



ANALYSIS OF THE EFFECTS OF HIV/AIDS ON COMMERCIAL CROP FARMERS IN KADUNA STATE, NIGERIA

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ABSTRACT

The study was conducted to analyze the effects of human immunodeficiency virus (HIV) and the acquired immune deficiency syndrome (AIDS) among commercial crop production farmers in Giwa Local Government Area (LGA) of Kaduna State, Nigeria. A structured questionnaire was administered to 65 respondents selected using a cocktail of sample methodologies, which elicited information on socio-demographic characteristics of respondents, HIV status, types of crop produced, effects of HIV on crop production, increase or decrease in commercial crop production of infected farmers. The data was analyzed using statistical package for social science (SPSS) and results were presented using simple descriptive statistical analysis as well as analysis of variance for testing the significance of means between groups. The result revealed that there was a significant difference ($P < 0.05$) in the crops output among men, women and youth, with the calculated $F = 13.724$ greater than the Table $F = 3.33$. The results, therefore, accept the fact that HIV/AIDS affects commercial crop output as well as income of the farmers in the study area. The study recommends that poverty reduction strategies or measures need to be given top priority and further enlightenment campaigns on the need for safe sexual practices to reduce HIV infection rates to the farmers.

Keywords: Commercial, Farmers, HIV/AIDS, Production, Socio-economic activity.

INTRODUCTION

Human immunodeficiency virus (HIV) and acquired immune deficiency (AIDS) is a deadly, threatening pandemic that has led to many deaths in sub-Saharan Africa. Since the start of the AIDS pandemic in the 21st century, 35.4 million people globally have died from AIDS-related illnesses and 36.9 million are currently living with HIV in 2017 (UNAIDS, 2018). Unfortunately, over 95% of those living with HIV are from developing countries. As at 2017, 59% of all people living with HIV were accessing treatment. This pandemic kills mostly young people in the age of 15-49, thus, depriving many nations of the young and most productive people in the society. HIV/AIDS spreads has brought a significant stress on agricultural production all over the world and Africa is worst hit. In about nine countries of Africa, over 10 percent of the adult population is HIV positive. It has long been established that HIV/AIDS is affecting crop output, income levels and level of living of most households affected with HIV/AIDS and poses a major challenge to the economic development of nations and livelihood generally (Michael, 2015).



Crop production is the actual cultivation of both food and cash (commercial) crops for a livelihood. Crop production generally is a major economic commercial activity in the rural areas undertaken by men, women and youth simultaneously (UNAIDS, 2002). Crop production in Nigeria is often central to the rural economy on national development, as well as in other countries. It is done at both subsistence and commercial levels. Commercial crops such as ginger, wheat, maize, sorghum, beans, and millet are predominant in the study area. It is one of the most important sectors in many developing countries. In Nigeria, it provides a living or survival mechanisms for up to 2/3 of the 80% of the total population, particularly among rural men, women, and youth (UNAIDS, 2002). The Nigerian economy is predominantly agricultural and the agricultural production sector is a major contributor to the country's Gross Domestic Product (GDP), for example, in 2005, this sector contributed about 40% to GDP (CBN, 2005; and Koyenikan, 2008) and it employed over 60% of the total labour force in the economy. It also supplies the raw materials to local industries as well as international industries.

The agricultural sector has been hard hit by the HIV/AIDS epidemic with 28.5 million people mostly farmers (UNAIDS, 2002). Crop production is often central to economics like ours. It is an established fact that men, women, and youth play essential and dynamic roles in societal economic development particularly in crop production.

The HIV and AIDS have become universal phenomena affecting the human race (World Bank, 2003). AIDS has killed about seven million agricultural workers since 1985 in the 25 hardest hit countries in Africa and it could kill 16 million more of which men, women, and youth are a majority before 2020 (FAO, 2004). The most affected African countries could lose up to 26% of their agricultural labor force within two decades (FAO, 2004). Estimates showed that food consumption has dropped by 40% in homes afflicted by HIV/AIDS, (FAO, 2009).

Consequently, the problems of HIV/AIDS on commercial crop production farmers specifically and crop production generally among men, women and youth deserve much attention by policy makers towards poverty and hunger reduction. Crop production in the country has dropped drastically further affecting the commercial crop production likely due to the fact that the most active group of the population in the rural areas are worst hit and people become poorer as a result of reduction or loss of labour force among the HIV/AIDS infected farmers in the rural areas (Michael, 2015).

The prevalence rate of HIV/AIDS in Nigeria generally as revealed by the various sentinel surveillance surveys is a cause for concern especially to policy makers towards either national food security or commercial production for foreign exchange. Research reports (World Bank, 1996) have shown that about 80% of the Nigerian population live in the rural areas and are engaged mainly in agricultural production. In order to enhance commercial crops production towards earning foreign exchange, eradication of hunger and poverty in Nigeria, the effects of HIV/AIDS on men, women and youth crop production must be properly addressed.

The findings of this study will provide baseline data to individuals, institutions and international agencies in agriculture. The findings also will add to the existing body of knowledge on HIV/AIDS epidemic, a reference material that could be used to elaborate, compare and contrast results from one group to another, and consequently suggest additional area of research. Little work has been done on the effects of HIV/AIDS on commercial crop production. Most of the studies carried out in the area of HIV were basically limited to



analyzing the coping strategies of People Living with HIV/AIDS (Bako, 2011), the prevalence of HIV/AIDS and demographic and socio-economic effects of HIV/AIDS (Laah, 2002; 2003).

The study, therefore, analyzed the effects of this dreaded disease HIV/AIDS on commercial crop production famers in Giwa Local Government Area (LGA). The specific objectives of the study were to: describe the socio-economics and demographic characteristics of HIV/AIDS infected commercial crop production famers in Giwa LGA; determine the effects of HIV/AIDS on the agricultural production; and ascertain the effects of HIV/AIDS on commercial crop famers in the study area.

MATERIALS AND METHODS

The Study Area

The study area was Giwa local local Government Area (LGA) of Kaduna State, the area was selected because of its high prevalence of HIV/AIDS. It has an area of 2,066 km² and a population of 286,427 at the 2006 census. It has 11 wards and 2 development area Administrative/Councils. It is located in the North-West of Kaduna State. It is situated on latitude 9° 36 North and 07° 28 East, along the Sokoto–Zara–Kaduna road. It is situated on the Southern margin of Northern Plateau and it occupies a fairly central position between Zaria and Kaduna, the capital of the then Northern Nigeria Region. The special and temporal distribution of the rain ranges from 1005 to 1012mm at the peak of the raining season which is usually the conventional rainfall type.

The dry season is usually from October to February every year, the yearly atmospheric temperature of Giwa ranges from 39°C to 41°C during the raining season and 27°C to 32°C during the dry period. Giwa lies in the Savanna type vegetation which is typified by tall grass and short scattered trees, a product of a tropical wet-dry climate, transitional between that of the hot desert and the tropical forest. The typical red-brown to red-yellow tropical ferruginous soil also known as *Jarkasa* supports the cultivation of the much needed cash crops like groundnuts, cotton and tobacco and also other crops like guinea coin maize, and yams

The *Fadama* or the low land soil, usually in the lower region of Giwa is fairly watered, usually along the river banks. With its high fertility rate, the *Fadama* holds more moisture than the *Jarkasa* and, therefore, supports the cultivation of sugarcane, rice, cassava and vegetables.

Sampling Techniques

A selective multi-stage sampling technique was used to select 65 identified HIV/AIDS infected crop farmers in the study area. The study sought to define sample size of HIV/AIDS infected crop farmers under mono-cropping system such that at least 95% level of confidence was obtained as probable error of using a sample did not exceed 0.05.

Method of Data Collection

The data for the study were basically collected from the primary sources using structured questionnaires; this was supported with personal interview in situations where the respondents did not understand the questions. Both the Reconnaissance and Diagnostic Survey (RDS) methods were used through the distribution of the questionnaires. A well-structured questionnaire was developed and used to collect information aimed at achieving specific objectives of the study. However; data were collected on the HIV/AIDS infected persons, relatives and friends of the AIDS victims. Relevant additional information was also collected from hospitals, health centers and Non-governmental Organizations such as Integrated Centre for HIV/AIDS Programme (ICAP) and Centre for Integrated Health Program (ICIHP) that relates directly to the AIDS victim. Information on the demography of respondents, socio-economic characteristics such as age, economic status, effects of the disease on commercial



crops production of the infected household’s famers were also collected.

Method of Data Analysis

The data collected was analyzed using descriptive statistics, which involves the use of frequency distribution, percentage distribution, mean values and Analysis of Variance (ANOVA) for testing the effects of means between three or more groups.

RESULTS AND DISCUSSION

Socio-economic and Demographic Characteristics of Respondents

Table 1 shows the distribution of respondents by certain socio-economic and demographic characteristics. It revealed that 97% of the respondents were within the age of 15 and 39 years. This implies a clear indication of the youthful nature of the population of Giwa LGA.

Table 1 also revealed that a high prevalence rate of this deadly disease is strongest in the age group of 21-39 years with 28.65% because it is the most sexually active age group. There is a small proportion of HIV/AIDS prone among children; this may be a result of mother to child transmission. Ages 15-20 years had 3.13% respondents, which favored the age group prone to HIV/AIDS infections; this may be because of puberty and possible juvenile delinquency and early exposure to sex, phonographic movies, nude pictures and the internet. This agrees with La’ah (2003).

Table 1: Socio-economic and Demographic Characteristics of the Respondents

Variables	Number	Percentage
Age		
15-19	15	23.1
20-24	6	9.1
25-29	22	32.3
30-34	7	10.8
35-39	13	20
40-44	1	1.5
45-49	1	1.5
Total	65	100
50 and above		
Sex		
Male	47	72.3
Female	18	27.7
Total	65	100
House Hold Size		
1-5	16	24.6
6-10	31	47.7
11-15	14	21.5
15 and above	4	6.2
Total	65	100

The general opinion is that AIDS afflicts mostly young people and those in the productive age brackets and most campaigns tend to emphasize on this. This study supports the findings of La’ah (2003) and Mamman (2001) that HIV/AIDS is common among the sexually active group of 21-39 years. The analysis by sex indicated that most (72.3%) of the



respondents were males as against 27.7% for females. The high proportion of male respondents is expected as most people who were found to be engaged in commercial farming in Giwa LGA were dominated by men. This implies that there are more men respondents than women in this study. The distribution by household size showed that nearly 70% of the households have between 6 and 15 members. This is to be expected as most households in rural areas of Kaduna State have an average size of 8 members. About 6% of the households sampled have over 15 members. Large family size is common in poor families and in farming communities as the domestic labor is required to work in the farms. The large household size has the capacity to supply some of the labor requirements for farming and other household activities as affirmed by Solomon (2008) and Banmeke (2003).

Table 2: Marital Status and Type of Marital Union of the Respondents

Marital Status	Number	Percentage
Never Married	2	3.1
Married	45	69.2
Divorced	3	4.6
Widowed	10	15.4
Separated	5	7.7
Total	65	100.0
Type of Marital Union		
Polygamous	28	44.6
Monogamous	35	55.6
Total	63*	100.0

*Figure referred to only those who had ever married.

In terms of marital status, this study acknowledged marriage to mean formal and informal unions. Formal unions mean marriage where ceremonies, customary legal rights have been performed while informal refers to couples who live together and cohabit without any legal or formal approval. The distribution by marital status and by type of marital union is shown in Table 2. The results indicated that 69.2% were in current marital union, and understandably a relatively high proportion (15.4 percent) of the respondents was widowed. HIV/AIDS pandemic is widely known as causing a significant number of deaths to households. And many studies have alluded to the high proportion of widows due to AIDS deaths. This finding is in agreement with the findings by Bako (2011) in a similar study on coping strategies of HIV/AIDS in Giwa LGA.

The distribution of respondents by level of education is shown in Table 3. It showed that majorities (61.5%) of the respondents have no formal education and 38.5% have formal education. The level educational attainment is a major factor that is used to measure level of advancement of a society.



Table 3: Levels of Education of the Respondents

Educational Attainment	Number	Percentage
Non Formal	7	10.7
Qur’anic	33	50.8
Primary	9	13.8
Secondary	14	21.5
Tertiary	2	3.2
Total	65	100.0

Ownership and Size of Farmland

Figure 1 showed distribution of respondents by ownership of land, it can be seen that 42.9% of the farmers own land while 57.1% do not own the land they farm. It clearly showed that majority (57.1%) of the respondents cultivate on borrowed or hired lands. Access to and ownership of farmland particularly in the rural area, are fundamental determinants of secure livelihoods. . Access to and ownership of farmland and results control over property, are fundamental determinants of secure livelihoods. Widespread exclusion of women in developing countries from owning or controlling property, as well as limits often dictated by custom concerning their access and use of property such as land, means they allow them to improve their chances of preventing infection or enhance their capacity to mitigate the consequences of HIV/AIDS (FAO, 2004). Hence, not all people, especially women and girls, own farmland in Africa. This result therefore corroborates with Marengwe (2005) where land and other property have been stripped from widows and orphans.

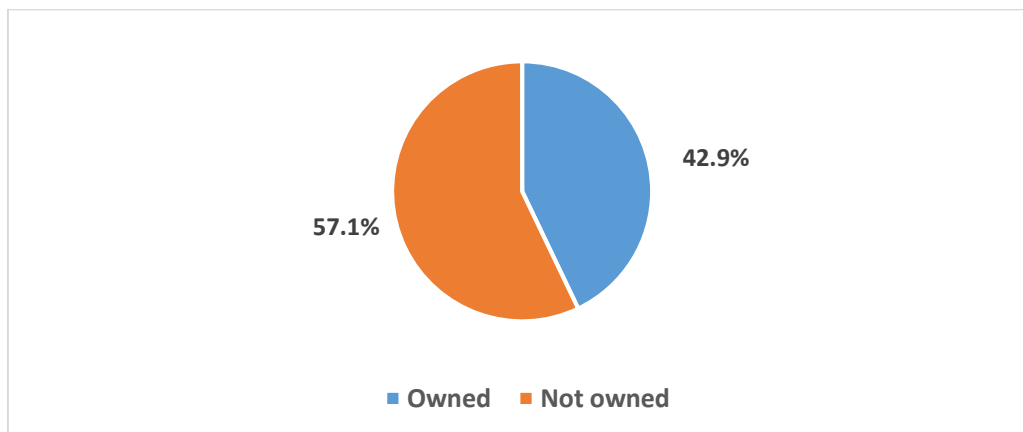


Figure 1: *Percentage distribution by ownership of land*

Figure 2 shows the distribution of respondents by farm size. It revealed that majority of the respondents have between 1.1 and 2 hectares’ farm size. Although, the average farm size is relatively low for commercial farming, by local standard this is very high indeed. The commercialization of farming in Giwa area is informed by the fact that the area has one of the largest markets in Kaduna State. It is a major source of raw materials and food items. Hence most people in Giwa LGA prefer to cultivate crops for sale.

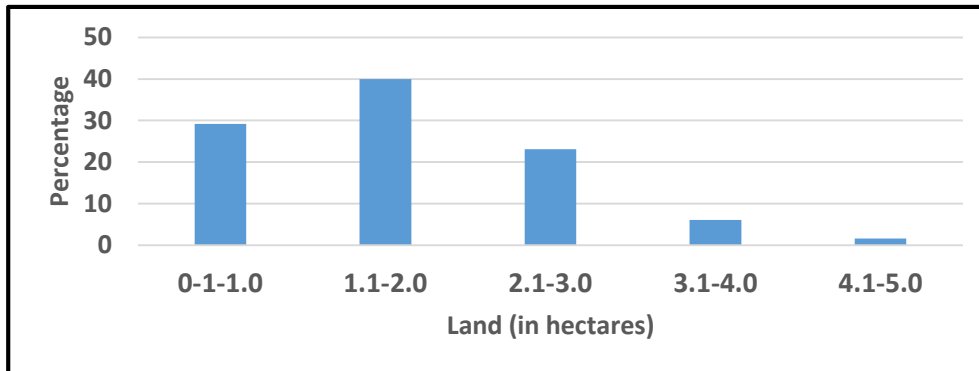


Figure 2: Percentage distribution of respondents by farm size

Effects of HIV/AIDS on Crops Output, Income and Level of Living of Men, Women and Youth Farmers

Table 4 revealed that a total of 76.9% (male, female and youth) agreed that income, level of living and crops output were affected by HIV/AIDS, while 23.1% disagreed and females formed 8.9% of the total sample. The analysis also showed that, 70.6% agreed that HIV/AIDS affected their income, level of living and crops output, against 29.4% who disagreed and males form 4.7% of total sample. All the respondents (100%) agreed that HIV/AIDS affected their income, level of living and crops output and the Youth form the majority of the respondents with 63%. Out of this, 76% agreed that HIV/AIDS affects their income, level of living and crops output while only 24% did not agree. This study collaborates with the study of Mather *et al.* (2004) which shows that cash, livestock, assets, total and per adult equivalent income were lower for households experiencing death in Mozambique as a result of HIV/AIDS infection.

Table 4: Effects of HIV/AIDS on Crops Output, Income and Level of Living

LGA	Respondents	Indicators	Agree		Disagree		Grand Total	
			Freq.	%	Freq.	%	Freq.	%
Giwa	Female	Income	4	80.00	1	20.00	5	2.60
		Level of living	4	66.67	2	33.33	6	3.13
		Output	4	66.67	2	33.33	6	3.13
Female Total			12	70.59	5	29.41	17	8.85
	Male	Income	3	100.00	0	0.00	3	1.56
		Level of living	3	100.00	0	0.00	3	1.56
		Output	3	1500.00	0	0.00	3	1.56
Male Total			9	100.00	0	0.00	9	4.69
	Youth	Income	32	82.05	7	17.95	39	20.31
		Level of living	35	77.78	10	22.22	45	23.44
		Output	25	67.57	12	32.43	37	19.27
Youth Total			92	76.03	29	23.97	121	63.02
Giwa Total			113	76.87	34	23.13	147	76.56

Effect of HIV/AIDS on Crops Output

The null hypothesis which states that, there is no significant difference among men, women and youth infected with HIV/AIDS in their crops output in Giwa LGA was tested and



the result is presented in Table 5. It showed that there was a significant difference in the crops output among men, women and youth at the $P < 0.05$ level of significance, with the calculated $F = 13.724$ greater than the Table $F = 3.33$. The male average crops output was 5,000.00kg followed by the youth group with average crops output of 2,500.00kg. Female group had the least average crops output, 950.00kg. Therefore, the null hypothesis is rejected.

Table 5: Test of Crops Output among Men, Women and Youth in Giwa LGA

Sources of variation	Df	Sum of Squares	Mean Square	F	Sig.
Between Groups	2	37,250,000.00	18,620,000.00	13.724	0.016
Within Groups	4	5,428,000.00	1,357,000.00		
Total	6	42,670,000.00			

Duncan multiple range test

	Mean	Std. Deviation	Std. Error of Mean
Female	950	353.553	250.000
Youth	2,500	1,410.674	814.453
Male	5,000	4,666.905	3,300.000

Different superscripted letters: The mean difference is significant at the 0.05 level.
 Df = 2/4, F = 13.724, Sig. = 0.016

Effect of HIV/AIDS on Income of Respondents in Giwa LGA

The null hypothesis which states that, there is no significant difference among men, women and youth infected with HIV/AIDS in their income in Giwa LGA was tested and the result presented in Table 6. It shows that there is no significant difference among men, women and youth income at 5% level of significant, this is because the calculated $F = 0.448$ is less than the Table $F = 3.33$. Therefore, the hypothesis is retained which stated that “there is no significant difference between the effect of HIV/AIDS among men, women and youth in their income in the study area”. This implies that HIV/AIDS affects the income of the men, women and youth in the study area.

Table 6: Effect of HIV/AIDS on Income amongst Men, Women and Youth

Sources of variation	Df	Sum of Squares	Mean Square	F	Sig.
Between Groups	2	66,910,000.00	33,460,000.00	0.448	0.668
Within Groups	4	298,800,000.00	74,700,000.00		
Total	6	365,700,000.00			

Duncan multiple range test

	Mean	Std. Deviation	Std. Error of Mean
Female ^a	10500	13435.03	9500
Male ^a	10500	707.11	500
Youth ^a	15000	8660.25	5000

Same superscripted letters: Mean difference is not significant at the 0.05 level.
 Df = 2/4, F = 0.448, Sig. = 0.668

CONCLUSION AND RECOMMENDATIONS

The impact of HIV/AIDS is becoming quite visible in the Nigerian agricultural landscape. It is very obvious that not only is HIV/AIDS not affecting many households in Giwa



LGA, it is indeed affecting income and agricultural output significantly. This might be as a result of diverted attention, time and money to nursing the HIV/AIDS patients. Vulnerability to HIV/AIDS is known to vary according to a number of socio-demographic characteristics. It is recommended that:

- 1 Therefore, the main recommendation emerging from this study is the need to draw up legislation that can protect the land rights of women and children. This may help to improve the income levels of women who in a great measure contribute to crop production development in Nigeria.
- 2 Special package and programmes towards alleviating or improving both men, women and youth condition in particular the and burial or funeral services women and youth who are the most affected or vulnerable group by HIV/AIDS should be taken into serious consideration by the government at all levels, stakeholders, and non-governmental organizations, which should be strictly implemented on them.
- 3 Holistic enlightenment campaign on abstinence should be intensified and use of condoms for this active group.

COMPETING INTEREST STATEMENT AND AUTHOR'S CONTRIBUTION

All the Authors declare that they have no competing interest. In terms of the authors' contributions, Dr. H. Y. Machael conceived and designed the study while Dr. B. B. Shani, J. Laah and Isa Ibrahim conducted the experiment and performed the data analysis. Dr. H Y. Machael also wrote the manuscript. Finally, all the authors read and approved the final manuscript for publication.

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