

Education Attainment of Head of Household and Household Food Security: A Case for Yatta Sub - County, Kenya

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Abstract This study examined the relationship between education attainment of head of household and household food security in Yatta Sub - County, Kenya. The study adopted descriptive survey research design. The target population was 19,349 households. A stratified random sample of 378 households was used in the study. Data were collected using a questionnaire whose return rate was 81.0%. Majority (55.9%) of the households were headed by a male. Most (93.3%) of the heads of the households had formal schooling. Though a high proportion (56.4%) of the households were farmers, majority (53.3%) purchased food from the market. Most (63.5%) of the households were severely food insecure with hunger. It was found that the level of education attainment of head of household and level of food security were significantly related ($\chi^2 = 84.495$; $df = 9$; $p = 0.000$). As the education attainment of the head of household increased, the level of household food security also improved. However, it was observed that basic education graduates (primary and secondary education) were struggling to ensure household food security. This was partly explained by skills mismatch that hampered transition from learning to earning, negative attitudes towards informal employment and agriculture, lack of information on careers and job prospects and lack of capital to venture into enterprise creation. The study recommends that the Government should sustain efforts to provide free primary education, free tuition in secondary schools and improved access to postsecondary education considering that advanced levels of education attainment make a difference in households' food security. Further, there is need for interventions to mitigate skills gap among the basic education graduates. Such interventions include training programmes for out of school adults to increase their adaptability and flexibility to realities of the formal and informal employment sectors including agriculture which is the main source of employment in rural areas.

Keywords: education attainment, household head, household food security

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1. Introduction

Education is a vital ingredient for sustainable development [1]. It supports development agenda by equipping individuals with the requisite lifetime knowledge, skills, values and positive attitudes to address local, national and global challenges [2]. Education is therefore acknowledged as the main policy instrument for economic growth, development, social mobility and individual fulfilment [3,4]. According to United Nations Educational, Scientific and Cultural Organization [UNESCO] [5], education represents the hopes, dreams and aspirations of children, families, communities and nations around the world. It is the most reliable route out of poverty and a critical pathway towards healthier, more productive citizens and stronger societies.

Education is classified as one of the indispensable social, economic and cultural rights as enshrined in the 1948 Universal Declaration of Human Rights and other international human rights instruments [6]. This is reaffirmed in various international organizations, forums, declarations and instruments which provide framework of obligations and implementation targets for all states. Other than being a human right, education is also a vehicle for the realization of other human rights [7].

Through education, individuals are equipped with legal and economic instruments to achieve civil, political, economic and social rights. Education therefore empowers citizens to realize other human rights and also combat all forms of discrimination and violations of human rights [8]. Consequently, states are obliged to ensure that the right to education is respected, protected and fulfilled by ensuring that education is available, accessible, acceptable and adaptable to diverse human needs [6].

Globally, governments continue scaling up budgetary allocations to education. This reflects the strategic priority assigned to developing human capital [9]. Expenditure in education is considered an investment with returns [10,11]. Among the well documented returns to education investment is improved quality of life for the citizens. According to Caldwell, Colleti, Ludlow, Sinclair *et al* [12], quality of life is intrinsically connected to the degree to which basic human needs such as household food security are met.

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life [13,14]. At the household level, Ajani, Adebukola and Oyindamola [15] view food security as access to adequate, safe and nutritious food required for healthy and active life by all members of a household at all times.

According to Tamiru, Argaw, Gerbaba1, Ayana, *et al* [16]; United Nations Development Programme [17], education attainment plays a significant role in creating food security within rural households in developing countries. Education attainment is associated with more job opportunities for the household head, adoption of technology to agricultural practices, proper farming practices including utilization of fertilizers, and engagement in other off farm activities which boost household food security [18]. Existing empirical evidence reveal mixed findings on the relationship between education attainment and household food security. Dekhampu [19] study in South Africa found that the education attainment of the head of a household was not important in explaining the variations in household food security suggesting lower returns for education in the market.

Ayoola, Kayode, Olumayowa [20] study in Nigeria revealed that the level of education of household heads was a significant and negative determinant of household food security status. Their study found that a unit increase in the level of education of the household head reduced the probability of a household being food secure by 0.13. The finding suggests that a household with a well-educated household head may not necessarily be food secure. Alam, Khorshed and Mushtaq [21] research in Bangladesh found a positive relationship between education attainment of household head with one unit (year) increase in a participant's level of education increasing the probability of household food security by 1.134. It is therefore evident that while education is widely acknowledged as making a contribution to household food security, researchers are yet to agree on the nature of relationship that exists between the education attainment of head of household and household food security.

The Government of Kenya acknowledges the pivotal role of education in improving the quality of life to the citizens. This has been demonstrated by commitment towards ensuring that education is available, accessible, acceptable and adaptable. The Constitution of Kenya affirms education as a basic human right [22]. The Basic Education Act articulates that every Kenyan citizen has a right to free and compulsory basic education [23]. The National Education Sector Plan [24] also envisions an education system that will fight illiteracy, disease, ignorance and poverty in Kenya. Education is also

acclaimed as central to the actualization of Vision 2030 [25]. Commensurate to the Government position, budgetary allocations to education has been on the increase with approximately 6.4 % of the gross domestic product [GDP] being committed to education with expectations of returns to investment [26].

Yatta Sub-County is a semi-arid area in Machakos County, Kenya. The Sub - County receives unevenly distributed and erratic rainfall range of between 500 and 1300 mm. [1] The main source of livelihood households in the Sub - County is subsistence crop farming and rearing livestock [27,28]. Over the years, the area has experienced frequent droughts leading to crop failures and persistent water shortage. Consequently, relief food has become the norm in the Sub - County [27]. There is a rising school dropout and declining educational outcomes due to hunger and malnutrition despite the government effort to feed the primary school children as well as the affected community. Food insecurity has devastating impacts on the households in Yatta - Sub County.

Education is fundamental in promoting the capacity of rural poor to escape from poverty and hunger with their own power. This study therefore seeks to extend the debate on the relationship between education attainment of the household head and food security in Yatta - Sub County. The study was guided by the following objectives:

1. To assess households' experiences with events indicative of food security.
2. To determine the level of food security in households in the district.
3. To establish the relationship between the level of education of the head of a household and the level of household food security.

2. Literature Review

The following sections review literature on the relationship between education and food security. Further, the effects of food insecurity on education in a household are discussed.

2.1. Education and Food Security

Investment in basic education presents a unique window of opportunity to address inequality, inter-generational transmission of poverty and improve a wide range of outcomes later in life [29]. Dannenberg and Grapentin [30] contend that education enables people to acquire the desired knowledge, values, skills and attitudes to shape their own life and that of the society through sustainable livelihoods. It is also widely acknowledged that education is a critical factor in food access, production and utilization [31,32]. Through education, individuals acquire improved capacity to engage in sustainable agricultural activities which contribute to household food security especially in rural areas where farming is the main economic activity [33,34].

Farmers with basic education are more likely to use new technology, fertilizers and manure in farming in addition to diversifying income generating activities which improve disposable income and household food security [18]. Education also secures employment opportunities, improves diet and nutrition, sanitation,

access to markets, health and decision making which are salient factors in household's food security [18,31]. Educated households are more likely to practice family planning hence a manageable household size that reduces pressure on available disposable income and stock of food [35,36]. Evidently, educated households are more likely to use their human capital towards attainment of food security compared to illiterate households.

Existing research has demonstrated that there exists a relationship between level of education attainment of household's head and household food security [34,37,38]. Sekhampu [37] study in South Africa urban township found that education attainment of household head was not significant in explaining variations in household's food security. This was explained by the inability of the majority of households' head having primary education and therefore limited employment opportunities to provide food for their families. Feyisa [38] research in Ethiopia found that illiterate households are more food insecure than literate households. The explanation given for their finding was that literate households had more chance to pursue food security compared to their illiterate counterparts. De Muro & Burchi [34], using household-level data from the Demographic and Health Surveys (DHS) for 48 low-income countries found that doubling access to primary education in rural households could substantially reduce rural food insecurity by around 25 percent.

Niankara [39] study in Burkina Faso found that compared to households headed by an adult with no education, those headed by someone with a primary, secondary or higher education were respectively 19.8% , 49.7% and 118.9% less likely to experience food insecurity. Alam, Khorshed and Mushtaq [21] found that one unit (year) increase in a participant's level of education increased the probability of household food security by 1.134. The explanation given to the finding was that household heads with more education have greater access to non-farm jobs and the capacity to adopt better strategies in their farming, which in turn increases their production and contributes to food security for these households. Mutisya *et al.* [31], using longitudinal data collected between 2007 and 2012 in Kenya found that the probability of being food insecure decreased by 0.019 for a unit increase in the average years of schooling for a given household.

2.2. Food Insecurity and Education

Education and food insecurity are strongly interlinked. Low levels or no formal educational attainment may lead to higher levels of poverty and food insecurity. Similarly, food insecurity may also result in low levels of education [39]. According to Anisef, Robson, Maier and Brown [14]; Tamiru and Belachew [16]; hungry children are more likely to display stunted physical growth, emotional, behavioural and academic problems compared to children from households which are food secure. In addition, food insecure children are more likely to exhibit lower test scores, social interaction problems, and prevalence of ill health. De Muro and Burchi [34] argue that food insecurity lowers school enrollment and increases chance of wastage including grade repetition and drop out due to higher opportunity costs of sending children to school.

The children could earn through menial jobs and buy food for themselves and other family members.

Tamiru and Belachew [16] also opine that household poverty has a significant association with lack of maternal education, maternal depression and stressful conditions linked to gender based violence, poor housing conditions and lack of social services which can affect the overall school attendance and academic achievements. The effects of household food insecurity on education are documented in empirical research. Tamiru and Belachew [16] study in Ethiopia found that household food insecurity has a strong linkage with students' school absenteeism. Faught, Williams, Willows, Asbridge, *et al.* [40] research in Nova Scotia found that household food insecurity is associated with poor academic achievement among children. Hannum, Liu and Frongillo [41] study in China found that children in food insecure households have significantly lower literacy scores. McIntyre, Kwok and Patten [42] analysis among Canadian youth found that child hunger was independently predictive of youth leaving high school.

3. Methodology

This study adopted a descriptive research design. The target population was 19,349 households in Yatta Su - County. The Sub - County has seven locations - Ndalani, Mavoloni, Matuu, Ikombe, Kinyatta, Katangi, and Kithimani. According to Krejcie and Morgan [43] table for determining the sample size, a population of 19,347 households requires a sample size of 378. To determine the sample size in each location, stratified random sampling method was used. The various stratus used in the study were the various locations in the Sub - County. Sampling ratio was used to identify the actual sample size in each location. The sampling ratio was calculated as follows: Sample size /Population size = 378/19347 = 0.02. The sampling ratio was multiplied with the population in each location in order to determine the sample size. The population distribution and sample size of the households is summarized on Table 1.

Table 1. Distribution of the Households in Locations in Yatta Sub - County

| Location | Number of households | Sampling Ratio | Sample Size |
|-----------|----------------------|----------------|-------------|
| Ndalani | 3,000 | 0.02 | 44 |
| Mavoloni | 2,334 | 0.02 | 88 |
| Matuu | 4,422 | 0.02 | 45 |
| Ikombe | 2,189 | 0.02 | 75 |
| Kinyatta | 2,250 | 0.02 | 29 |
| Katangi | 1,413 | 0.02 | 47 |
| Kithimani | 3,739 | 0.02 | 60 |
| Total | 19,347 | | 388 |

In order to identify the households to participate in the study, a list of the households was obtained from the chiefs of the various locations. Simple random sampling was then used to identify the households to participate in the study. The sampled households were identified with assistance from the chiefs. Close ended questionnaire was employed to collect data. The researcher administered 388

questionnaires to households in seven locations of Yatta Sub - County. Out of these, 315 questionnaires were returned. This translated to a return rate of 81.0%. Failure to secure a 100.0% return rate was due to failure by some of the respondents to return their questionnaires despite a constant appeal from the researchers. Some questionnaires were also not completely filled in and were completely discarded. The data collected was analyzed using descriptive statistics. Chi-Square test of independence was used to establish the relationship between the education attainment of head of the household and household's food security.

4. Results

The study assessed households' experiences with events indicative of food security. Further, the study examined the level of food security in households in the Sub - County. In addition, the relationship between the level of education of the head of a household and the level of household's food security was determined. The following sections present findings on the demographic characteristics of the respondents followed by findings based on the objectives of the study.

4.1. Demographic Characteristics

Table 2 presents demographic characteristics of the respondents of the study. Majority (54.3%) of the respondents were female as their husbands were either

away or they were windowed. The finding implies that most of the households in the study location were in the care of females. Some (43.8%) seemed to depend on support from husbands who had migrated to other areas in search of livelihoods while 10.5% were windowed. Having families in the care of females may increase their vulnerability to food insecurity as it is documented that in rural areas, women account for the largest number of number of unemployed adults [45]. They are often at a risk of having lower wages from casual jobs that are considered feminine in nature [46,47]. Despite the majority of the respondents being female, it was found that most (55.9%) of the households were headed by a male. This largely reflects the patriarchal nature of the African society where even in their absence, males retain family headship.

Majority (75.7%) of the family heads were in the age brackets of between 21-50 years. This implies that most of the family heads were in economically active and productive age bracket. Majority (52.4%) had attained secondary education and above, 44.4% had primary level of education and 6.7% did not have formal schooling. Evidently, majority of the households have formal schooling. The finding confirms the benefits of Government interventions such as Free primary Education (FPE) and Free Tuition in Secondary (FTS) education in improving access and participation in basic education in Kenya [26,48,49]. The interventions were made cognizant of the role of education in a nation's development including sustainable livelihoods that guarantee food security [25].

Table 2. Demographic Characteristics of the Respondents

| Demographic characteristic | Label | Frequency | Percent |
|--------------------------------------|----------------------------|--------------|--------------|
| Gender of respondent | Male head | 90 | 28.6 |
| | Female head (husband away) | 138 | 43.8 |
| | Female head (windowed) | 33 | 10.5 |
| | Both parents | 54 | 17.1 |
| | <i>Total</i> | <i>315</i> | <i>100.0</i> |
| Gender of head of household | Male | 176 | 55.9 |
| | Female | 139 | 44.1 |
| | <i>Total</i> | <i>315</i> | <i>100.0</i> |
| Age of the head of household | 21-30 Years | 30 | 10.1 |
| | 31-40 Years | 96 | 32.3 |
| | 41-50 Years | 99 | 33.3 |
| | 51-60 Years | 38 | 12.8 |
| | Above 60 Years | 34 | 11.4 |
| | <i>Total</i> | <i>297</i> | <i>100.0</i> |
| Level of education head of household | No formal education | 7 | 2.4 |
| | Primary | 133 | 45.2 |
| | Secondary | 107 | 36.4 |
| | Post-secondary education | 47 | 16.0 |
| <i>Total</i> | <i>294</i> | <i>100.0</i> | |
| Occupation of the head of household | Farming | 168 | 56.4 |
| | Business | 54 | 18.1 |
| | Formal employment | 29 | 9.7 |
| | Casual laborer | 26 | 8.7 |
| | Skilled occupation | 18 | 6.0 |
| | Unemployed | 3 | 1.0 |
| | <i>Total</i> | <i>298</i> | <i>100.0</i> |
| Number of children | Up to 2 children | 29 | 36.7 |
| | 3 or more children | 50 | 63.3 |
| | <i>Total</i> | <i>79</i> | <i>100.0</i> |

Most (63.3%) of the households had three (3) children or more. Ngema, Sibanda and Musemwa [50] argue that in rural areas, large families are a source of family labour which can boost household food security. However, they also contend that large families are more likely to be associated with poor households which are susceptible to food insecurity in an eventuality of drought due to competition for scarce food in large households. Majority (56.4%) of the heads of households were farmers. The finding concurs with [51,52,53] who contend that agriculture is the primary form and source of employment in rural areas in Sub-Saharan Africa. The following section presents and discusses findings on main sources of food consumed in the households.

4.2. Main Sources of Food Consumed in the Households

The study sought to establish the main source of food consumed in the households. This was necessary in order to shed light on the sustainability of the sources of food. The findings are summarized in Table 3.

Table 3. Main Source of Food for the Households

| Source | Frequency | Percent |
|-----------------------|------------|--------------|
| Purchased from market | 168 | 53.3 |
| Own farm | 141 | 44.8 |
| Donations | 6 | 1.9 |
| Total | 315 | 100.0 |

It was evident that majority (53.3%) of the households purchased food from the market despite that the majority of the households were farmers. A proportion (44.8%) depended on their farms for food and 1.9% relied on donations. Considering that Yatta Sub - County is rural, the trend where majority of the households depended on purchasing food from the market was a clear indicator of

low agricultural productivity in the area. The findings may also point to households' susceptibility to food insecurity considering that majority of the households were farmers with very few being engaged in business or formal employment which could have been alternative sources of disposable income.

Having established the main sources of food in the households, the study proceeded to establish households' experiences with events indicative of food security.

4.3. Households' Experiences with Events Indicative of Food Security

In order to evaluate household food security in the Sub - County, the respondents were provided with questions (see Table 4) which generated data on household's experiences with indicators of food security over the last 12 months. The questions focused on four kinds of situation which are: Anxiety or perception that the household food budget or food supply was inadequate (Items 1 and 2); perceptions that the food eaten by adults or children was inadequate in quality (Items 3, 4 and 5); reported instances of reduced food intake, or consequences of reduced intake, for adults (Items 6, 7, 8, 9, 10, 11, 12); and reported instances of reduced food intake or its consequences for children (Items 13, 14, 15, 16, 17 and 18). Each of these four groups of questions measures a cluster of central conditions or components of the experience of food insecurity and hunger as these are expressed at each of the successive stages, or ranges, of severity. To conduct the analysis, it was first necessary to code the response to each question as either "affirmative" or "negative." The events had three response categories: "often true," "sometimes true," and "never true." For these events, both "often" and "sometimes" were considered affirmative responses because they indicate that the condition occurred in the household at some point during the year. "Never true" was considered negative.

Table 4. Households' Experience with Events Indicative of Food Security

| Event | Affirmative (Yes) | | Negative (No) | |
|---|-------------------|------|---------------|------|
| | <i>n</i> | % | <i>n</i> | % |
| 1. Worried food would run out | 258 | 81.9 | 49 | 15.6 |
| 2. Food bought just didn't last | 249 | 79.0 | 56 | 17.8 |
| 3. Couldn't afford balance meals | 250 | 79.4 | 56 | 17.8 |
| 4. Few kinds of low-cost food for children | 251 | 79.7 | 56 | 17.8 |
| 5. Couldn't feed children a balanced meal | 251 | 79.7 | 54 | 17.1 |
| 6. Children were not eating enough | 245 | 77.8 | 60 | 19.0 |
| 7. Adult(s) cut or skipped meals | 288 | 91.4 | 1 | .3 |
| 8. Adult(s) cut or skipped meals, 3+ months | 213 | 67.6 | 18 | 5.7 |
| 9. You ate less than felt you should | 225 | 71.4 | 85 | 27.0 |
| 10. You were hungry but didn't eat | 195 | 61.9 | 117 | 37.1 |
| 11. You lost weight because not enough food | 191 | 60.6 | 117 | 37.1 |
| 12. Adults did not eat for whole day | 168 | 53.3 | 121 | 38.4 |
| 13. Adults did not eat for whole day, 3+ months | 174 | 55.2 | 5 | 1.6 |
| 14. Cut size of children's meals | 214 | 67.9 | 92 | 29.2 |
| 15. Children ever skip meals | 206 | 65.4 | 82 | 26.0 |
| 16. Children skip meals, 3+ months | 203 | 64.4 | 15 | 4.8 |
| 17. Children ever hungry | 197 | 62.5 | 107 | 34.0 |
| 18. Children did not eat for whole day | 169 | 53.7 | 136 | 43.2 |

n - Number of respondents.

The data summarized in Table 4 reveal that over 80.0% of the households experienced food insecurity anxiety. Majority (79.6%) also perceived that food for both adults and children was inadequate in quality. Similarly, almost all (91.4%) of the adults in the households had skipped meals in the last one year. A high proportion (67.6%) had skipped meals three months before the study was conducted. The same events were also reported in households with children. On average, over 50.0% of the households did not feed their children in a whole day. Evidently, both adults and children were vulnerable to food insecurity in the Sub - County. The findings imply that school going children in the Sub - County were vulnerable to missing or dropping out of school due to hunger, or register stunted physical growth, emotional, behavioural problems and academic underachievement [14,16,39,42,43].

4.4. Level of Household Food Security

In order to compute the level of household food security, all the 18 items on households' experience with events indicative of food security were coded either as (1) for affirmative response and (0) for a negative response. The maximum score for a household was therefore 18 (the household responded in the affirmative to all the items) and the minimum score was 0 (the household responded in the negative to all occurrence questions). The higher the score, the more food insecure a household was. The lower the score, the less food insecure a household experienced. On a range of 0 - 18, the total HFIAS score in households in Yatta Sub - county was 3947. The average Household Food Insecurity Access Scale Score was calculated as follows:

$$\frac{\text{Sum of HFIAS Scores in the sample}}{\text{Number of households in the sample}} = \frac{3947}{315}$$

$$\text{Average HFIAS} = 12.53.$$

Bickel, Nord, Price, Hamilton, and Cook [44] provide a basis for interpreting the HFIAS score and categorizing the households as food secure, food insecure without hunger, moderately food insecure with hunger, and severely food insecure with hunger. Bickel, *et al* [44] posit that the scores should be converted to a 0-10 metric by dividing individual household score with the maximum household score (18) and multiplying by ten. The resulting score should be used to categorize households based on the classification scale summarized on Table 5.

Table 5. Scale for Interpreting HFIAS Scores

| | | | |
|-------------|------------------------------|---------------------------|------------------------|
| Up to 2.32 | Up to 4.56 | Up to 6.53 | Up to 10 |
| Food Secure | Food Insecure | | |
| | Food Insecure Without Hunger | Food Insecure With Hunger | |
| | | (Less Severe) "Moderate" | (More Severe) "Severe" |

Accordingly, households with a score of up to 2.32 were categorized as food secure, those with a score of up to 4.56 were classified as food insecure without hunger, a score of up to 6.53 were categorized as moderately food insecure with hunger and a score of 6.54 and above were

classified as severely food insecure with hunger. An average HFIAS of 12.53 therefore means that majority of the households had a score of $12.53 \times 10 / 18 = 6.96$ and would therefore be classified as severely food insecure with hunger based on the classification scale. This is because, from the illustration above, any score beyond 6.53 implies severe food insecurity with hunger in a homestead.

Based on the scale provided by Bickel *at al.* [44] (See Table 5), a household HFIAS score was divided by 18 and multiplied by 10 and the resultant score used to classify the households in Yatta Sub - County. The classification presented in Table 6 reveal that only 18.7 percent of the households were food secure. Majority (63.5%) of the households were severely food insecure with hunger.

Table 6. Level of Household Food Security in Yatta Sub - County

| Level | Frequency | Percent |
|--------------------------------------|------------|--------------|
| Food Secure | 59 | 18.7 |
| Food Insecure Without Hunger | 29 | 9.2 |
| Moderately Food Insecure With Hunger | 27 | 8.6 |
| Severely Food Insecure With Hunger | 200 | 63.5 |
| Total | 315 | 100.0 |

4.4. Relationship between Education Attainment of the Household Head and Food Security

The study sought to establish the relationship between education attainment of the head of household and the level of household food security. To determine the relationship, Chi Square test was computed. The data summarized in Table 7 show that the level of education of household head and level of food security were significantly related ($\chi^2 = 84.495$; $df = 9$ and $p = 0.000$). The calculated Chi Square value of 84.495 is more than the critical value of 16.919 at 9 degree of freedom and 0.05 level of significance. We therefore accept that there is a significant relationship between the level of education attainment of household head and level of food security in a household.

As displayed in Table 6, 71.4% of households categorized as severely food insecure with hunger had no formal education. The majority (52.5%) of households classified as moderately food insecure with hunger had primary level of education. Majority (56.1) of the heads of households with secondary education ranked between food secure and food insecure but without hunger. Majority (70.2%) of household heads with post-secondary education were ranked as food secure. The findings suggest that an improvement of the level of education attainment of household head led to improved household food security status among households in Yatta Sub - County. The finding contradicts Sekhampu [37] who found that education attainment of household head was not significant in explaining variations in household's food security. However, the finding concurs with Alam, Khorshed and Mushtaq [21] who found that education attainment of the household head had a positive and significant relationship with household food security status.

Table 7. Level of Education Attainment of Household Head and Household Food Security

| Education attainment | | Level of household food security | | | | Total |
|--------------------------|--|----------------------------------|------------------------------|--------------------------------------|------------------------------------|--------|
| | | Food secure | Food insecure without hunger | Moderately food insecure with hunger | Severely food insecure with hunger | |
| No education | Count | 1 | 1 | 0 | 5 | 7 |
| | Expected Count | 1.7 | 1.7 | .8 | 2.8 | 7.0 |
| | % within education attainment of family head | 14.3% | 14.3% | .0% | 71.4% | 100.0% |
| | % of Total | .3% | .3% | .0% | 1.7% | 2.4% |
| Primary | Count | 13 | 29 | 24 | 67 | 133 |
| | Expected Count | 33.0 | 33.0 | 14.5 | 52.5 | 133.0 |
| | % within education attainment of family head | 9.8% | 21.8% | 18.0% | 50.4% | 100.0% |
| | % of Total | 4.4% | 9.9% | 8.2% | 22.8% | 45.2% |
| Secondary | Count | 26 | 34 | 7 | 40 | 107 |
| | Expected Count | 26.6 | 26.6 | 11.6 | 42.2 | 107.0 |
| | % within education attainment of family head | 24.3% | 31.8% | 6.5% | 37.4% | 100.0% |
| | % of Total | 8.8% | 11.6% | 2.4% | 13.6% | 36.4% |
| Post-secondary education | Count | 33 | 9 | 1 | 4 | 47 |
| | Expected Count | 11.7 | 11.7 | 5.1 | 18.5 | 47.0 |
| | % within education attainment of family head | 70.2% | 19.1% | 2.1% | 8.5% | 100.0% |
| | % of Total | 11.2% | 3.1% | .3% | 1.4% | 16.0% |
| Total | Count | 73 | 73 | 32 | 116 | 294 |
| | Expected Count | 73.0 | 73.0 | 32.0 | 116.0 | 294.0 |
| | % within education attainment of family head | 24.8% | 24.8% | 10.9% | 39.5% | 100.0% |
| | % of Total | 24.8% | 24.8% | 10.9% | 39.5% | 100.0% |

Pearson Chi-Square = 84.495; $df = 9$ and $p = 0.000$.

The findings also raise a pertinent question on the role of basic education attainment in alleviating food insecurity. The paradox for the current study being that the majority of the household heads had attained basic education, were farmers but ended up buying food in the market most likely because of unproductive farming (see Table 2 and Table 3). Further, majority (50.4%) of the household heads who had attained primary education and a proportion (37.4%) of those who had attained secondary education were food insecure with hunger. Yet, education is known to improve agricultural productivity by empowering farmers to adopt sustainable agricultural practices thus improving households' food security [33,34]. Education also increases the probability of households diversifying their income base thus improved food security through off - farm economic activities [18,21].

According to Sinha [36]; Nwambam and Eze [54]; Sparreboom and Staneva [55], majority of basic education graduates in developing countries have inadequate capacity to facilitate seamless transition from learning to earning with a fair degree of competence as to guarantee sustainable and decent livelihoods including food security. The World Bank [56] also observes that in rural Africa, the extent to which school attendance and completion of basic education contributes to improved prospects for employment and productivity in both the formal and informal sectors is not well understood.

Food and Agriculture Organization (FAO) [57] contend that graduates in rural areas find themselves ill prepared with appropriate agricultural skills compounded with negative attitudes towards pursuing farming as a source of employment. Franz [58] also point out that basic education graduates lack work experience, do not know where to find information about careers and job

opportunities and they lack the necessary assets and attitudes to become self-employed. Evidently, it is not just enough to complete the basic education cycle, there is urgent need to institutionalize interventions that will improve livelihoods leading to desired returns to education investment such as food security among basic education graduates.

5. Conclusion and Recommendations

The study concluded that the majority of the households in Yatta Sub - County had formal schooling and largely practiced farming. However, farming was not the main source of food since most of the households purchased food from the market. Apparently, unproductive farming and dependence on purchased food exposed majority of the households to severe food insecurity with hunger. The study further concluded that there is a significant relationship between the education attainment of the head of household and the level of household food security.

As the education attainment of the household head improved, the level of household food security also improved. However, it was observed that basic education graduates (both primary and secondary education) were struggling to ensure household food security despite the widely documented returns to basic education including improved agricultural practices and engagement in off farm economic activities especially in rural areas. This was partly explained by skills mismatch, negative attitudes towards agriculture, informal employment and lack of information of careers and job prospects.

The study recommends that the Government should sustain efforts to provide free primary education and free

tuition in secondary schools considering that it is evident that formal schooling indeed does make a difference in household food security. The Ministry of Education, school administrators and community leaders should address issues contributing to drop out in order to ensure that all children benefit from education. There is also need to improve on the quality of education in the Sub - County and more so, encourage youths to pursue education as the single most important asset to break from the vicious cycle of poverty.

Further, there is need for interventions to mitigate skills gap among the basic education graduates. Such interventions include but not limited to Government training programmes for out of school adults to increase their adaptability and flexibility to realities of the formal and informal employment sectors. The training programmes should focus on entrepreneurial and financial skills to successfully venture into farming or off farm enterprises; soft skills such as interpersonal relationships, team work including collective bargaining skills, research for new business ventures; leveraging Information Communication Technologies (ICT) in agribusiness and other informal employment opportunities; off and on the farm training in agricultural production, food storage, grading, processing; alternative energy sources; access to appropriate financial services and farm inputs.

The Government should also have specific programmes to make technical, vocational education and training (TVET) attractive and accessible for basic education graduates. These include financing to pursue TVET and business incubation for TVET graduates. There is also need to establish career advisement centers at Sub - County levels for purposes of mentoring adults and improving access to information on livelihoods. Psychosocial support programmes are also required to improve basic education graduates' self-esteem and foster a feeling that rural areas are indeed an option for sustainable livelihoods leading to decent lives.

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