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RESEARCH ARTICLE

FOOD AND NUTRITION SECURITY COPING STRATAGIES ADOPTED BY PEOPLE LIVING WITH HIV AND AIDS AND THEIR FAMILIES: A CASE STUDY OF SUGAR CANE AND TOBACCO FARMERS IN MIGORI COUNTY – KENYA

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ABSTRACT

Whereas Food and Nutrition security play a crucial role in the management of HIV and AIDS, the scourge is a significant threat to good nutrition and food security. It increases vulnerability and depletes the capacity of a society to cope yet no proper documentation has been done in Migori County. This paper examines food and nutrition coping strategies adopted by sugarcane and tobacco farmers living with HIV and AIDS and their families in the County. Design of the study was a cross sectional descriptive and analytical survey. A two stage sampling technique was used to identify study area and selection of respondents (341) for exit interview, Focused Group Discussions (FGD) and Key Informant Interview (KII). Data collected included: demographics, food and nutrition, stigma and discrimination, psychosocial care and support and economic coping strategies. Food and nutrition coping mechanisms included: diversification (30.5%), adopting low labour intensive technologies (20.4%), substitution with subsistence crops (21.5%) and reduction of land acreage (23.4%).The paper concludes that farmers are coping with the impacts of the epidemic and are able to access nutritious foods though not always in adequate quality and quantity and that the strategies established are not only multi-dimensional but also dynamic and interdependent. Consequently, development and implementation of county food security strategy policy that facilitate access to nutritious food is recommended.

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INTRODUCTION

Food security is of global concern and is defined as a state that exists when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2001). With adequate food intake today, one would still be considered to be food insecure if he or she has inadequate access to food on a periodic basis, risking a deterioration of nutritional status (FAO, 2006).This is consistent to definition stated by the Constitution of Kenya, (2010) that; "Food *insecurity is a condition in which households lack food intake to provide them with energy and nutrients that the body requires for normal functioning.* Food insecurity is measured by the nutrition gap, which represents the difference between projected food supplies and the amount of food needed to meet per capita nutrition standards at the national level (United States Department of Agriculture, 2001).

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While emphasizing on the significance of food security, the Millennium Declaration of the General Assembly of the United Nations (UN), identified extreme poverty and hunger as one of the goals for all UN member states; for which significant strides have been made towards reduction of extreme poverty (World Report, 2012). According to FAO (2010), 0ne billion people suffered starvation and malnutrition; posing a threat to the attainment of MDG number one to halve extreme poverty and hunger by 2015. Infact, this situation is exuberated by HIV and AID since affected households have poorer consumption as compared to non-affected households thereby threatening their nutrition security.

Impacts of HIV and AIDS on Agricultural Systems

Agriculture is a dynamic, integrated and an interdependent system of production and other components operating through a network of interrelated subsectors, institutions and rural households with linkages at every level of activity. The efficiency and effectiveness of each subsector, institution and

household depends, to a large extent, on the capacity in other parts of the system. If this capacity is eroded through HIV, then the system's ability to function diminishes. Food and Agriculture Organization (2011) recognizes that HIV and AIDS is slowly eroding food security, ravaging rural livelihoods and exacerbating poverty. The pandemic has serious implications for rural agricultural production and household food security, gender concerns and the policy environment. It increases vulnerability and depletes the capacity of individuals and the society to respond positively to its impacts and is therefore a threat to food and nutrition security. According to Ainsworth, M., (1993), the detrimental impact that the scourge may have on rural households' productive capacity has been explored in studies in Eastern Africa which have suggested that the effects of the epidemic are felt on two key farm production parameters**:** household labour quality and quantity and the availability of disposable cash income. Therefore, HIV and AIDS-affected households in mixed agriculture, fisheries and pastoralist communities become increasingly resource-poor and thereby producing less (Natasha *et al*. 2003).

Coping Mechanisms

According to Jane *et al*. (2009), coping is defined as the cognitive and behavioural efforts to manage external or internal demands appraised as taxing or exceeding the resources of an individual while , Ndikumana *et al*. (2000) describes coping mechanisms as the responses an individual, group or society engages to a challenging situation. The mechanisms lie within the framework of the individuals', groups' or society's risk aversion, tolerance or accommodation levels, that they institute to minimize or control risk, or manage a damage that is already caused by a given situation or condition.

In the context of HIV and AIDS, coping mechanisms indicate the extent to which affected individuals, care givers, respective households and communities have the ability to respond to adversities resulting from the epidemic. According to a study conducted by Marilyn Elias; USA TODAY (posted 3/12/2007), coping can boost HIV survival. It suggested that HIV patients live longer if they face stress by venting their feelings, taking a realistic view of threats to their health and keeping a sense of self-worth adding to growing evidence that how HIV-positive patients cope with their trauma has a direct association to disease prognosis. This is consistent with a study conducted by Oluoch *et al*. (2011) which established that the PLHIV who had joined support groups and had disclosed their HIV status had reversed from symptomatic stage to asymptomatic stage as described in the National Prevention of Mother –to- Child HIV Transmission (MOH, 2005). As the same time, social safety networks have not completed as indicated by Goody (1999) who asserted that family responsibility has not diminished to the point that national welfare agencies have constantly to step in. With the onset of HIV and AIDS, the concept of 'coping' has become widely used to indicate the extent to which households and communities have the wherewithal to respond to adversities resulting from the epidemic (UNAIDS, 2009). Notably, notions of 'coping' can under-estimate the stark realities for many households and communities affected by HIV and AIDS, who are in fact 'struggling', rather than coping in any positive sense (Rugalema, 2000). Rather than devising a planned sequence of measures, or 'coping strategy', in response to the difficulties faced, households affected by the epidemic often respond to immediate problems in a reactive way, for example by selling off assets to meet their immediate needs (Donahue, 1998, National Agricultural Advisory Service of Uganda, 2003). Other responses include intra-household labor re-allocation, taking children out of school, making use of fewer crop varieties or less labor-intensive crops, reducing the area of cultivation and/or the size of livestock herds, and reducing the quality of food and its frequency of consumption (UNAIDS, 2009, National Agricultural Advisory Service of Uganda, 2003). Generally, coping constitutes the actions taken by individuals when faced with stressful events in order to lessen the threat to them. Stress has both psychological and physiological causes and effects. For an individual to continue functioning in an adaptive way, he or she must learn to cope with stress.

Research Question

How HIV and AIDS infected and affected sugarcane and tobacco farmers cope with the devastating impacts of the scourge in Uriri and Awendo Sub – Counties in Migori.

Objectives

Broad objective

This paper is set out to establish coping mechanisms adopted by sugar cane and tobacco farmers infected and affected by HIV and AIDS in Migori County.

Specific objective

Specific objective is to determine the food and nutrition security coping mechanisms adopted by sugar cane and tobacco farmers infected and affected by HIV and AIDS in Uriri and Awendo Sub – Counties in Migori.

MATERIALS AND METHODS

Study Area

The study was conducted in Uriri and Awendo sub counties of Migori County, one of the forty seven (47) Counties in Kenya. It is situated in the South-Western part of Kenya and borders Homa Bay County to the North, Kisii and Narok Counties to the East and the Republic of Tanzania to the South. It also borders Lake Victoria to the West. The county is located between latitude 0^o 24' South and 0^o 40'South and Longitude 34^o East and 34^o 50'East. The county covers an area of 2,607.3Km^2including approximately 478km^2 of water surface. It has suitable climatic condition with diverse agro-ecological zones ranging from highland areas, with fertile volcanic soils to lowland rangelands bordering lakeshores, with fertile alluvial soils. The main industrial crops include sugarcane and tobacco, with food crops being primarily maize, cassava, sweet potatoes and beans. Although a cosmopolitan county, it is predominantly occupied by the Luo and the Kuria communities (ICDP, 2013).

Research Technique and Sampling Method

A cross sectional descriptive survey and interview designs were employed and a two staged sampling technique used. The first stage involved purposive selection of the area of the study (Migori County) based on certain pre- determined characteristic which included accessibility of study population, HIV prevalence rates, financial factors and personal interest of the author of this paper in the area of the study. On the hand, stage two involved selection of sugar cane and tobacco growing zones and consequently Uriri and Awendo sub – county hospitals. The respondents (341) participated in the exit interviews at the Comprehensive Care Centers (CCC) and the inclusion and exclusion criteria was that the respondent had to be either a tobacco or a sugar cane farmer and was willing to participate in the study.

Sample Size

Fisher's *et al*., (1998) method was used to determine the sample size. The formula below was therefore used to calculate the sample size;

$$n = \frac{z^2 pq}{d^2}$$

Where:

n =Desired sample size if the target population is greater than 10,000.
z = Standard normal deviate at the required confidence level.
p=Proportion in the target population estimated to have characteristics being investigated.
q = 1 – p
d = Level of statistical significance set

Therefore, using Fishers theory that 50% of the target population will have the characteristic being investigated, for a population of more than 10,000 at 5% significance level, the desired sample size was calculated as stated below;

$$n = \frac{(1.96)^2 (0.50)(0.50)}{(0.05)^2}$$
$$= 384$$

Data Collection

Data were collected through desk reviews, administration of structured questionnaires to 341 respondents participating in an exit interview. The demographic data included; age and sex of the respondents, level of education as well as marital status. The author further sort to establish the food and nutrition coping mechanisms adopted, when the respondent leant of HIV + status (which year), source of labour, effects of the scourge on farming and how they have responded, and other sources of income among others. Focused group discussions with six (6) support groups and care givers besides Key Informant Interviews with the selected NGOs, Staff from the departments of Health services and Agriculture, Livestock and Fisheries Development – Migori County were carried out.

Data analysis

Quantitative data were coded and assigned numeral values representing attributes or measurements of variables, edited and checked for errors using logical sequence analysis. Coding included as much information as possible before the data entry for analysis using SPSS 15.0 Windows, a package that combines both analytical and presentation capacities. Through descriptive statistics, the author of this paper meaningfully described distribution of scores or measurements using the shape of the distribution, (frequency, distribution tables and percentages), the measures of central tendencies (mode, mean and median) as well as spreading out the scores or measures for each variable explaining the individual differences noted on the variables. Equally, qualitative information was organized and cleaned before creating categories, theme and patterns. It was after this process that the author of this paper analyzed and interpreted the data collected.

Study Findings

Demographic characteristics of farming households interviewed

Sex

Table 1 show that a significant 71.6% (244) and 28.4% (97) of the respondents were women and men respectively. This indicates that more women utilized antiretroviral therapy (ART) services at the Comprehensive Care Centres (CCC) than men. This phenomenon was confirmed during Focused Group discussions (FGDs) where out of the sixty seven (67) respondents, only 26.9% (18) were men. Membership to support groups was also dominated by the female gender. This is consistent with Kenya AIDS Indicator Survey (2012) which revealed that the percent of individuals (aged 15-64 years) infected with HIV was higher among women (6.9%) than men(4.4%).

Age

About 44 % (151) of the respondents accessing ART services were youths aged between 15 and 35 years as Fig.1 illustrates. This is consistent to Kenya AIDS Indicators Survey (KAIS, 2012) findings which indicated that the youths are vulnerable to HIV infection and that HIV prevalence was higher among women than men from age 17. Additionally, a significant 15.8% (58) of respondents were middle aged (46-55 years) while 10.6% (36) of the respondents were old (mean age 63 years). The youngest and oldest respondents aged 15 and 70 years old respectively. This finding confirms that HIV infection cut across all ages and therefore calls for target specific strategic interventions aimed at reducing new infections among both young and old people.

Marital Status

As demonstrated in fig.2, about 62% (210) and 29.9% (102) of respondents were married and widows respectively while less

than 10% of respondents accounted for divorcees and those who had not been married. Marital status is therefore an important demographic variable in determining the risk factors that exposes individuals to HIV infection: those in a married relationship have a greater risk. The Author of this paper therefore confirms that institution of marriage is threatened with HIV infection and consequently more married people compared to the divorcees or widows are seeking care and support services (ART). This is consistent with the Kenya AIDS Indicator Survey (KAIS, 2012) findings which established that the highest number of new infections occurs among married people and that woman and men who had never been married or cohabitated had the lowest prevalence rates, 3.5% and 4.7% respectively. This paper asserts that HIV prevalence varied significantly with marital status and that the findings can be utilized to inform policy direction on target based interventions to enhance quality of life marital status of the infected person withstanding.

Level of Education

Table 2 indicates that majority of respondents (40.5%) had primary level of education while a significant 25.5% (87) reported to have not completed primary education with another 8% (30) who had no formal education . An insignificant 3.2% (11) had attained tertiary education while 22% had secondary level of education. The findings offer an opportunity to explore the role of education in coping with the devastating effects of HIV/AIDS besides in depth inquiry on preferred health facilities by those with secondary and above levels of education. This is premised by the fact that level of education has a direct association to health care seeking behaviour and that it determines the preferred health facilities.

Food Security and Nutrition Coping Mechanisms

The coping strategies established were: Diversification of Enterprise, Adoption of low labour Intensive Technologies, Substituting cash crops with subsistence crops, Downsizing production for commercial purposes to subsistence, Reducing land acreage under cash crops, Downshifting to substance crops and Support from significant others.

Diversification of Enterprises

As fig.4 indicates, about 30.5% (104) people living with HIV and AIDS interviewed reports to have adopted enterprise diversification to cope with their food and nutritional requirements. The infected and affected households engage in production of multiple crops ranging from high value crops to drought resistant and early maturing crops to ensure availability of food in adequate quantities at all times. Food crops grown include; maize, sorghum, beans, cassava, orange- fleshed sweet potatoes and indigenous vegetables besides keeping sheep, goats and local poultry . This is consistent to the findings of a research which recommended Alemu et al. (2008) that assistance be given to HIV and AIDS affected households to raise highly nutritious products like poultry, vegetables in home gardens and small ruminants. Equally, Oluoch et al. (2011) in a study conducted in Kenya concurs with the Simwaka (2010) and Alemu, (2008) that support to the vulnerable households to diversify their production greatly catalyzes coping with their food and nutrition requirements.

Adoption of Low Labour Intensive Technologies

Of the 341 respondents, 20.4% (70) adopted low labour intensive technologies like kitchen gardening to promote indigenous vegetables, keeping of local poultry, rearing of small stock; sheep and goats, planting fast and maturing crops as preferred alternatives for sustained access to food security and nutritional requirements. This concurs with a study findings conducted in Kenya(Tetu, Karbanet, Baringo, Teso, Bondo and Kisumu districts) which established that infected and affected households had adopted low labour intensive technologies such as kitchen gardening, local poultry production and rearing of rabbits and pigs to cope (Oluoch et al., 2011). Similarly, UNAIDS, (2009) and National Agricultural Advisory Service of Uganda, (2003) established other responses to food and nutrition security to include adoption of less labour-intensive crops, reducing the area of cultivation and/or the size of livestock herds, and reducing the quality of food and its frequency of consumption. Equally, Alemu et al. (2008) established that adoption of low labour intensive technologies was adopted by the vulnerable group to cope with their food requirements. The research enumerated common labour saving technologies to include farming equipment such as lighter ploughs, inter cropping, minimum tillage, establishment of wood lots and adopting low labour input crops and products such as poultry.

Substituting Cash Crops with Subsistence Crops

Substituting cash crops with subsistence crops is not only an effect of the epidemic but also a coping mechanism. About 21.5% (73) respondents substituted tobacco or sugar cane with subsistence crops and the most popular substitute crop is maize (65%) while other substitutes included; beans , cassava and legumes for subsistence. The substitution is attributed to the high cost of labour, capital investment and inadequate time for crop husbandry required for both tobacco and sugar cane. Although a significant 26.1% of the respondents continued to plant sugar cane, only 4.4% still grew tobacco. This revelation is consistent to an earlier research finding which asserted that at the farm level, the impact of the epidemic may result in a shift from cash crops to less labour-intensive food crops, to more basic and less varied food production or to a reduction of productivity and cash income with corresponding adverse effects on household food security (FAO, 1995). Similarly, a study conducted by Oluoch et al. (2011) in Kenya also confirmed that HIV positive farmers opted to drop commercial farming to subsistence farming due to inadequate capital and labour .

Downsizing land acreage under cash crop cultivation

About 23.4% (80) of the respondents reduced land acreage as a result of the challenges that followed an HIV infection. With the increasing number of dependents and growing domestic and agricultural workloads, especially where role shifting had occurred with children taking care of younger siblings while grandparents taking over parenting roles, households affected

cultivated less land due to inadequate labour and time to invest in farming. This is consistent with the findings of a study conducted in Zimbabwe which asserted that affected farming households reduced land acreage owned and cultivated as a coping mechanism (Natasha *et al*., 2003). Equally, people living with HIV and AIDS leased out part of their land to generate income to buy food for the sick, hire labour to work in the farms and access medical services as illustrated in this caption, "*The burden HIV and AIDS has put on us like hunger and poverty has resulted to leasing out of parcels of land to generate money for food, payment of school fees and hiring of labour…..there is no need of retaining large parcels of land for sugar cane without capacity to develop…..it will be wasted,"* A care giver from *Kaumo "A*" support group in Awendo sub - county reiterated. Although the societal social systems are at the point of collapse, support from significant others and extended family members has been reported by 2.7% (9) as a coping strategy. This is consistent with a research conducted in Malawi by Munthali (2002), which established that while the extended family system is still the first choice of coping, it is under great strain. This paper notes that there are some coping mechanisms which are a threat to food and nutrition security. For example use of traditional instead of hybrid breed seeds, spending less time in field preparation, poor crop husbandry, non application of manure and erratic weeding as summarized in this testimony by a member of '' Onoka B" support group," *"A lot of time is spent on taking care of the sick member of the family leaving very little if any for labour and furthermore, the priority is to buy food and not farm input like fertilizer. The farms are erratically weeded…..she posed.*

Conclusion

The results indicate that infected and affected households are coping to attain their food security and nutritional requirements. There is however, an overlap of coping mechanisms and therefore synergy in enhancing coping is vital in management of HIV and AIDS infection. No respondent reported isolated coping mechanisms but rather an amalgamation of a wide range of strategies as illustrated in fig.4. HIV and AIDS and food and nutrition security are conceptualized and experienced as a two-way relationship and therefore the epidemic can, for example, generate distress sale of household and other agricultural assets that are essential to cultivation thus leading to food insecurity. Notably, HIV and AIDS coping strategies are not only multi-dimensional but also as dynamic as the devastating impacts of the scourge. Coping with the virus is a process rather than an event and that no single dimension worked independently. In view of this, therefore, an integrated approach that includes economic empowerment in the management of the virus is vital to sustain the gains in the fight against the epidemic.

Recommendations

The capacity of affected households to obtain adequate amount and variety of food and to adopt appropriate health and nutritional responses to HIV and AIDS is grossly reduced. To address this scenario, this paper recommends to the County government of Migori to develop and implement County Food Security Strategy Policy (FSSP) focusing on promotion of appropriate technologies. This will support any initiative aimed at reducing cost of production while promoting value addition of farm produce and development of enterprise value chains from production to marketing thus accelerating increased productivity both for subsistence and commercialization of produce. The County food strategy policy should also include innovative approaches designed to promote and operationalize community grain reserves. Additionally, this paper further proposes support to Agricultural Subsidy Programme (ASP) targeting resource poor and vulnerable farming families as a strategy towards the attainment for "food for all" clarion call GOK, (2010).

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APPENDICES

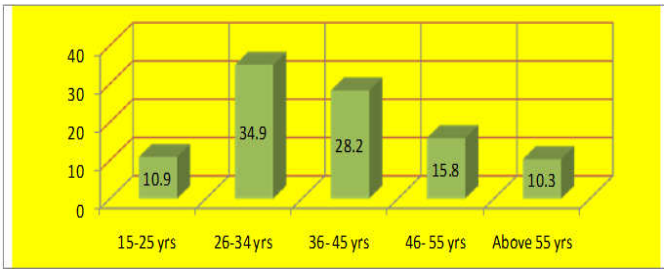

Figure 1. Age category of respondents (%)

Table 1. Sex of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	244	71.6	71.6	71.6
	Male	97	28.4	28.4	100.0
	Total	341	100.0	100.0	

Table 2. Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No formal education	30	8.8	8.8	8.8
	Primary not completed	87	25.5	25.5	34.3
	Primary level	138	40.5	40.5	74.8
	Secondary Level	75	22.0	22.0	96.8
	Tertiary	11	3.2	3.2	100.0
	Total	341	100.0	100.0	

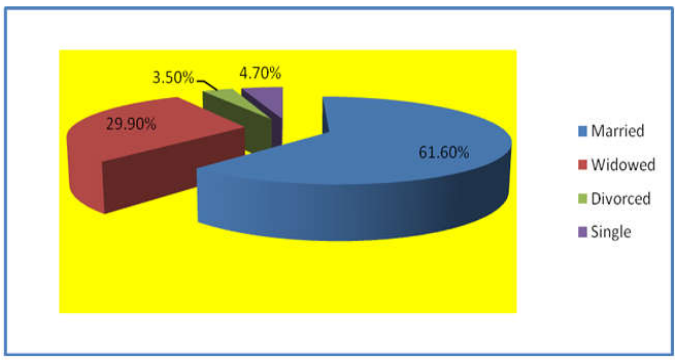

Figure 2. Marital Status

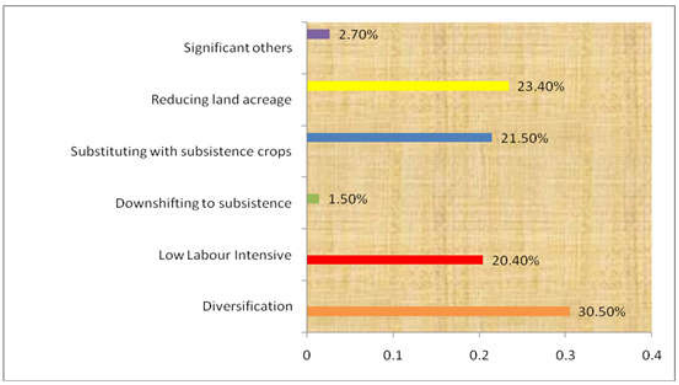

Figure 4. Food and Nutrition security coping mechanisms

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