

The Effects of HIV/AIDS Pandemic on Agricultural Production as Perceived by Farmers in the Central Agricultural Zone of Delta State, Nigeria

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Abstract: This study examined the perception of the effects of HIV/AIDS pandemic on agricultural production by farmers. The study was carried out in the Central Agricultural Zone of Delta State, Nigeria. A sample size of 100 respondents comprising of 50 randomly selected farmers each from Udu and Ughelli South LGAs were involved in the study. Data for the study were collected through the use of a structured interview schedule. Trained field assistants in addition to the researcher collected the data. Analysis was done using the statistical package for the social sciences. T-test was used to determine differences between the perception of respondents in the two LGAs used for the study. Descriptive statistics such as mean perception scores, standard deviations and percentages were used to summarise data. Results reveal a low educational status and high level of polygamy among respondents of the study. The knowledge level of respondents regarding the concept, symptoms causes and predisposing factors to the spread of HIV/AIDS was generally low. Respondents had the right perception of the effects of HIV/AIDS on agricultural production. The study concludes that the ability of respondents to rightly perceive the effects of HIV/AIDS may be due to a general understanding among the farmers that disease infestations affect production activities. The study therefore recommends HIV/AIDS education to further enlighten the farmers on the risks of contracting the disease and the potential factors that may be fueling its spread.

Key words: HIV/AIDS • Farming households • Agricultural production • Delta State • Nigeria

INTRODUCTION

Agriculture currently accounts for 24% of world output, and uses 40% of land area [1]. The human immunodeficiency virus (HIV) causing the acquired immunodeficiency syndrome (AIDS) undermines agricultural systems and affect the nutritional situation and food security of rural families since the rural areas have the largest population of HIV/AIDS patient [2]. Haslwimmer [3] noted that crop production by small-scale farmers declined seriously in many areas due to reduction in land-use/or poor crop yields because money saved for farm inputs was diverted to medications or funerals. The HIV/AIDS pandemic represents an enormous crisis for the agricultural sector and rural livelihoods. Rural people in most part of Africa have had to sell capital assets to fund care and funeral expenses, adult labour has been lost from the system, and the transmission of agricultural knowledge between generations has been disrupted [4].

According Food and Agriculture Organization [5], it is estimated that in the 25 most affected African countries; HIV/AIDS has killed seven million agricultural workers between 1985 and 2001. HIV/AIDS has an enormous impact on agricultural labour. Many households appear to be experiencing reductions in labour quality and quantity as a direct result of the HIV/AIDS pandemic. Productivity is initially reduced when the HIV/AIDS infected person is ill, and later the supply of household labour declines even further with the death of that person. Moreover, labour intensive farming systems with low level of mechanization and agricultural input use are particularly vulnerable to the impact of HIV/AIDS as the economic return to labour tends to be low.

In addition, household members devote productive time to caring for the sick persons and traditional mourning customs, which can last as long as 40 days for some family members leading to adverse affect on availability of labour. Besides the loss of labour, there is the loss of agricultural knowledge and skills as adult die

Table 1: Impacts of HIV/AIDS within farming communities

Immediate effects	Responses by households	Consequences for agriculture and other rural activity
<ul style="list-style-type: none"> • Loss of labour-from death, sickness and caring; attendance at funerals and in mourning; loss of motivation to truma; loss of energy from malnutrition 	<ul style="list-style-type: none"> • Take children from school, especially girls, so they can work or help with care. • Recruit additional labour e.g, widowers may remarry; youths may be adopted from the extended family • To hire workers is an option only for those with cash 	<ul style="list-style-type: none"> • Leave field uncultivated • Shift to crops less intensive in labour • Reduce the range and diversity of crops grown • Move from cash to subsistence crops to assure domestic food supplies • Spend less time on land conservation • Shift to less physically demanding jobs, e.g petty trading
	<ul style="list-style-type: none"> • Less participation in community organizations 	<ul style="list-style-type: none"> • Inability to join and participate in co-operatives can mean less access to e.g credit, or farm input supplies
<ul style="list-style-type: none"> • Cash costs of medical bills, transport to health centres, alternative diets, home care supplies, funeral expenses 	<ul style="list-style-type: none"> • Saving liquidated • Assests sold off-consumer goods and household effects, livestock, tools, land (probably in this order, with land sale the last resort) • Go into debt 	<ul style="list-style-type: none"> • Less spending on farm inputs such as seed and fertilizer, more extensive cultivation
	<ul style="list-style-type: none"> • Undertake additional work to earn extra income-crafts, brewing, etc. may include migration to find work. 	<ul style="list-style-type: none"> • Migration to find better-paid work may deprive farming of labour
<ul style="list-style-type: none"> • Increased dependency ratios as adults in their prime die, leaving the old and orphaned children 	<ul style="list-style-type: none"> • Adults, especially women, have to spend more time on care of young • Increased cost of schooling orphans-may lead to orphans being taken out of school 	<ul style="list-style-type: none"> • Less time to farm or earn income • Less cash to invest
<ul style="list-style-type: none"> • Loss of knowledge and skills as adults die before passing on their learning to their children 	<ul style="list-style-type: none"> • Not known 	<ul style="list-style-type: none"> • Young and orphaned farmers lack farming skills • Reduction in diversity of crops grown
<ul style="list-style-type: none"> • Loss of access to land by widows on death of husband 	<ul style="list-style-type: none"> • Conflicts within extended families over inheritance of land and property 	<ul style="list-style-type: none"> • Widows left destitute, possibly having to resort commercial sex work

Source: Slater and Wiggins [2] Responding to HIV/AIDS in agriculture and related activities. Natural Resource Perspective (98).

before passing on their knowledge to their children. There is also the problem of loss of access to land by widows after the death of their husbands. Mutangadura *et al.* [6] summarized the impact of HIV/AIDS pandemic on agricultural production in rural communities of Africa as follows:

The major impact of HIV/AIDS on small holder agriculture includes serious depletion of human resources, diversion of capital from agriculture, loss of farm and non-farm income and other psychosocial impacts that affect agricultural productivity. Women and men, young and old, people expected to plough the land, tend the crops, harvest and store the produce, are dying.”

The direct and indirect effects of HIV/AIDS within farming communities is presented in Table 1.

Purpose of the Study: The primary purpose of this study was to examine the perception of farmers regarding the effects of HIV/AIDS pandemic on agricultural production. The specific objectives of the study were to:

- Determine the socio-economic characteristics of farmers;
- Ascertain farmers’ knowledge of HIV/AIDS; and
- Ascertain farmers’ perception of the effects of HIV/AIDS on agricultural production.

Hypothesis Tested: There is no significant difference in perception of the effect of HIV/AIDs on agricultural production between farmers in Udu and Ughelli South Local Government Areas (LGAs).

METHODOLOGY

The study was carried out in the Central Agricultural Zone of Delta State, Nigeria (an area with HIV/AIDS prevalence) The zone has 10 Local Government Areas (LGAs) and depends largely on agricultural production activities. The practice of polygamy and circumcision which are among potential factors that fuel the spread of HIV/AIDS is popular in the zone. Udu and Ughelli South LGAs that are outstanding in agricultural production were purposively selected for the study. Five villages were randomly selected from each of the two LGAs, giving a total of 10 villages. From each of these villages, 10 farmers were randomly selected using the list provided by extension agents covering the selected villages. This sampling procedure gave a total of 100 respondents used for the study.

Data were obtained from the respondents through the use of a structured interview schedule. To obtain a quantitative measure of respondents' knowledge of HIV/AIDS pandemic, 10 questions relating to the concept, symptoms, causes and predisposing factors to the spread of HIV/AIDS were framed through a review of literature. A maximum of 1 point was awarded for a correct answer and 0 point for a wrong answer. The respondents were then categorized based on their knowledge score as follows (a) Low knowledge (for those with 0-3 points); (b) Moderate knowledge (for those with 4-7 points); and (c) High knowledge (for those with 8-10 points).

Respondents' perception of the effects of HIV/AIDS on agricultural production was determined by framing a pool of statements regarding possible effects of HIV/AIDS. A four-point Likert-type scale with values of strongly disagree =1; disagree =2; agree =3; and strongly agree =4, was used to ascertain respondents' level of agreement or disagreement to the statements. The mean value of 2.50 was used as cut-off point to select statements which the respondents perceived as effects of HIV/AIDS.

Reliability and validity of instrument was determined through a team of experts and pilot-testing of the instrument. Data analysis was done using the Statistical Package for the Social Sciences. T-test was used to determine differences between the perception of respondents in the two LGAs used for the study. Descriptive statistics were used to summarise data.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents: Entries in Table 2 show respondents' socio-economic

Table 2: Distribution of respondents according to socio-economic characteristics

Socioeconomic Characteristics	Udu LGA (n= 50)		Ughelli South LGA (n=50)	
	f	%	f	%
Gender				
Male	42	84	32	64
Female	8	16	18	36
Age (years)				
20 – 30	4	8	6	12
31 – 40	14	28	12	24
41 – 50	22	44	25	50
51 – 60	8	16	6	12
Over 60	2	4	1	2
Educational Status				
No formal education	32	64	26	52
Primary education	11	22	9	18
Secondary education	6	12	13	26
Tertiary education	1	2	2	4
Marital Status				
Single/Divorced	6	12	4	8
Married	44	84	46	92
1 wife	14	37	8	27
2 wives	11	29	10	33
3 wives	8	21	9	30
4 wives	5	13	3	10
Family size				
2 – 4	13	26	6	12
5 – 7	14	28	17	34
8 – 10	16	32	19	38
Over 10	7	14	8	16
Farming experience				
1 – 5	10	20	11	22
6 – 10	8	16	10	20
11 – 15	20	40	20	40
16 - 20	6	12	3	6
Over 20	6	12	6	12

Source: Field data, 2007.

characteristics such as age, gender, marital and educational status, family size and farming experience. Information on respondents' gender reveal that 84% of the farmers in Udu LGA were males while 16% were females. In Ughelli South LGA 64% of the farmers were males while 36% were females. This implies that majority of the farmers were males. This could be as a result of cultural barriers that deny women access to farmland. Data on respondents' age reveal that the number of farmers within the productive age bracket of 20-50 years in Udu LGA was 70% and 86% in Ughelli South LGA. This suggests a high percentage of sexually active population who should be knowledgeable about HIV/AIDS pandemic.

Information on educational status show that 64% of the farmers had no formal education while 36% had formal education in Udu LGA. In Ughelli South LGA, 52% of the farmers had no formal education while 48% had formal education. This suggests a high level of illiteracy among the farmers. It has been noted that basic education can transform societies. Illiterate individuals are known to think that they are either at no risk at all or at small risk of contacting HIV/AIDS. Such people usually hold certain misconceptions about the disease. For instance, some respondents in this study believed that HIV/AIDS is a white man's disease that has nothing to do with a Blackman. This finding agrees with that of Agunga and Sundararajan [7] who reported that some respondents in a study believed that HIV/AIDS was an Act of God or caused by Angry Spirits.

Data on respondents' marital status show that of the 50 respondents in Udu LGA, 44 (88%) were married, 6(12%) were single or divorced. Of the male respondents (N=42), 38 (90%) were married. Of those married, 14 (37%) indicated having one wife, 11 (29%) indicated having two wives, 8(21%) indicated having three wives, and 5(13%) indicated having four wives. The data are similar to that of Ughelli South LGA where of the male respondents (N=32), 30 (94%) were married. Of those married, 8(27%) indicated having one wife, 10 (33%) indicated having two wives, 9(30%) indicated having three wives, and 3(10%) indicated having four wives. The two sets of data show a high level of polygamy in the zone. Polygamy has been identified as a potential factor that could fuel spread of HIV/AIDS. According to Agunga and Sundararajan [7] "when Polygamy is combined with high birth rate, unemployment and limited medical facilities, a breeding ground for the spread of HIV/AIDS and other communicable diseases emerges."

Respondents' Knowledge of Hiv/aids Pandemic: Data in Table 3 show the respondents' knowledge level regarding HIV/AIDS pandemic. The distribution of respondents in Udu LGA reveals that 34 (68%) of the farmers had low knowledge, 14 (28%) had moderate knowledge, and 2 (4%) had high knowledge. The data is similar with that of Ughelli South LGA in which 36 (72%) of the farmers had low knowledge, 10 (20%) had moderate knowledge, and 4 (8%) had high knowledge. The two sets of data show a general low knowledge regarding the concept, symptoms, causes and predisposing factors to the spread of HIV/AIDS among farmers in the zone.

Table 3: Distribution of respondents according to knowledge level of HIV/AIDS

Knowledge level	Udu LGA (n =50)		Ughelli South LGA (n = 50)	
	f	%	f	%
Low knowledge	34	68	36	72
Moderate knowledge	14	28	10	20
High knowledge	2	4	4	8

Source: Field data, 2007.

The low knowledge of farmers regarding HIV/AIDS as revealed by this study could be as a result of the misconceptions among rural dwellers that HIV/AIDS is a disease common to promiscuous city dwellers. HIV/AIDS is something rural dwellers do not want to talk about.

Respondents' Perception of the Effects of Hiv/aids on Agricultural Production: Data in Table 4 show the mean scores and standard deviations of farmers' perception of the effects of HIV/AIDS on agricultural production. Results show that out of the 13 statements investigated, farmers perceived 9 statements as effects of HIV/AIDS on agricultural production. The statements include HIV/AIDS can cause loss of labour (\bar{x} = 3.71); HIV/AIDS can loss of farming knowledge and skills (\bar{x} = 3.12) HIV/AIDS can cause loss of agricultural assets (\bar{x} = 2.75); HIV/AIDS can cause reduction in farm income (\bar{x} =2.97); HIV/AIDS can cause increase in medical expenses (\bar{x} = 2.62); HIV/AIDS can cause reduction in land put to cultivation (\bar{x} = 2.56); HIV/AIDS can cause reduction in time devoted to farming (\bar{x} = 2.88); and HIV/AIDS can cause food insecurity (\bar{x} = 2.98).

Loss of labour in HIV/AIDS affected households usually arise when people become unable to work through illness, and when they ultimately die as well as through labour being shifted from agricultural activities to caring for household members who are sick. When people die from HIV/AIDS, agricultural knowledge and skills that are crucial for production are not passed down to the next generation. Such knowledge include the context-specific, local knowledge that people use to respond to risk and for understanding of local plant varieties [2]. HIV/AIDS affected households are usually faced by the problem of additional costs of medicine, fees to doctors or traditional healers, transport to health facilities for the care of the sick, food insecurity and general decrease in incomes resulting from loss of labour. The resultant effect of these problems is the sale of productive and non-productive assets such as farming tools, draught animals, livestock,

Table 4: Mean scores and standard deviations of respondents' perception of effects of HIV/AIDS pandemic

Statements		SD	Rmk
1. HIV/AIDS can cause loss of labour	3.71	0.73	A
2. HIV/AIDS can cause loss of farming knowledge and skills	3.12	1.02	A
3. HIV/AIDS can cause loss of agricultural assets	2.75	0.99	A
4. HIV/AIDS can cause loss of access to land by widows	2.34	0.99	D
5. HIV/AIDS can cause reduction in income	2.97	0.87	A
6. HIV/AIDS can cause an increase in medical expenses	2.62	0.88	A
7. HIV/AIDS can affect the wider farming community	1.46	0.72	D
8. HIV/AIDS can result in withdrawal of children from school	2.23	0.90	D
9. HIV/AIDS can cause stigmatization of affected households	3.46	0.86	A
10. HIV/AIDS can cause food insecurity	2.98	0.70	A
11. HIV/AIDS can cause reduction in land put to cultivation	2.56	0.94	A
12. HIV/AIDS can result in reduction of time devoted to farming	2.88	0.89	A
13. HIV/AIDS can cause increased dependency ratios	2.33	0.77	D

Source: Field data, 2007

Key: = mean score; SD = standard deviations; Rmk = Remarks: A = agree; D= disagree.

Table 5: Test of difference in perception of effects of HIV/AIDS between farmers in Udu and Ughelli South LGAs

Statements	Udu LGA		Ughelli LGA		T-value
		SD		SD	
1. HIV/AIDS can cause loss of labour	3.76	0.67	3.66	0.77	0.69
2. HIV/AIDS can cause loss of farming knowledge and skills	3.14	1.07	3.10	0.97	0.19
3. HIV/AIDS can cause loss of agricultural assets	2.62	0.90	2.88	1.08	-1.30
4. HIV/AIDS can cause loss of access to land by widows	2.30	0.81	2.88	0.99	-0.44
5. HIV/AIDS can cause reduction in income	2.88	0.82	3.06	0.91	-1.04
6. HIV/AIDS can cause an increase in medical expenses	3.06	0.74	3.30	0.80	-1.49
7. HIV/AIDS can affect the wider farming community	1.28	0.50	1.64	0.95	-2.39
8. HIV/AIDS can result in withdrawal of children from school	2.66	0.84	2.40	0.95	1.89
9. HIV/AIDS can cause stigmatization of affected households	3.50	0.84	3.42	0.91	0.46
10. HIV/AIDS can cause food insecurity	3.00	0.61	2.96	0.98	0.29
11. HIV/AIDS can cause reduction in land put to cultivation	2.50	0.91	2.62	0.97	-3.17
12. HIV/AIDS can result in reduction in time devoted to farming	2.60	0.90	3.16	0.87	-3.17
13. HIV/AIDS can cause increased dependency ratios	2.16	0.68	2.50	0.86	-2.19

Source: Field data, 2007

Key: = mean score; SD = standard deviations; significant (P= 0.05)

land, furniture, cooking utensils, and cloths. With less labour and working capital, affected households are usually forced to modify their farming. This may be inform of reduction in land put to cultivation or a shift towards food crops to ensure survival and towards crops which demand lesser labour.

Farmers' ability to rightly perceive the above effects is an indication that they have an understanding of the effects of HIV/AIDS on agricultural production. This understanding could be as a result of the general notion among farmers that any serious disease infestation in a farm household can drastically affect agricultural production activities of that household.

The four statements which farmers could not perceived rightly even though they are among the effects of HIV/AIDS on agricultural production include: HIV/AIDS can cause loss of access to land by widows on death of husbands (\bar{x} =2.34); HIV/AIDS can affect the wider farming community (\bar{x} = 1.46); HIV/AIDS can result in withdrawal of children from school (\bar{x} = 2.23); and HIV/AIDS can cause increased dependency ratios (\bar{x} = 2.33). These are indirect effects of HIV/AIDS on agricultural production, hence, the farmers who lacked adequate knowledge of HIV/AIDS pandemic were unable to perceive the link between HIV/AIDS and these effects.

When male heads of households die due to HIV/AIDS, there is usually conflict within extended family members over inheritance of land and property. Widows in most cases are under pressure to leave the fields to the late husbands family. In some cases they may be required to return to their home village. The effect of HIV/AIDS on the wider farming community stem from the fact that local community initiatives may be undermined due to the fact that HIV/AIDS pandemic may create heavier additional demands on the unaffected population. This may sometimes lead to despair and stigmatization of affected community members severe cases of HIV/AIDS sometimes result to withdrawal of children of affected households from school, especially girls to work in the farm or help with the care of the affected family member. Similarly, increased dependency ratios result from HIV/AIDS pandemic when economically active adults die in their prime leaving the old and orphaned children.

Differences in Perception of Effects of Hiv/aids on Agricultural Production Between Farmers in Udu and Ughelli South Lgas: Entries in Table 5 show the difference in perception of effects of HIV/AIDS on agricultural production between farmers in Udu and Ughelli South LGAs. Results show that there were significant differences in the mean scores of the two categories of respondents in only 3 statements, namely: HIV/AIDS can affect the wider farming community = -2.39); HIV/AIDS can result in reduction of time devoted to farming ($t = -3.17$); and HIV/AIDS can cause increased dependency ratios ($t = -2.19$). These differences could be as a result of variations in respondents' capabilities to perceive these indirect effects of HIV/AIDS.

Results further reveal that there were no significant differences between the perception of the respondents in the remaining 10 statements. This suggests a high level of agreement in their perceptions. Since the two categories of respondents had the right perception regarding the effects of HIV/AIDS on agricultural production, an agreement in their perceptions is a further indication that they have a good understanding of the effects of HIV/AIDS.

CONCLUSION

HIV/AIDS is invading rural farming communities and posing a great threat to agricultural production and food security. Understanding the knowledge level of farmers

and their perception of the effects of HIV/AIDS pandemic on agricultural production will help in eradicating the disease. This study reveals a high rate of illiteracy and polygamy among the farming communities in the area of study. There was a general low knowledge among the farmers regarding HIV/AIDS. Farmers' ability to rightly perceived the effects of HIV/AIDS was linked to the notion among farmers that any disease infestation affects production activities of individuals. The study therefore recommends HIV/AIDS education to enlighten the farmers on issues relating to infestation, symptoms, spread, vulnerability, direct and indirect effects of the disease on production activities of farming households.

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