

Research Application Summary

Influence of gender on participation in cassava value addition in Migori county, Kenya

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Abstract

In the rural areas, majority of women who are constrained by gender disparity and low incomes can improve their role based on their participation in the cassava value addition, hence enhancing productivity, household incomes and sustainable development. This study assessed gender relationships in the cassava value addition in Rongo Sub County of Migori County of Kenya. This study used a cross-sectional surveys design. All the four administrative wards of Rongo Sub County were purposively selected because cassava is grown in the entire Sub County. The 46 male and 46 female household heads who practice cassava value addition were purposively and randomly selected for the structured questionnaire will be administered to 92 selected heads of household. A chi-square test was run in testing for significant relationships among the variables. Difference in socio-economic characteristics with regard to gender household heads were statistical significant. Gender participation in the cassava value addition was statistically significant, $p = .031$. In conclusion, Male and female-headed households are involve in value addition and marketing of cassava and its products in the study area. Relatively more male-headed households utilised and sold their cassava in raw form. Both male-headed and female-headed cassava-based households are highly influenced to take part in cassava value addition by marital status and educational level. To promote cassava value addition and its commercialisation, there is a need to promote a wide spectrum of cassava-based products to improve consumption, utilisation, and household incomes in its different forms among male and female cassava farmers.

Key words: Cassava value addition, gender participation

Résumé

Dans les zones rurales, la majorité des femmes qui sont contraintes par la disparité entre les sexes et les faibles revenus peuvent améliorer leur rôle en fonction de leur participation à la valeur ajoutée du manioc, améliorant ainsi la productivité, les revenus des ménages et le développement durable. Cette étude a évalué les relations entre les sexes dans la valeur ajoutée du manioc dans le sous-comté de Rongo du comté de Migori au Kenya. Cette étude a utilisé une conception d'enquêtes transversales. Les quatre quartiers administratifs du

sous-comté de Rongo ont été choisis à dessein parce que le manioc est cultivé dans tout le sous-comté. 46 hommes et 46 femmes chefs de ménages qui pratiquent l'ajout de la valeur du manioc ont été choisis au hasard pour que le questionnaire structuré soit administré à 92 chefs de ménages sélectionnés. Un test du chi carré a été exécuté pour tester les relations significatives entre les variables. La différence des caractéristiques socio-économiques en ce qui concerne le sexe des chefs de ménage était statistiquement significative. La participation du sexe à la valeur ajoutée du manioc était statistiquement significative, $p = 0,031$. En conclusion, les ménages dirigés par des hommes et des femmes sont impliqués dans la valorisation et la commercialisation du manioc et de ses produits dans la zone d'étude. Relativement plus de ménages dirigés par des hommes utilisaient et vendaient leur manioc sous forme brute. Les ménages à base de manioc dirigés par des hommes et des femmes sont fortement influencés pour participer à la valeur ajoutée du manioc en fonction de l'état matrimonial et du niveau d'éducation. Pour promouvoir la valeur ajoutée du manioc et sa commercialisation, il est nécessaire de promouvoir un large éventail de produits à base de manioc pour améliorer la consommation, l'utilisation et les revenus des ménages sous ses différentes formes parmi les cultivateurs de manioc, hommes et femmes.

Mots clés: Valeur ajoutée du manioc, participation du genre

Introduction

Agriculture is a significant component of the national economy, contributing to the Kenya's economy by 25% of the gross domestic product (GDP) and 47% of the total employment (FAO, 2017). Women play a significant role in the agriculture sector, and constitute 47% of the agricultural labour force in the developing countries (FAO, 2017). In the case of Kenya, farming and other agriculture-based activities encompass the principal sustainable livelihood of most Kenyan people. Among the cash crops crucial in Kenyan agriculture, cassava farming plays a significant role in ensuring poor farmers' livelihood (Lagat and Maina, 2017).

Differences which exist in perception of men and women regarding many issues across the world. Men have more opportunities to access knowledge and markets as well as have more advantage over women who in general are disadvantaged and vulnerable (Xuan *et al.*, 2019). Recently, cassava has gained global attention as a significant root crop in Africa since it is tolerant to drought and low fertile soils (Masamha *et al.*, 2017). It has a flexible planting as well as harvest cycle and can survive drought, diseases and thrive in low fertile soils. Its leaves are relished as vegetable in countries such as Congo and Tanzania and its peels are used for animal feed. Moreover, in Nigeria, peeled cassava roots can be processed into a variety of value added products such as garri, flour, fufu, chips and ethanol (Agwu, 2015).

Cultural norms perpetuating the opinion that knowledge should be transmitted to men first are some of the constraints. Additional factors are; the lack of acknowledgement of women's role in agricultural supply chains, discrimination and the lower percentage of women employed in extension services (Agwu, 2015). When a significant proportion of the population is unable to participate at optimal levels, it means that everyone is losing out.

Not only would this bridging this gap improve the yields hence food and nutrition security, but would allow women to join in other economically productive activities contributing to the economy (Sishuba, 2016). It is now no news that in order to transform Africa's agriculture, women will have to be placed on the same level with men. More men than women undergo trainings and work in agricultural sciences undermining the role of women in decision-making and policy processes (Guoignon, 2017).

Significant gender disparities exist on how the distribution of vital resources critical for success in agriculture is done. Accessing land, assets, inputs, time, markets, information and knowledge, authority, decision-making and income still pose challenges for women in the sector. In developing world ownership and use, women occupy 60% to 80% of smallholder farmers due to legal and cultural constraints with regard to land inheritance and use. Determinations to decrease gender disparities would let women contribute more efficiently to food security in the agricultural sector. (Sishuba, 2016). Agwu (2015) recommended that females should be encouraged get into cassava value addition in the form of credits that will enable the female entrepreneurs have access to the necessary tools for their operations. High yielding varieties should also be availed to the entrepreneurs by the government including its agencies with mandate to do so. And this will help boost their outputs, therefore, paving way value addition which is significant specifically now that there is market increase for cassava products. Both men and women are found to dry and dehydrate cassava grated roots. In addition, more men and women do fermentation, sieving, toasting or dry frying garri and processed cassava are widely sold and accepted (Osuji *et al.*, 2017) Women participate more in cassava value addition compared to their male counterpart. Reason being in processing men are not directly involved and have low level of awareness about cassava value addition (Agwu *et al.*, 2015).

Men and women were involved in cassava value addition at household level. Gender participation is a term which describes the roles and activities of men and women according to the traditions and beliefs of a culture (Alamu *et al.*, 2019). A study conducted on cassava value chain in Rongo Sub has looked at only impacts of cassava value chain intervention on farmer's socio-economic aspects, however, specific studies on gender roles in cassava value addition are non-existent. Thus, this study assessed gender participation in the cassava value addition in Rongo Sub County of Migori County, Kenya. The specific objectives were to assess influence of socioeconomic factors on gender participation in the cassava value addition and assess the influence of gender disparity on smallholder farmer's participation in the cassava value addition.

Methodology

The study was carried out in Rongo Sub-county of Migori County. Agriculture is the main economic activity with major crops being, sugarcane, cassava, maize, finger millet and sweet potatoes (KNBS, 2015). A cross-sectional survey design was used in this study. All the four administrative wards of Rongo Sub County were purposively selected for the study because Rongo Sub County is one of the major cassava producing sub counties in Migori County. A sample of 92 (46 female and 46 male household heads who grow cassava were purposively and randomly selected for the study. Structured questionnaires were used to collect data. The collected data were then analysed using Chi-square with the aid of Statistical Package for Social Sciences (SPSS) version 20).

Findings**Table 1. Socio-economic characteristics of the farmers by gender**

Socio-economic Characteristics	Gender (%)		df	Chi-square	p – value
	Male	Female			
Age of the Farmer (years)					
17 – 30	15.2	39.1	3	8.420	.038
31 – 45	56.5	32.6			
46 – 59	10.9	15.2			
>59	17.4	13.0			
Total	100.0	100.0			
Marital Status					
Married	95.7	67.4	2	13.520	.001
Divorced	2.2	2.2			
Widowed	2.2	30.0			
Total	100.0	100.0			
Highest Educational Level					
None	2.2	19.6	4	12.602	.049
Primary	60.9	58.7			
Secondary	19.6	15.2			
Tertiary	6.5	4.3			
University	10.9	2.2			
Total	100.0	100.0			
Household Size					
1 – 4	13.0	10.9	2	5.235	.030
5 – 8	60.9	82.6			
>8	26.1	7.3			
Total	100.0	100.0			
Purpose of Cassava Farming					
Food	52.2	71.7	1	3.735	.053
Market	47.8	28.3			
Total	100.0	100.0			

Table 2. Gender participation in cassava value addition

Cassava tuber value addition	Gender (%)		df	Chi-square	p-value
	Male-Headed Households	Female-Headed Households			
Raw Cassava Tubers	32.6	8.7	4	10.610	.031
Cassava Flour	10.9	26.1			
Fried Cassava Chips	15.2	26.1			
Chopped fermented and dried	26.1	23.9			
Cassava mandazi and chapatti	15.2	14.9			
Deep fried	0.0	0.0			
Boiled Cassava	0.0	2.2			
Cassava Leaves	0.0	0.0			
N(92)					

Discussion

The results presented in Table 1 show that most female heads were aged 17 – 30 years (39.1%) and 31 – 45 years (32.6%). Most male heads were aged years 31 – 45 years (56.5%) and above 59 years (17.4%). There were fewer male heads (10.9%) or women (15.2%) aged 31 – 46 years in the cassava value addition. There were fewer female heads aged 59 and above (13.0%), while male heads (15.2%) were aged 17 – 30 years (Masamha *et al.*, 2017) revealed that the majority (34.10%) of the female heads in cassava value addition were aged 17 – 30 years. The Chi-square test results showed a statistically significant age difference by gender, $\chi^2 = 8.420$; $p = .038$. Most men (95.7%) and women (67.4%) farmers were married. Only 2.2% of men were widowed or divorced. However, 30% and 2.2% of women respectively were widowed and divorced. Masamha *et al.* (2017) revealed that most male (96.4%) and female (62.2%) household heads who participated in the cassava value chains were married. The Chi-square test results indicated a statistically significant relationship between marital status and gender, $\chi^2 = 13.520$; $p = .001$. Most male heads (60.9%) and female (58.7%) attained primary education. Only 19.6% of female heads had not attained formal education compared to only 2.2% of their male counterparts. 19.6% of male heads and 15.2% of female heads had attained a secondary level of education, while 6.5% of male heads and 4.3% of female heads had attained tertiary education. However, 10.9% of male heads compared to only 2.2% of female heads were university graduates. Chi-square test results revealed that gender disparity in education was significant, $\chi^2 = 9.535$; $p = .049$. Masamha *et al.* (2017) reported that 77.2% of male and 73.2% of female cassava farmers in the cassava value chain had attained primary education. Majority of the participants (60.9% of men and 82.6% of women farmers) headed households with 5 – 8 members, while 13.0% of male and 10.9% of female farmers headed households with 1 – 4 members. However, 26.1% of men compared to only 7.3% of their female counterparts headed households with 8 members and above. The findings of this study indicated a significant gender difference in relation to household size, $\chi^2 = 5.235$; $p = .030$. This implies that men had more dependants than women above the average of 1 – 4 household members. The majority (71.7%) of female heads compared to 52.2% of male heads grew cassava mainly for household consumption. However, 47.8% of male heads compared to only 28.3% of female heads grew cassava mainly for the market. This implies that female households would prefer using cassava in feeding their households to selling to the market, while men would prioritise selling their cassava to the market to generate income to meet other household needs in the study area. The Chi-square test results revealed that gender of household head is significantly differed in relation to the purpose of cassava farming, $\chi^2 = 3.735$; $p = .053$.

The results presented in Table 2 show that the majority of male-headed households (32.6%) utilised fresh tubers with no value added compared to only female-headed household (8.7%). More female-headed households (26.1%) milled their cassava tubers into flour than male-headed household (10.9%). The majority of female-headed households fried chips from cassava roots compared to 15.2% of their male-headed counterparts. 26.1% of male-headed households compared to 23.9% of the female-headed households chopped, fermented and dried their cassava tubers. Male-headed households (15.2%) compared to female-headed households (14.9%) made chapatti and mandazi by blending cassava with wheat flour. Only 2.2% of female-headed households boiled and sold their cassava tubers compared to

male-headed households (0.0%). No female-headed and male-headed household deep fried their cassava tubers. Also, no male-headed and female-headed households utilised their cassava tubers in grated and dried form. The Chi-square test results revealed that gender difference was statistically significant, $\chi^2 = 10.610$; $p = .031$. Therefore, the null hypothesis is rejected. Alamu *et al.* (2019) showed that 86% of male-headed households consumed and sold cassava as raw snacks. Emerole *et al.* (2014) revealed that 33.3% of male-headed households and 20.0% of female-headed households processed and sold cassava tubers in flour.

Conclusions and Recommendation

Male and female-headed households are involve in value addition and marketing of cassava and its products in the study area. Relatively more male-headed households utilised and sold their cassava in raw form. Both male-headed and female-headed cassava-based households are highly influenced to take part in cassava value addition by marital status and educational level. To promote cassava value addition and its commercialisation, there is a need to promote a wide spectrum of cassava-based products to improve consumption and utilisation in its different forms among male and female cassava farmers.

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References

- Abong', O. G., Shibairo, S., Wachkeche, E., Ogendo, J., Wambua, T., Lamuka, P., Arama, P., Okoth, M., Mulwa, R., Kamidi, M., Mcosore, Z. and Kasam, M.C. 2016. Post-harvest practices, constraints and opportunities along cassava value chain in Kenya. *Nutrition and Food Sciences* 4 (2): 114-126.
- Alamu, E. O., Ntawuruhunga, P., Chibwe, T., Mukuka, I. and Chiona, M. 2019. Evaluation of cassava processing and utilisation at household level in Zambia. *Food Security* 14 (3): 1-10. <https://doi.org/10.1007/s12571-018-0875-3>
- Ao, X.H., Vu, T.V., Le, K.D., Jirakiattikul, S. and Techato, K., 2019. An analysis of the smallholder farmers' cassava (*Manihot esculenta* Crantz) value chain through a gender perspective: the case of Dak Lak province, Vietnam. *Cogent Economics and Finance* 7 (1): 1645632.
- Food and Agriculture Organization (FAO). 2017. Regional overview of food security and nutrition - Building resilience for in times of conflict and crisis: food security and nutrition a perspective from the Near East and North Africa (NENA) region, Cairo. 62pp.
- Kenya National Bureau of Statistics (KNBS). 2015. Migori County Statistical Abstract. KNBS, Nairobi.
- Lagat, J. K. and Maina, C. M. 2017. A gender and decent work analysis of cassava

- production and non-farm processing in Kuria West Sub-county, Kenya. *African Journal of Agricultural Research* 12 (31): 2533-2544.
- Landry Signe. 2017. The quest for food security and agricultural transformation in Africa: Is the CAADP the answer? Available at <https://www.brookings.edu/blog/africa-in-focus/2017/10/16/the-quest-for-food-security-and-agricultural-transformation-in-africa-is-the-caadp-the-answer/>
- Masamha, B., Uzokwe, V., Fredrick, E. N. and Damien, G. 2017. Gender Influence on Participation in Cassava Value Chain in Smallholder Farming Sector: Evidence from Kigoma Region, Tanzania. Cambridge University Press.
- Nnana, M. A., Ijeoma, A. C. and Uchenna, K. H. 2015. Factors influencing cassava value addition by rural agribusiness entrepreneurs in Abia State, Nigeria. *Economic Engineering in Agriculture and Rural Development* 15 (3): 87-95.
- Osuji, M. N., Mejeha, R. O., Nwaru, J., Nwankwo, F. U. and Nwaiwu, U. 2017. Cassava value chain mapping and gender role analysis in Southeast Nigeria. *Journal of Agriculture and Veterinary Science* 10 (3): 20-24.