of education	-0.061	0.51	Years of education	-0.117	0.203
Total income	0.259**	0.004	Total income	0.172	0.061
Number of years in community	- 0.080	0.384	Number of years in community	0.158	0.084

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed).

Source: Computed from field survey, 2015

CONCLUSION AND RECOMMENDATION

It was found from the study that there were some factors which influenced gender utilization of forest products. If these factors are distinctively corrected, they can act as stimuli to sustainable gender utilization of forest resources. It was also gathered that given the value females placed on forest products, they were yet unable to make reasonable use of economically viable forest resources, just as their male counterparts in the study area. It was therefore, recommended that gender inclusion in forestry programmes and policies are essential for sustainable rural livelihood development. This is to ensure that males and females are given liberty by eliminating social and cultural barriers acting as impediments to gender utilization of forest products.

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