



## Education empowerment as a tool for achieving food security in rural households: A case of Lugari sub-county, Kakamega County, Kenya

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### Abstract

Food security has become a major problem in Kenya particularly in rural households. Accessing enough food to meet nutritional and dietary requirements is still not possible to most households' majority of which can manage only one meal per day. Although hunger has dropped to almost half what used to there in the last twenty years, it still persists in some areas in the world. Today 1 out of 9 people in the world go to bed without a meal because of their inability to access food. The situation is worse in South East Asia and Sub-Saharan Africa. Although the previous Millennium Development Goals strived to rally countries of the world to end hunger it still persisted. Today the Sustainable Development Goal number 2 has made eradication of hunger a priority but still acknowledging that the problem still persists. In Kenya it is estimated that over 10 million people cannot access adequate food. Empowering men and women by supporting them to access education can mitigate the problem of hunger. The objective of this study was therefore to assess the role education plays as an empowering tool to accessing food security in rural households in Lugari sub-county. The study was anchored in human resource theory and used a quantitative approach in which data was collected from a sample of 260 household heads by use of interview schedule and analysed by use of Chi-Square. The findings show that education is an empowering tool that can mitigate the recurrent issue of food unavailability and hunger in most rural households. The study concludes that education is a necessary tool if we have to alleviate hunger. It recommends that the government enforces further access to education as an empowering tool to build the ability to mitigate against hunger. The study will benefit the government and policy makers in strategic national food planning programs and other national arms of planning.

**Keywords:** food security, education, hunger, households, empower

### 1. Introduction

Food availability is a major issue of concern and although the world has enough food to feed everyone, an estimated 854 million people worldwide are still in a state of undernourishment (FAO, 2006) while another 925 million people are suffering from hunger globally. (World Hunger Education Service [www.worldhunger.org/articles/Learn/world%20facts201.htm](http://www.worldhunger.org/articles/Learn/world%20facts201.htm)). Food security, at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Ombogo, 2017) <sup>[7]</sup>. Analysed at the household level food security is conditioned by a household's own food production and household member's ability to purchase food of the right quality and diversity in the market place (The World Bank, 2009). Today, the increasing level of hunger is still a global problem and no part of the world is immune. Estimates show that the number of those suffering from chronic hunger in the world topped one billion in 2009. The challenge that lies ahead is to secure the food security of these one billion hungry people and to double food production in order to feed a population projected to reach 9.2 billion by 2050 (FAO 2009 <http://www.fao.org/3/a-i0680e.pdf>). With a large number facing hunger and malnutrition globally, the challenges of meeting food and nutritional requirements is likely to become even greater in the coming years (Quisumbing and Maluccio. 2002) <sup>[8]</sup>.

In Sub-Saharan Africa the problem of food insecurity is imbedded in policy and structural framework. During the past 30 years, agricultural production has risen by only 2 percent and agricultural exports have declined while food imports are increasing at about 7 per cent a year. Despite rapid growth in food imports an average of about 100 million people, are still undernourished (Chitere & Mutiso, 1993) <sup>[2]</sup>. This has led to a persistent circle of hunger in this region. For instance FAO estimates that perennial food insecurity in the world coupled with increase in food prices in 2007-2008 left one billion people undernourished (OECD Observer <https://oecdobserver.org/>). Eradication of hunger was therefore one of the Millennium Development's Goal during the last decade and responding to this goal, majority of member countries formulated programs aimed at reducing incidents of food insecurity by half the proportion of people suffering from hunger by 2015 (United Nations Summit 2010: <http://www.org/millenniumgoals.pdf>MDG). This goal was not achieved at the end of the Millennium Development Goals and hunger remains a major issue. To achieve food security in households there is need to eradicate the inequalities that exist between men and women. This will make it possible to reduce the number of people suffering from hunger by 100-150 million (OECD Observer <https://oecdobserver.org/>). The Sustainable Development Goals still acknowledge that 1 out of every 9 people in the world experience hunger. As one of the priorities, Sustainable development goals plan to eradicate hunger by 2030.

In Kenya, the agricultural sector is the mainstay of the Kenya's economy providing food to the whole country. The sector directly contributes 24% of the Gross Domestic Product (GDP) and 27% of GDP indirectly through linkages with manufacturing, distribution and other service related sectors. Over 80% of the population, especially living in rural areas, derive their livelihoods mainly from agricultural related activities. As the World Bank (2009) observes, agricultural production determines food availability. The achievement of national food security is a key objective of the agricultural sector. However, the country has been facing severe food insecurity problem. This is depicted by a high proportion of the population having no access to food in the right amounts and quality. Official estimates indicate over 3.5 million people in Kenya are food insecure (Ombogo, 2017) [7]. With majority of them living on food relief. Households are also incurring huge food bills due to the high food prices. Maize being staple food due to the food preferences, it is still in short supply and most households have limited choices of other food stuffs (Kenya Agricultural Research Institute. <http://www.foodsecurityportal.org/kenya/food-security-report-prepared-kenya-agricultural-research-institute>).

Food insecurity problems in Kenya are attributed to several factors, including high costs of domestic food production due to high costs of inputs especially fertilizer and low purchasing power for large proportion of the population due to high level of poverty. During 2016 to 2017 the agriculture sector declined to 1.6 per cent from 1.5 per cent the previous year due to drought coupled with pests and diseases (KiPPRA, 2019). However, Growth in Agriculture Value Added at constant prices increased to 6.6 per cent in 2018 from 1.8 recorded in 2018 (Kenya Economic Survey, 2019) leading to per capita food consumption of an average of 69.5 kilograms of maize and its products. Despite this the number of people facing hunger is still high. By the year 2011 the number of hungry Kenyans was 3.5million (Ombogo, 2017) [7].

There is need to empower both men and women to make decisions affecting food security at the household level. Although females have less access to education compared to males (International Food Policy Research Institute, 2000), but as more educational opportunities become available to both male and females, this opens up investment in agriculture that can boost food production and food availability at the household level (Taiwan Review, 2008). In fact, FAO (2006) points out that there is a strong relationship between food insecurity and lack of education.

## 2. Theoretical Framework

This study is anchored human capital theory developed by Becker (1964) [1]. It stresses the need for the policy strategy to incorporate enhancement of expenditure on training and education amongst poor households to increase their personal incomes and skills. Acquisition of education would enhance better decision making in making choices on what type of inputs to be purchased and how to use it for maximum production. Increased income would then give them the ability to purchase the inputs. Incomes can also be used to purchase food when the harvest is poor or when the need arises to supplement what is in the house with other types of foods. A household member equipped with formal education can also make better choices on the nutritional need of the household and include the foods required.

## 3. Methodology of Study

The study was carried out in Lugari Sub-County of Kakamega County in Western Kenya. The Sub-County has an area of 670.2 km<sup>2</sup> located between longitudes 34° 28' and 35° East and between latitude 0.25' and 1° North of the equator. Most households are resource constrained small holder farmers engaged in maize production as the staple food with beans, sweet potatoes, cassava and sorghum grown to a limited extent and supplementing as subsistence crops. Sugarcane is practised as a cash crop while dairy farming is carried for nutritional intake and extra income for purchase of food. The study used a quantitative survey design approach with data collected through an interview schedule. A survey design was preferred because of its advantage in identifying attributes of a larger population from a small group of individuals (Babbie, 1990; Fowler, 2002).

## 4. Sampling and Sample size

Purposive sampling was used to select the study site of Matete division of Lugari sub-county. It was further employed to select the two locations of Chevaywa in Matete and Lwandeti divisions because of homogeneity of the target population. A sample of 260 respondents composed of 130 males and 130 females was obtained using a systematic random sampling from the two locations. Data was obtained by use of a structured interview schedule and was analysed using Chi-square and presented in form of descriptive statistics in form of frequency tables and percentages. Spearman rank correlation was used to test the relationship between variables. Data was collected by use of an interview schedule and was administered by the researcher and analysed by use of descriptive and inferential statistics. Chi-square ( $\chi^2$ ) was used to determine the association between two categorical variables at a significance level of 0.05. The rank Correlation ( $\gamma$ ) was used to measure the direction and level of the relationship between two variables at nominal and ordinal scales.

## 5. Findings and Discussion

A cross tabulation between gender manifestations on education and decision on the purchase of food in rural households showed a significant association between the level of education and purchase of food. The Chi-square  $\chi^2 = 0.010$  findings further showed association between the level of education a respondent had and his/her capacity to purchase food. The Pearson correlation further confirmed this at  $r = 0.011$ . These findings indicate that one's level of education has considerable influence on decision making ability on issues related to food purchase in households. For instance, only 29.2% (38) of the males who had acquired education up to the primary level were able to make decisions on food security in households. The cross tabulation further showed that 20.8% (27) of these males who had a secondary level education made decisions on food issues in their households while 5.4% (7) with university education also stated that they were responsible for making decisions on food security. This showed a significant association between education of men and decision-making on food security. The study further found out that 1.5% (2) of the males without education indicated that wives do make decisions on food in households. The cross tabulation findings further indicated that 1.5% (2) of the males with a university education said that decisions

on food are taken jointly with women. It further found out that only 1.5% (2) of the total men interviewed indicated that it is in fact wives (females) in households who make decisions on food security. The cross tabulation is

significant because it shows the influence of gender manifestations on decision-making on food issues in households.

**Table 1:** Cross-tabulation between the level of Education and Decision-Making on the purchase of food in the household

Level of Education of the Respondent												
Decision on the purchase of food in the household	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Male												
Husband	23	17.7%	38	29.2%	27	20.8%	12	9.2%	7	5.4%	107	82.3%
Wife	2	1.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	1.5%
Both	2	1.5%	5	3.8%	7	5.4%	5	3.8%	2	1.5%	21	16.2%
Total	27	20.8%	43	33.1%	34	26.2%	17	13.1%	9	6.9%	130	100%
Level of Education of the Respondent												
Decision on the purchase of food in the household	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Female												
Husband	3	2.3%	14	10.8%	4	3.1%	2	1.5%	0	0%	23	17.7%
Wife	7	5.4%	38	29.2%	16	12.3%	6	4.6%	3	2.3%	70	53.8%
Both	3	2.3%	23	17.7%	5	3.8%	6	4.6%	0	0%	37	28.5%
Total	13	10.0%	75	57.7%	25	19.2%	14	10.8%	3	2.3%	130	100%

N=260

On the other hand, the study found that there was no association between the education women attained and their decision-making level on food security. The Chi-square analysis found that at  $\chi^2=0.670$  with a degree of freedom  $df=8$ , the association was not significant. For instance, 10.8% (14) females who had primary level education said that it is husbands who make decisions on the purchase of food in their households. It is, however, important to note that these women have very low level of education and hence not empowered to purchase food or make decisions related to food security without involving their husbands. The study also found out that a considerable proportion of those with primary education 29.2% (38) stated that decisions to purchase food are made by wives. It also found out that 12.3% (16) with secondary school education, 4.6% (6) with college education and 2.3% (3) indicated that wives who are empowered are the ones who make decisions to

purchase food while 17.7% (23) stated that both husbands and wives make decisions affecting their food situation in the home. Such findings are significant considering that women are getting more empowered through education and hence are participating effectively in decision making and thus breaking the dominance of their husbands in terms of decision-making on food at the household level.

These findings indicate that when women achieve some level of education it gives them some power to make decisions on food issues in households. This indicates that when women achieve some level of education it reduces the level of gender manifestations significantly. It is important, therefore, to invest in women's education to reduce the level of manifestations of gender so as to enhance their participation in decision-making on issues related to food. It would also improve nutritional intake by the family.

**Table 2:** Cross-tabulation between Level of Education and Purchasing of farm inputs

Level of Education of the Respondent												
Decision on the purchase of farm inputs for cash crops	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Male												
Husband	25	19.2%	40	30.8%	29	22.3%	12	9.2%	5	3.9%	111	85.4%
Wife	0	0.0%	1	0.8%	1	0.8%	0	0.0%	2	1.5%	4	3.1%
Both	2	1.5%	2	1.5%	4	3.1%	5	3.8%	2	1.5%	15	11.5%
Total	27	20.8%	43	33.1%	34	26.2%	17	13.1%	9	6.9%	130	100%
Level of Education of the Respondent												
Decision on the purchase of food in the household	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Female												
Husband	11	8.5%	47	36.2%	15	11.5%	4	3.1%	1	0.8%	78	60.0%
Wife	2	1.5%	21	16.2%	5	3.8%	6	4.6%	2	1.5%	36	27.7%
Both	0	0.0%	7	5.4%	5	3.8%	4	3.1%	0	0.0%	16	12.3%
Total	13	10.0%	75	57.7%	25	19.2%	14	10.8%	3	2.3%	130	100%

$P < 0.05$   $N=260$   $\chi^2=0.000$ ,  $r=0.001$   $DF=12$ (Male)  $\chi^2=0.03$   $r=0.003$   $DF=8$  (Female)

To further asses the association between gender manifestations on education and decision-making on food in households, the study sought to run a cross tabulation on education and the purchase of farm inputs particularly seeds, fertilizer and other inputs that contribute to food security within the household. The study wanted to establish whether there are any gender manifestations when decisions to buy such inputs are made. When the cross tabulation was conducted, the Chi-Square  $\chi^2=0.000$  analysis showed a significant association between the two variables with a DF=12. Furthermore, the Spearman Correlation at  $r= 0.001$  showed a positive relationship.

This shows that men prefer to make decisions when it comes to the purchase of farm inputs and it does not matter whether the decision is in the best interest of food security process in the household or not. The decision is more informed more by the need to exercise authority than to enhance food security situation in the household. For instance, in the cross tabulation the study found that 85.4% (111) of the males who were interviewed said that it is men who purchase farm inputs in any household. Of the total males interviewed i.e. 130 respondents 19.2% (25) had never acquired any form of education, 30.8% (40) had primary level of education, 22.3% (29) had secondary level education while 9.2% (12) had attained college level education and a small percentage of 3.9 (5) had university education.

Of significance was that they were all in agreement that husbands are responsible for making decisions when it comes to purchasing farm inputs. It is also very significant that a very small percentage 3.1% (4) indicated that women

purchase farm inputs in households. However, a small percentage of them 11.5% (15) indicated that the two spouses make joint decisions to purchase farm inputs. It is significant to note that 1.5% (2) were university level males while another 3.8% (5) were college level males.

When the cross tabulation on education and the decision to purchase farm inputs was done it also showed a significant association between the variables. The Chi-Square analysis showed a significant association of  $\chi^2=0.032$  with a df of 8. This analysis was corroborated with the Spearman Correlation results which showed a positive relationship at 0.003(c) and the  $r=0.003$ . For instance, 60.0% (78) of the females said that it is the husbands who purchase or make decisions to purchase farm inputs in the households while only 27.7% (36) said women make decisions in the purchase of farm inputs. Of significance was the level of their education. The study found out those women with higher education said husbands are the ones who make decisions to purchase farm inputs. A percentage of 12.3% (16) said they both participate in the purchase of farm inputs.

These findings are significant because they confirm that there is some gender manifestations on education and decision-making on food security in households among the spouses. This situation could have a negative impact on food security. Farm inputs are critical for a good harvest that can guarantee availability of food in the house and further to this enhance nutritional intake and scale down the incidents of hunger. Food security is also known to reduce incidences of poverty and health related problems because household members are not likely to fall sick more often. Instead they can engage in more productive activities.

**Table 3:** Cross-tabulation between Level of Education and Purchasing of farm inputs

Level of Education of the Respondent												
Decision on the purchase of farm inputs for cash crops	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Male												
Husband	25	19.2%	40	30.8%	29	22.3%	12	9.2%	5	3.9%	111	85.4%
Wife	0	0.0%	1	0.8%	1	0.8%	0	0.0%	2	1.5%	4	3.1%
Both	2	1.5%	2	1.5%	4	3.1%	5	3.8%	2	1.5%	15	11.5%
Total	27	20.8%	43	33.1%	34	26.2%	17	13.1%	9	6.9%	130	100%
Level of Education of the Respondent												
Decision on the purchase of food in the household	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Female												
Husband	11	8.5%	47	36.2%	15	11.5%	4	3.1%	1	0.8%	78	60.0%
Wife	2	1.5%	21	16.2%	5	3.8%	6	4.6%	2	1.5%	36	27.7%
Both	0	0.0%	7	5.4%	5	3.8%	4	3.1%	0	0.0%	16	12.3%
Total	13	10.0%	75	57.7%	25	19.2%	14	10.8%	3	2.3%	130	100%

**Table 4:** Cross-tabulation between chronic scarcity of food such as missing food when you need it and Level of Education

Level of Education of the Respondent												
Chronic scarcity of food such as missing food when you need it	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Men												
Never	5	3.8%	10	7.7%	8	6.2%	6	4.6%	7	5.4%	36	27.7%
Less Often	3	2.3%	3	2.3%	4	3.1%	6	4.6%	2	1.5%	18	13.8%
Often	16	12.3%	27	20.8%	21	16.2%	5	3.8%	0	0.0%	69	53.1%
Most Often	3	2.3%	3	2.3%	1	0.8%	0	0.0%	0	0.0%	7	5.4%
Total	27	20.8%	43	33.1%	34	26.2%	17	13.1%	9	6.9%	130	100%
Level of Education of the Respondent												
Decision on the purchase of food in the household	Never		Primary School		Secondary School		Colleges		University		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Women												
Never	4	3.1%	11	8.5%	5	3.8%	9	6.9%	11	8.8%	30	23.1%

Less Often	1	0.8%	20	15.4%	10	7.7%	1	0.8%	2	1.5%	34	26.2%
Often	8	6.2%	40	30.8%	10	7.7%	4	3.1%	0	0.0%	62	47.7%
Most Often	0	0.0%	4	3.1%	0	0.0%	0	0.0%	0	0.0%	4	3.1%
Total	13	10.0%	75	57.7%	25	19.2%	14	10.8%	3	2.3%	130	100%

To further assess whether there is an association between gender manifestations and decision-making on food security, the study did a cross tabulation between education and chronic scarcity of food such as missing food when one needs it. The cross tabulation was to establish whether male or female respondents experience food scarcity if they have an education and whether gender manifestations on education can aggravate the food situation. Findings from the cross tabulation showed that there is a strong association between the two variables. The Chi-square  $\chi^2=0.004$  showed a significant association with a DF=12. Furthermore, the Spearman correlation  $r= 0.004$ . This was reflected in the responses that were given by the respondents.

For instance, the study found that 53.1% (69) of the total male respondents said they experienced chronic food scarcity. Of these, 12.3% (16) who never had any form of education experienced chronic food scarcity and actually missed food whenever they needed it. Further, 20.8% (27) also said they experienced food scarcity more often. However, 13.8% (8) said they do not experience food scarcity. Although the number is smaller, it is nevertheless significant given the fact that those who are educated up to college and university level are fewer.

On the other hand, a cross tabulation of female respondents on education and chronic food scarcity showed a significant association between the variables. For instance, the Chi-square analysis at  $\chi^2=0.007$  showed a significant association between the two variables with a df of 12. The Spearman correlation= 0.004, similarly showed a positive relationship. This was reflected in the responses of the respondents during the interview. For instance, the study found that 47.7% (62) male respondents said they experienced food scarcity more often. Of these, 30.8% (40) had only primary level education and another 6.2% (8) had never received any form of education. Of more significance is that 6.9% (9) who never experienced food scarcity were females of college level and above.

The cross tabulation analysis is quite significant. The study found that more females with a lower level did experience chronic food scarcity. This indicated that more women in rural households experience more food scarcity than the males. This scenario impacts negatively. It would appear that gender manifestations are higher in household decision-making especially among females than males. This situation is likely to impact severely on the food situation in the households a situation which can reflect harshly on the children in terms of not accessing adequate food.

**Conclusion**

It was noted that education is a major factor influencing decision making on food security at the household level. Men and women who had acquired some level of education through schooling were able to make decisions on the purchase of food. They were also able to make decisions on the purchase of fertilizer to be used in order to boost the level of production. The ability to choose the right type of seeds and fertilizer is embedded in the education they acquired through formal schooling. Households where members had acquired some level of education did not

therefore suffer from hunger because they were able to make decisions and purchase the right food in the right quantity for household consumption. Education empowers one to get some form of income that would then be used to purchase food in the house and enrich the nutritional value.

**Recommendations**

Education is an empowering tool. It is also part of the human rights that everyone must be accorded. Food is a basic human rights and hence all efforts must be made for everyone to access food in the right quantities. Food security in rural households can be improved if both men and women are empowered to acquire some form of education through deliberate government policies. For instance, household members who missed formal schooling at an early age can be enrolled in adult literacy classes to empower them acquire some education to up-scale their ability to make appropriate decisions on matters affecting food in their households. Therefore, adult education policy should be strengthened and enforced. Secondly the government should re-enforce the current policy on free primary and secondary school education to ensure that none is left out especially women in marginal and resource constrained communities. Human rights groups should also fight for the empowerment of men and women to increase the level of their income and abilities to make right choices.

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