Cross-Sectional study on Effect of Civil Society Organizations Interventions on individuals infected with HIV in Busia County Kenya

Ishepe M. N [1],Wanzala P [2], Makokha A[3]

1. Ministry of Health Headquarters, Nairobi
2. Centre for Public Health Research, KEMRI
3. Jomo Kenyatta University of Agriculture and Technology, Kenya.

Corresponding Author: Ishepe Mary Nandili. E-mail: mnandili@yahoo.co.uk

Summary

Since the discovery of HIV in the early 1980s in Kenya, Civil Society Organizations have played a major role in its fight. The aim was to study effect of intervention on improved health, nutrition and income generation activities on individuals infected by HIV. A cross-sectional study was undertaken as a baseline with aquasi experimental study design to compare intervention and non intervention sites. Two hundred and seventeen (217) respondents out of which 69.1% were females and 30.9% males selected from four sub counties of Busia County. A structured questionnaire was administered to people infected with HIV in CSO intervention and non intervention sites. In depth interviews and Focus Group Discussions (FGDs) were performed using a guide. Structured forms guided the performance on clinical examination and anthropometry procedures. The Statistical Package for Social Scientist software was used to analyze quantitative data. Frequency distributions were calculated and visualized and Chi square test with odds ratios computed. NVIVO statistics software was used to analyze qualitative data. Audio and video recordings were transcribed verbatim, line by line coding used to manage discrete units of text, and data segments reviewed to illustrate people's perspectives. A majority of respondents had primary level education (46.3%) and was self-employed (72.1%). HIV/AIDS awareness was high in both the non-intervention (84%) and intervention (79.8%) site, with access to information playing a major role in people's understanding of HIV/AIDS (p<0.01). Majority of respondents (95.2%) in intervention and non-intervention (96.2%) sites had easy access to ARVs, with 48.1% sourcing drugs privately. Approximately 44.1% sourced ARVs therapy from government facilities with 30.3% from CSOs. Distance to health facilities was the main challenge for those accessing ARV drugs in intervention (22.0%) and non-intervention (39.7%) sites, (OR=2.3 (95%CI=1.2-4.5), p=0.01) was greater in the non-intervention sites. Lack of cash for transport (25% versus 27%) and weakness in the body (11% versus 16.4%) were other challenges as recorded. Most respondents (93.9%) had good ARV uptake, with 74% having reported no major health problems in the recent three months. Only 7% of respondents examined clinically had abnormal blood pressure. Mean body temperature was 36.43 degrees Celsius (std. dev. =0.734). Regarding weights classification, 13.7% of the respondents were underweight, 58.9% normal, 7.3% overweight, and 5% were obese and weights differed by gender (p<0.01) significantly. A large proportion (89.1%

in intervention and 94.3% in non-intervention sites) of respondents was aware of good eating habits although they practiced poor eating patterns. In the morning, the trend was (71.9% and 62.4% in the intervention and non-intervention sites) respondents eat nothing. 'Ugali' (posho) and traditional vegetables was the most common type of food eaten during lunch (31.0% in intervention and 34.1% in the non-intervention site) and dinner (33.6% intervention and 25.1% in non-intervention sites). Fruits are hardly consumed by majority (42.1% and 45.3%). Provision of ARV (intervention (81.3%) and non-intervention sites (84.3%), (X2(df) =0.32(1), p=0.57) was the most common mode of support received. In focus groups discussion sessions, respondents mentioned of no direct financial benefits received from CSOs although many say they recognize what the government has done for them. In their discussion, it was revealed that CSOs initiate short term projects which do not last and when they wind up get compromise when projects end. This survey demonstrates the essential role played by implementing partners (CSOs) on improved health, nutrition and socio economic status. Influence on better access to medication, balanced diet, and economic change probably contributes to living a better and healthier life for those infected with HIV.

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Background

World Health Organization (WHO) launched Primary Health Care (PHC) in the Alma Ata declaration with the goal of improving health for all [19]. At the meeting, policies introduced shifted focus of health care services from the biomedical model to engaging Civil Society Organizations (CSOs) in promotion of primary health care activities particularly in rural communities [11]. Policies also demonstrated that a multi-sectoral approach for combating social, economic, and cultural risk factors could secure the gains made in the health industry by reaching the poorest of the poor and reversing negative attitudes and behaviors via sensitization campaigns [4].

Guided by guidelines developed by the world health organization on primary health care, CSOs currently play a major role in the provision of health, nutrition, and economical support to many vulnerable groups in Kenya. In Busia County, for instance, over 300 CSOs are registered by the government and are currently advocating for better health by battling HIV/AIDS from social and economic standpoint. The government has engaged CSOs to provide basic healthcare services, procure and offer medical supplies and nutrition supplements, and empower individuals economically through registered community-based organizations (CBOs) and associations representing people living with HIV and AIDS [13].

The effects of health, social, and economic interventions offered by CSOs has been demonstrated in communities in several countries. In Mexico, for instance, the cheap services offered by CSOs lowered cervical screening costs by up to 26% [15]. Even with their low budgets, they have also improved service provision and coverage in Africa, which has had a positive effect on health [15]. However, irrespective of the effort and the commitment of CSOs to improve the overall wellbeing of individuals

living with HIV/AIDS in Kenya, the effect of their interventions has never been determined in Busia County. The aim of this cross-sectional study was to assess the effect of CSOs on the health, nutrition and economic status of individuals infected with HIV living in Busia, Kenya.

Methodology

Study Site

The study site was Busia County in the former Western Province of Kenya. The area measures 1,695 square kilometers, has a population density of 439 people per square kilometer, with high poverty level of 66%. According to 2012 population census, the County has a total population of 816,452 people consisting of 425,622 females (53.13%) and 390,830(47.87%). Trading with the neighboring Uganda and sister counties such as Siaya to the South and Bungoma to the North is the main economic link. Residents are reliant on fishing on Lake Victoria and small-scale farming of crops such as millet, cassava, groundnuts, maize, and sweet potatoes. In addition to the high prevalence of parasitic diseases such as malaria, HIV remains a major challenge, with 7.4% prevalence rate recorded being significantly higher than the reported national average of 6.4%. Increased prevalence is linked to irresponsible lifestyles and practices tailored at border point such as cross border commercial sex; truck drivers and businessmen engage in exchanging money for sex via unprotected practices. Risk factors experienced within the County were alleged to be aggravated by high level of absolute poverty and unemployment (67.8%), [5, 10, and 17]. However, consequences of these practices have overstretched hospital bed capacity with HIV/AIDS patients. Numbers of orphaned children who drop out of school has kept rising increasing literacy level in the County. Women and children linger most affected by the calamity as they are less empowered in society [8]. Besides, similar factors have hampered better livelihood, access to better health services, socio economic, and food security. The four sub-county sites selected for the study included; Samia, (Sio-Port), Teso South, Butula, and Matayos. There were CSOs intending to intervene in Butula, and Matayos sub Counties.

Table 1: Showing Study Sites

Location of sample * Control group 1 or 2 Cross tabulation				
Count				
		Control group 1 or 2		Total
		Control Group 1	Control group 2	
Location of sample	South Teso	166	1	167
	Samia	114	100	214
	Butula	0	30	30
	Matayos	0	29	29
Total		280	160	440

Study Design

A cross-sectional study design was used for the study with aquasi experimental study design to compare the two populations. One group was selected from areas where CSOs intent to intervene and the other site where CSOs aimed not to intervene.

Study Population

All permanent male and female residents infected with HIV, aged between 15 and 64 years qualified for the study. Participants for the cross-sectional quantitative study were obtained from a prepared comprehensive HIV infected patient attendance list obtained from Ministry of health facilities. Key informants for in depth interviews were civil society organizations staff, Ministry of health staff, together with the local administration officials, all identified from their work stations. Participants for focus group discussion (FGDs) were selected from established and registered groups as well as associations of people infected and living with HIV and AIDS.

Sampling

A list of HIV cases was obtained from hospital units registers: - Comprehensive Care Center (CCC), maternal child health and family planning (MCH/FP), diagnostic testing and counseling (DTC), and prevention of mother to child transmission (PMTCT). A simple random sampling procedure was used to select 210 study participants form the list. Systematic sampling was used to select key informants from health facilities, CSOs and local administration for interviews. A similar technique was used to identify participants for FGDs.

Data Collection Apparatus

Five sets of instrument were used to collect data. A structured questionnaire for quantitative interviews was administered to HIV infected individuals. These participants had a clinical examination and anthropometry measurements. Non-structured guideline was used for key informant in-depth interviews. A Focus Group Discussions (FGDs) checklist guided moderators during discussion sessions. The instruments were translated into Kiswahili and pre-tested prior to administering to participants.

Data Collection Procedures

Quantitative Interviews

A structured questionnaire was used to collect data from HIV infected individuals. Informed consent was sought from all respondents that participated with confidentiality maintained. Health, nutrition and economic indicators such as access to antiretroviral (ARV) therapy, care for opportunistic infections, distribution and access to food supplements, and feeding habits were recorded. In addition, income generation activities were also documented including anthropometrics and clinical examination procedures done. In order to classify weight of respondents as either normal or abnormal, Weight and height squared was calculated the Body Mass Index (BMI) using stadio-meter machine.

Qualitative Interview

Civil society organization, Ministry of health and Local administrative officials were visited and objectives of the study explained to the officers found on duty. Consent

was sought systematically from chiefs and sub chiefs, including CSOs and Ministry officials. Thereafter unstructured questionnaire administered to each officer at respective workstations. Hence, qualitative data was collected on HIV morbidity and mortality indicators, access to ARV, nutritional support, and management of opportunistic infections, including income generation activities.

Focus Group Discussions

Members of registered and established associations and groups for persons infected with HIV qualified for FGDs. Chiefs, assistant chiefs, and leaders of the associations helped in mobilizing respondents for sessions. Discussions were held at their usual meeting places. Meetings were scheduled and FGD sessions moderated in clusters of 12, with youths and adults of different gender and educational status interviewed in different groups to enable free discussion. Each session lasted for one hour and thirty minutes. Discussions and detailed responses were documented on flip charts, notebooks, audio taped alongside video recorded.

Ethical Considerations

Mandatory ethical approvals were sought. Participation was voluntary, with informed consent sought before data collection. Personal identifiers were not included on questionnaires. To respect participant's privacy, all interview sessions were confidential.

Data Analysis

Data was entered in Access package and cleaning done using Epi info. The Statistical Package for Social Scientists (SPSS), version 17 was used to analyze quantitative data. Frequency distributions were calculated and displayed on charts, and cross-tabulations using the Chi square test at 5% statistical significant level to determine the relationship between variables. Qualitative data was analyzed using NVIVO statistics software. Audio and video recordings were transcribed verbatim to generate text and line-by-line coding used to manage discrete units of text (DUTs). Data segments were reviewed to develop meaningful codes and quotes used to illustrate perspectives relating to the different themes.

Results

Socio Demographic Characteristics

Two hundred and seventeen (217) respondents (59.9% in the intervention and 40.1% in non-intervention sites) were interviewed, with females constituting 69.1% of the population. Mean age was 45 years. Approximately 32.4% of respondents were aged between 29 and 38 years. Many respondents had primary level education (49.2% intervention and 42.0% non-intervention sites) with 76.4% versus 65.9% respectively self-employed.

Table 2: Socio-Demographic Characteristics

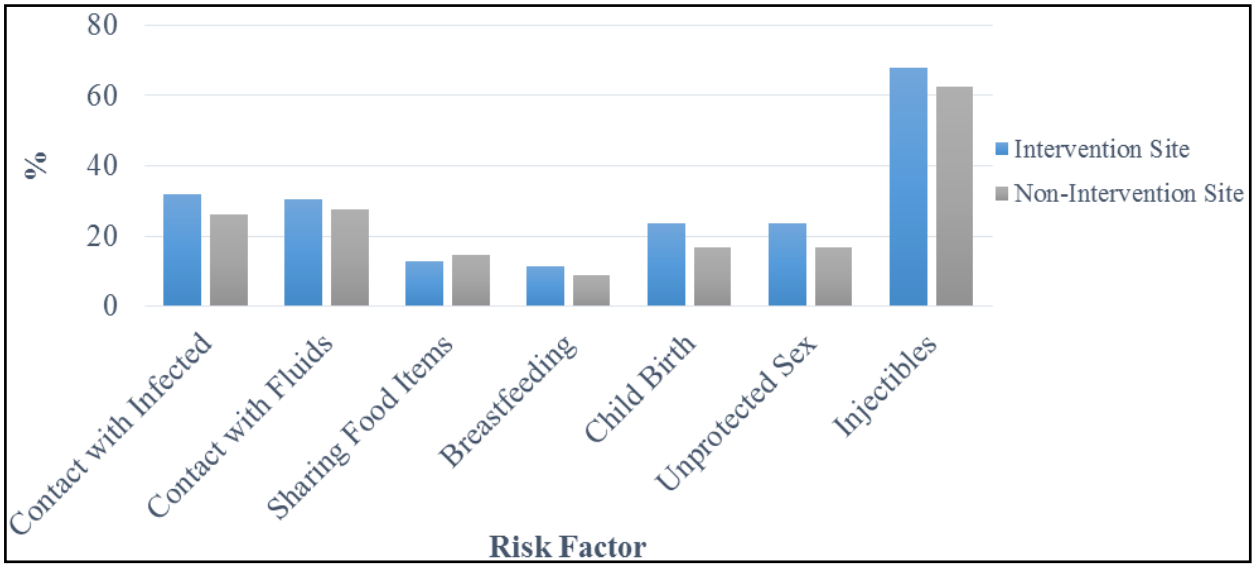
	Site, n (%)			
Variable	Intervention	Non-Intervention	OR (95%CI)	P-Value
Gender				
Male	43 (33.1)	24 (27.6)	REF	
Female	87 (66.9)	63 (72.9)	0.72 (0.42-1.39)	0.39
Household size				
≤3	20 (15.6)	18 (21.1)	REF	
4	26 (20.3)	18 (21.2)	1.36 (0.54-3.12)	0.56
5	29 (22.7)	14 (16.5)	1.86 (0.76-4.59)	0.18
6	20 (15.6)	14 (16.5)	1.29 (0.51-3.27)	0.59
7	13 (10.2)	8 (9.4)	1.46 (0.49-4.34)	0.49
≥8	20 (15.6)	13 (15.3)	1.39 (0.54-3.56)	0.49
Education Level				
Not Schooled	17 (13.1)	14 (15.0)	REF	
Primary incomplete	64 (49.2)	37 (42.0)	1.42 (0.63-3.27)	0.39
>Sec. complete	23 (20.0)	13 914.8)	1.46 (0.55-3.89)	0.45
College	15 (11.5)	11 (12.5)	1.12 (0.39-3.22)	0.83
University	8 (6.5)	13 (14.8)	0.51 (0.16-1.51)	0.24
Employment Status				
Not Employed	24 (18.9)	16 (18.2)	REF	
Formally Employed	6 (4.7)	14 (15.9)	0.29 (0.09-0.89)	*0.03
Self Employed	97 (76.4)	58 (65.9)	1.12 (0.55-2.27)	0.29

Knowledge of HIV and AIDS

Proper information regarding HIV and AIDS epidemics with respect to its spread, safe living practices and other aspects were important for management. Respondents were asked about their understanding of basic aspects of the disease such as the meaning of acronym AIDS and HIV. How AIDS is spread and or controlled, access to information, education and communication (IEC) materials, awareness on safe sexual practices among other relevant questions about the disease. Many respondents in the intervention and non-intervention sites were aware of HIV (84% versus 79.8%) and AIDS (91.9% versus 83.1%) respectively. When asked to state the mode of HIV transmission, for instance, respondents (67.9% and 62.5% in intervention and non-intervention

sites) identified multiple uses of injectables as a risk factor. Approximately 30.5% and 27.3% mentioned contact with body fluids in the two sites, while only 12.9% and 14.7% in intervention and non-intervention sites talked of sharing food (Figure 1). Although HIV (X^2(df) =0.49(1), p=0.48) and AIDS (X^2(df) = 1.94 (1), p=0.16) awareness did not vary significantly between the two sites, access to HIV/AIDS information improved understanding of HIV/AIDS (p<0.01).

Figure 1: Knowledge of HIV Risk Factor



Risk factors by Sites in Busia County, Kenya

Health Status

Anthropometrics

The mean weight and height of respondents was 57.83Kg and 161.26cm in the intervention site and 83.9Kg and 163.31cm in the non-intervention site. After classification by weights, 13.7% of respondents were underweight. Approximately 58.9% had the normal, 7.3% were overweight, and 5% obese. Weight differed by gender (p<0.01). Even though the mean weight of respondents varied significantly between the two sites (t (204) =-2.377, p=0.018), the mean height (t (190) =-0.626, p=0.53) and temperature (t (175) =0.435, p=0.664) of respondents in the two sites did not vary significantly (Table 3).

Table 3: Anthropometrics of Respondents by Site

Anthropometrics	Site	N	Mean	Std. Deviation	Std. Error Mean
Weight	Intervention	127	57.83	9.367	.831
	Non-Intervention	79	83.90	123.177	13.859
Height	Intervention	120	161.26	22.587	2.062
	Non-Intervention	72	163.31	20.832	2.455
Temperature	Intervention	111	36.4	7.550	.717
	Non-Intervention	66	36.4	7.095	.873

The mean temperature was 36.4°C in the intervention site and 36.4°C in the non-intervention site

Table 4: T-test for Equality of Means of Anthropometrics of Respondents

Anthropometrics		Levene's Tests		t-test for Equality of Means						
		F	Sig.	t	df	P	Mean Difference	Std. Error	95% CI	
									Lower	Upper
Weight	Equal variances assumed	19.933	.000	-2.377	204	0.018	-26.064	10.965	-47.683	-4.445
	Equal variances not assumed			-1.877	78.562	0.064	-26.064	13.883	-53.701	1.573
Height	Equal variances assumed	.328	.567	-.626	190	0.532	-2.047	3.272	-8.501	4.406
	Equal variances not assumed			-.639	159.217	0.524	-2.047	3.206	-8.379	4.285
Temperature	Equal variances assumed	.565	.453	.435	175	.664	.499	1.148	-1.766	2.764
	Equal variances not assumed			.442	143.540	.660	.499	1.130	-1.734	2.732

Clinical Examination

Vital Signs

The vital sign of most respondents in both the intervention and non-intervention sites was normal. In the intervention site, for instance, 89.2%, 84.4%, and 84.6% of the respondents had normal temperature, weight, and height respectively. In the non-intervention site, the same trend was replicated with 87.3%, 77.2%, and 80.5%, having normal temperature, weight, and height respectively. Even though the odds of having normal temperature (OR (95% CI) = 1.2 (0.5-2.9), p=0.82), normal weight (OR (95% CI) = 1.3 (0.64-2.6), p=0.480) and height (OR (95% CI) = 1.3 (0.63-2.8), p=0.55) was slightly higher in the intervention site, the relationship was not statistically significant (Table 5). Most respondents (93.9%) had good ARV uptake, with 74% having reported no major health problems in the recent three months. Only 7% of respondents examined clinically, for instance, had abnormal blood pressure. Mean body temperature was 36.43 degrees Celsius (std. dev. =0.734)

Table 5: Vitals of Respondents by Site

Vitals	Site			
	Intervention	Non-Intervention	OR (95% CI)	P value
Normal Temperature	107 (89.2)	69 (87.3)	1.2 (0.5-2.9)	0.82
Normal Weight	96 (84.4)	61 (77.2)	1.3 (0.64-2.6)	0.48
Normal Height	99 (84.6)	62 (80.5)	1.3 (0.63-2.8)	0.55

Opportunistic Infections

Complications

Anxiety was the most common form of complication reported in the intervention (27.8%) and non-intervention site (30.1%), (OR (95% CI) = 0.89 (0.48-1.6), p=0.76). Even though depression (19.8% versus 23.5%) and skin rash (17.9% versus 15.9%) were also somewhat common in both sites, debilitating complications such as fungal infections (3.3% versus 1.3%), gum disease (2.6% versus 1.4%) and genital warts (0.9% versus 0.0%) were less common in both intervention and non-intervention sites respectively (Table 6).

Table 6: Health Complications of Respondents by Site

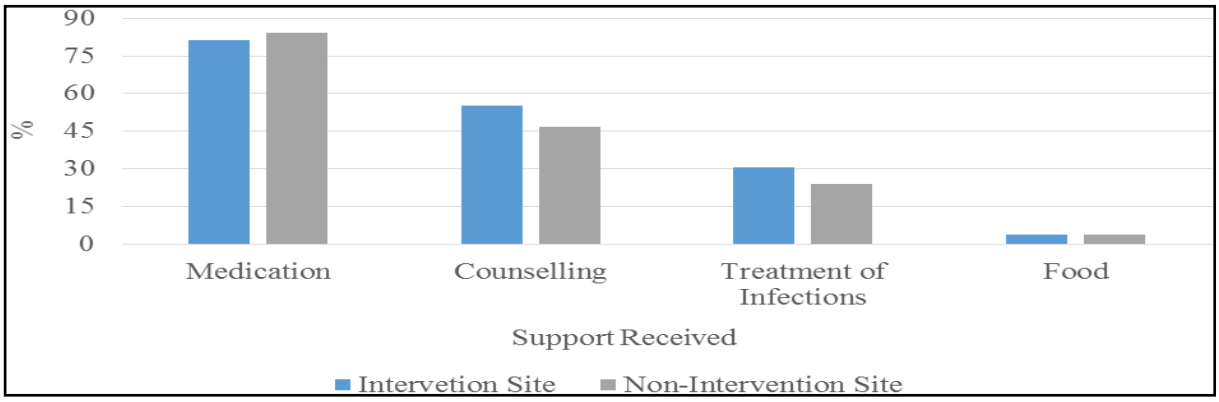
Complications	Site		OR (95% CI)	P value
	Intervention	Non-Intervention		
Anxiety	35 (27.8)	25 (30.1)	0.89 (0.48-1.6)	0.76
Depression	25 (19.8)	19 (23.5)	0.81 (0.41-1.6)	0.60
Skin rash	22 (17.9)	13 (15.9)	1.2 (0.55-2.5)	0.85
Skin lesions	8 (6.8)	4 (5.1)	1.0 (0.28-3.7)	1.00
Fungal infections	4 (3.3)	1 (1.3)	2.7 (0.29-2.4)	0.65
Candidiasis	1 (0.9)	1 (1.3)	0.65 (0.04-11)	1.00
Kaposi sarcoma	0 (0.0)	1 (1.4)	0.21 (0.00-5.3)	0.39
Gum disease	3 (2.6)	1 (1.4)	1.9 (0.19-18)	1.00
Lymphnodes enlarged	2 (1.8)	0 (0.0)	3.3 (0.16-70)	0.52
Ulcers on genitals	3 92.6)	1 (1.4)	2.0 (0.20-19)	1.00
Sores on genitals	3 (2.6)	1 (1.4)	2.0 (0.20-19)	1.00
Urethral discharge	2 (1.8)	0 (0.0)	3.3 (0.16-70)	0.52
Genital warts	1 (0.9)	0 (0.0)	2.0 (0.08-51)	1.00

HIV/AIDS Support

Respondents did not receive farm inputs from the government and or from any implementing partners. However, provision of ARV was common in both intervention (81.3%) and non-intervention sites (84.3%),

(X^2(df) =0.32(1), p=0.57), followed by counselling (55.4% versus 46.9%) (X^2(df) =2.14(1), p=0.14). Only 28% (32.5% in the intervention and 24.1% in non-intervention sites (X^2(df) =1.70(1), p=0.14) were treated for opportunistic infections (Figure 2).

Figure 2: Support received by persons infected with HIV

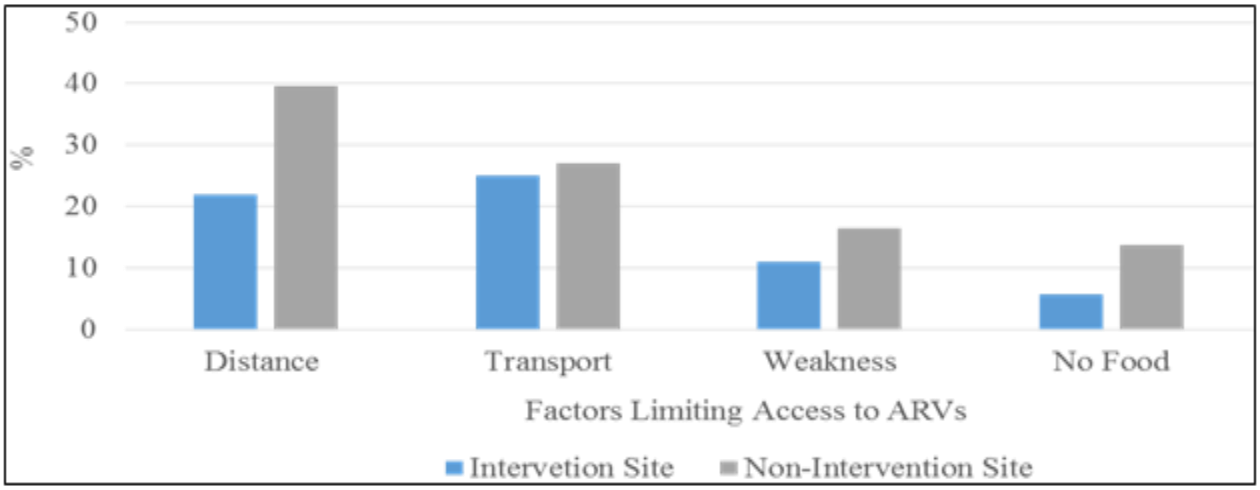


Support received by persons infected with HIV

Access to Drugs and Challenges

Majority of respondents (95.2%) in intervention and non-intervention (96.2%) sites had easy access to ARVs, with 48.1% sourcing drugs privately. Approximately 44.1% sourced ARVs therapy from government facilities with 30.3% from CSOs. Although distance to health facilities was the main challenge for those accessing ARV drugs in intervention (22.0%) and non-intervention (39.7%) sites, the odds (OR=2.3 (95%CI=1.2-4.5), p=0.01) was greater in the non-intervention sites. Lack of cash for transport (25% versus 27%) and weakness (11% versus 16.4%) were other challenges (Figure 3).

Figure 3: Factors limiting access to ARVs in intervention and non-intervention sites



Nutrition Status

The diet of respondents in both the intervention and non-intervention sites consisted mainly of starchy staples such as maize (60.5% in both sites) and sweet cassava (45.7% versus 36%). Millet was almost never eaten (42.2% in the intervention and 32.6% in the non-intervention site), while rice (61.2% versus 74.4%), chicken (52.9% versus 62.8%), and peas (53.2% versus 53.5%) were rarely eaten in both the Intervention and non-intervention sites at baseline (Table 7).

Table 7: Diet of Respondents by Site

Meal	Frequency	Intervention	Non intervention	Meal	Frequency	Intervention	Non intervention
Posho (Ugali) Maize	Never eaten	10 (7.8)	3 (3.5)	Millet (porridge)	Never eaten	54 (42.2)	28 (32.6)
	Rarely eaten	31 (24.0)	23 (26.7)		Rarely eaten	45 (35.2)	27 (31.4)
	Eaten on average	10 (7.8)	8 (9.3)		Eaten on average	8 (6.3)	6 (7.0)
	Mostly eaten	78 (60.5)	52 (60.5)		Mostly eaten	21 (16.4)	25 (29.1)
Rice	Never eaten	14 (10.9)	4 (4.7)	Cassava	Never eaten	13 (10.2)	4 (4.7)
	Rarely eaten	79 (61.2)	64 (74.4)		Rarely eaten	30 (23.6)	26 (30.2)
	Eaten on average	20 (15.5)	14 (16.3)		Eaten on average	21 (16.5)	13 (15.1)
	Mostly eaten	16 (12.4)	4 (4.7)		Mostly eaten	63 (49.6)	43 (50.0)
Beef	Never eaten	10 (7.8)	3 (3.5)	Bananas	Never eaten	16 (12.6)	8 (9.5)
	Rarely eaten	68 (53.1)	53 (61.6)		Rarely eaten	49 (38.6)	49 (58.3)
	Eaten on average	32 (25.0)	13 (15.1)		Eaten on average	34 (26.8)	14 (16.7
	Mostly eaten	18 (14.1)	17 (19.8)		Mostly eaten	28 (22.0)	13 (15.5)

Meal	Frequency	Intervention	Non intervention	Meal	Frequency	Intervention	Non intervention
Eggs	Never eaten	14 (10.9)	7 (8.1)	Chicken	Never eaten	12 (9.3)	14 (16.3)
	Rarely eaten	68 (52.7)	51 (59.3)		Rarely eaten	68 (52.9)	54 (62.8)
	Eaten on average	29 (22.5)	19 (22.1)		Eaten on average	27 (20.9)	9 (10.5)
	Mostly eaten	18 (14.0)	9 (10.5)		Mostly eaten	22 (17.1)	9 (10.5)
Fish	Never eaten	8 (6.3)	3 (3.5)	Milk	Never eaten	15 (11.7)	9 (10.5)
	Rarely eaten	50 (38.4)	46 (54.1)		Rarely eaten	54 (422)	40 (46.5)
	Eaten on average	27 (21.3)	14 (16.5)		Eaten on average	22 (17.2)	10 (11.6)
	Mostly eaten	42 (33.1)	22 (25.9)		Mostly eaten	37 (28.9)	27 (31.4)
Traditional Vegetables	Never eaten	19 (15.2)	15 (17.4)	Beans	Never eaten	13 (10.2)	8 (9.3)
	Rarely eaten	30 (24.0)	28 (32.6)		Rarely eaten	55 (43.0)	37 (43.0)
	Eaten on average	17 (13.6)	10 (11.6)		Eaten on average	23 (18.0)	14 (16.3)
	Mostly eaten	59 (47.2)	33 (38.4)		Mostly eaten	37 (28.9)	27 (31.4)
Green peas	Never eaten	22 (17.2)	19 (22.1)	Fruits	Never eaten	16 (12.7)	12 (14.0)
	Rarely eaten	55 (43.0)	34 (39.5)		Rarely eaten	53 (42.1)	39 (45.3)
	Eaten on average	21 (16.4)	7 (8.1)		Eaten on average	32 (25.4)	20 (23.3)
	Mostly eaten	30 (23.4)	26 (30.2)		Mostly eaten	25 (19.8)	15 (17.4)

Eating Patterns

In the intervention (30.8%) and non-intervention sites (37.2%), a majority of respondents at nothing in the morning. Approximately 24.6% and 22.1% in the two sites drank porridge and other maize-related foods, while only 5.4% and 5.8% respectively drank tea and rice (OR) = (95% CI=1.1 (0.32-3.9), p=1.00). In the mid-morning, the trend was the same in both sites, with 71.9% and 62.4% in the intervention and non-intervention sites respectively eating nothing. Only 10.9% and 9.4% in the intervention and non-intervention sites drunk porridge and other maize-related food over this duration (OR (95% CI) =1.2 (0.20-6.5), p=1.00). Ugali and traditional vegetables was the commonest type of food during lunch (31.0% in intervention and 34.1% in the non-intervention site) and dinner (33.6% intervention and 25.1% in non-intervention sites) (Table 8).

Table 8: Eating Patterns of Respondents by Site

		Site			
		Intervention	**Non-Intervention**	**OR (95% CI)**	**P value**
Morning	Nothing	40 (30.8)	32 (37.2)		Reference
	Tea	23 (17.7)	12 (14.0)	1.5 (0.66-3.5)	0.40
	Tea And Wheat Related Food	15 (11.5)	8 (9.3)	1.5 (0.57-4.0)	0.47
	Porridge And Maize Related Food	32 (24.6)	19 (22.1)	1.3 (0.65-2.8)	0.46
	Tea And Rice	7 (5.4)	5 (5.8)	1.1 (0.32-3.9)	1.00
	Tea And Maize	4 (3.1)	7 (8.1)	0.46 (0.12-1.7)	0.33
	Others	9 (6.9)	3 (3.5)	2.4 (0.60-9.6)	0.34
Mid-morning	Nothing	92 (71.9)	53 (62.4)		Reference
	Tea	7 (5.5)	1 (1.2)	4.0 (0.48-34)	0.26
	Tea And Wheat Related Food	4 (3.1)	2 (2.4)	1.2 (0.20-6.5)	1.00
	Porridge &Maize Related Food	14 (10.9)	8 (9.4)	1.0 (0.40-2.6)	1.00
	Tea And Rice	1 (0.8)	1 (1.2)	0.58 (0.03-9.4)	1.00
	Tea And Maize	1 (0.8)	1 (1.2)	0.58 (0.03-9.4)	1.00
	Others	8 (6.3)	16 (18.8)	0.29 (0.12-0.72)	<0.01
	Tea And Groundnuts	0 (0.0)	1 (1.2)	0.19 (0.00-4.8)	0.37
	Githeri	1 (0.8)	2 (2.4)	0.29 (0.03-3.3)	0.56

		Site			
		Intervention	Non-Intervention	OR (95% CI)	P value
Lunch	Ugali &nd Traditional Vegetables	42 (31.0)	28 (34.1)		Reference
	Nothing	21 (16.0)	16 (18.2)	0.88 (0.39-2.0)	0.84
	Ugali And Kales	22 (16.8)	17 (19.3)	0.86 (0.39-1.9)	0.84
	Ugali And Meat	3 (2.3)	4 (4.5)	0.50 (0.10-2.4)	0.44
	Ugali And Fish	18 (13.7)	7 (8.0)	1.7 (0.63-4.6)	0.34
	Rice Plain	0 (0.0)	2 (2.3)	0.13 (0.00-2.9)	0.17
	Rice And Any Stew	3 (2.3)	4 (4.5)	0.50 (0.10-2.4)	0.44
	Others	22 (16.8)	8 (9.1)	1.8 (0.72-4.7)	0.26
Snack	Nothing	109 (85.8)	64 (76.2)		Reference
	Uji	6 (4.7)	10 (11.9)	0.35 (0.12-1.0)	0.06
	Tea	5 (3.9)	3 (3.6)	0.98 (0.23-4.2)	1.00
	Ugali	2 (1.6)	0 (0.0)	2.9 (0.14-62)	0.53
	Others	5 (3.9)	7 (8.3)	0.42 (0.13-1.4)	0.22
Dinner	Ugali And Traditional Vegetables	44 (33.6)	23 (25.1)		Reference
	Ugali And Kales	29 (22.1)	15 (17.6)	1.0 (0.45-2.3)	1.00
	Ugali And Meat	7 (5.3)	8 (9.4)	0.46 (0.15-1.4)	0.24
	Ugali And Fish	19 (14.5)	21 (24.7)	0.47 (0.21-1.1)	0.07
	Rice	5 (3.8)	2 (2.4)	1.3 (0.23-7.3)	1.00
	Ugali And Cabbage	8 (6.1)	3 (3.5)	1.4 (0.34-5.8)	0.74
	Githeri	3 (2.3)	5 (5.9)	0.31 (0.07-1.4)	0.14
	Others	11 (8.4)	5 (5.9)	1.2 (0.36-3.7)	1.00
	Nothing	5 (3.8)	3 (3.5)	0.87 (0.19-4.0)	1.00

Economic support

Economic support was somewhat common in both the intervention (33.3%) and non-intervention (21.4%) (OR (95% CI=1.8 (0.96-3.5), p=0.08), with 15.6% and 17.9% in the intervention and non-intervention sites respectively receiving farm seeds from CSOs. Although respondents reported of no direct financial benefits from

the government and other implementing partners. Most respondents indicated accessing ARVs from government hospitals and not offered by CSOs. Economic status of respondents was poor, with a majority (55.5%) of respondents earning less than 1,000 Kshs in a month (Table 8).

Table 9: Economic Support by Site

		Site			
		Intervention	Non-Intervention	OR (95% CI)	P value
Supported Economically		41 (33.3)	18 (21.4)	1.8 (0.96-3.5)	0.08
Area(s) Supported Economically	Started poultry farming	11 (8.9)	11 (13.6)		Reference
	Nutritious diet	11 (8.9)	7 (8.6)	1.6 (0.44-5.6)	0.57
	Received motorbike	12 (11.3)	8 (13.1)	1.5 (0.44-5.1)	0.55
	Received farm seeds	14 (15.6)	10 (17.9)	1.4 (0.44-4.5)	0.77
	Others	4 (3.3)	2 (2.5)	2.0 (0.30-13)	0.65
Effect of Interventions	Improved living condition	69 (58.5)	48 (60.8)	0.91 (0.51-1.6)	0.76
	Able to pay school fees	48 (43.6)	31 (47.7)	0.85 (0.46-1.6)	0.64
	Improved housing	22 (20.2)	10 (15.9)	1.3 (0.59-3.0)	0.55
	Got a wife	7 (6.5%)	7 (11.9)	0.51 (0.17-1.5)	0.25

Discussion

In Busia County, CSOs offer diverse interventions ranging from health care services, HIV prevention, and AIDS development to nutrition services, and economic empowerment [14]. This study looked at the change attributed by government and CSOs on improved livelihood for those individuals infected with HIV. The benefits and change was determined on their health status, nutrition and economic development, including accountability in terms of service provision.

The proportion of children between 6 and 13 years of age enrolled in primary schools was 81%. This low enrollment was attributed to poverty, inadequate physical infrastructure, poor retention, poor performance and low transition from primary to secondary. The total enrollment in secondary schools was quite low (20%) of 14 to 17 years old individuals [8]. The high proportion (84.5% vs 77%) of respondents in this study indicated they have attained at least some primary level education as compared to the Kenya Demographic Health Survey (KDHS) findings respectively. The literacy level in Busia is at 75.3% in individuals aged above 15 years compared to the National figure (79%). Self-employment occurred in 71% vs 77.7% of respondents from the study compared to KDHS respectively [5, 10, and 17]. The findings from this study attest to the consistency of the finding from data obtained in two study sites compared to

that obtained from KDHS indicating stable population base as a starting point for the quasi-experimental study [12]. A previous researcher [11] who examined the capacity of CSOs to deliver high quality services further reported that they were more effective than the public sector in reaching poorest communities. Indeed it is known most CSOs consider going for cheap labor with limited capacity often sourced from communities they serve. However literacy level (75.3%) in Busia has affected employment status, most individuals are self-employed (small scale farming and business i.e boda boda) [12]. Civil society organizations barely find suitable persons to hire due to limited capacity among the Busia population. As a result, it would be necessary to engage these partners as well as the political will to spread the significance for education. Gender equity and equality experiences gender based disadvantage in reproductive health empowerment and labor market. Improving equity in gender issues and reducing gender disparities will benefit individuals and thus contribute to reduced poverty [8].

Civil society organizations are major players in the provision of health care in developing and transitional countries [3]. In Cambodia 70% of CSO engages in the response to HIV and focus on health care and treatment. Similarly CSOs in Haiti and Ethiopia offer ARV therapy and promote coordinated action to scale up treatment. The same groups play a central role in advocating for greater treatment access and also promote accountability by monitoring treatment related activities of governments and donors [10]. Results of this study proved the scholar's [10] report that both government facilities (44.1%) and CSOs (30.3%) play major role to ensure individuals infected with HIV access ARV therapy. About 320,000 adults and 29,000 children are receiving ARV therapy in Kenya. A proportion of 40% of people in need are still unable to access ARV therapy. Organizations such as MSF and AMPATH are currently manning 14 ARV therapy sites governed by the government in Busia County [1, 10]. In Kenya 40% of treatment care and support to people living with HIV/AIDS is offered by faith based organizations [10]. A joint survey conducted in 2004 by a Paris based treatment rights group found that NGOs were still the main providers of health care in many African countries where the burden of HIV is heaviest. Further the study showed ARV therapy is carried out by 182 organizations, of who 141 reported they provide direct treatment for opportunistic infections, while 156 provide physco-social follow-up for people on therapy [1]. The results of this study prove that access to HIV/AIDS information improved understanding ($p<0.01$) significantly. Majority of the respondents proved knowledgeable of health risks, especially associated with indulging in alcohol consumption, cigarette smoking and poor eating habits (90%). Multiple use of injection (65.5%) was identified by respondents as a high risk factor to HIV transmission. The findings signify advocacy role played by most CSOs in other parts of Africa as a success [11]. Only 28% of respondents ($X^2(df) = 1.70(1)$, $p=0.14$) in this study showed they were treated for opportunistic infections by civil society organizations.

The relationship between nutrition and HIV/AIDS has been established by different scholars [18, 20]. In Busia County, the diet was predominantly of starchy staples

with few or no proteins and or fruits consumed as indicated by respondents. The basic principles of healthy eating were also not observed by majority of respondents in both intervention and non-intervention sites. According to 2008-2009 Kenya Demographic Health Survey, 34 per cent of children under five years of age in Busia County are stunted, and micronutrient deficiencies, such as vitamin A and iron deficiencies, are widespread [8]. Cross-cutting issues that remain in Busia County include poverty, HIV/AIDS, gender, climate change and environmental conservation [8]. Alessandra reports Busia people lack awareness of the nutritional value of agricultural biodiversity, and thus foods rich in protein, vitamins and minerals are underutilized and in some cases on the brink of extinction. The same report describes how Busia residents prefer to sell milk and kunde (cowpea leaves) [or other African leafy vegetables] at the market to buy mandazi (fried dough) for their children [3, 20]. This seems worrying considering the high energy and nutritional requirement for HIV infected persons to live healthy and a productive life. A report [5] shows majority (52.1%) of Busia residents are stunting, a figure much higher than the National (35.3%) rate. Without proper nutrition uptake, for instance, immunity drops beyond the recommended level for healthy living. People infected with HIV also lack sufficient energy to work and end up being a burden to the society. Poverty, over dependence on rain-fed agriculture, and erratic food prices contribute to such erratic feeding behaviors. As a result, implementing partners should deal with HIV/AIDS in a diverse manner. World food program (WFP) recommends Nutritional value; Energy 2,100 Kcal, Protein 58g, Fat 43g for chronically ill, i.e. people suffering from TB and or HIV/AIDS [20]. Energy, protein and fat, serves to prevent micronutrient deficiencies and other forms of malnutrition or prevents them from deteriorating. For these individuals, medical treatment should be combined with good nutrition and the safeguarding of food security among themselves and their family members [8].

This study found out that 58.9% of respondents had normal weight. Anthropometric indices indicated that most people living with HIV were of good health. Findings further proved majority of the respondents had poor diet uptake and that they did not observe the recommended eating habits for better HIV management (table 7, 8). Studies [8, 12] show improvement of health status for those individuals infected with HIV was attributed to easy access to and better ARV uptake and prompt care to opportunistic infections. Psychological support plus early detection and care of opportunistic infections might also have contributed to their positive health and overall well-being [6]. The same writers [8, 10, and 19] do not mention proper diet as contributing to positive healthy living. A majority had normal weight and normal vital signs (body temperature, pulse rate and blood pressure) in both the intervention and non-intervention sites.

The poverty level in Busia is at 64.2 % compared to the national 45.9 % [8, 10]. Economic status of respondents in this study was poor, with a majority (55.5%) showing to earn less than 1000 Kshs every month. Respondents did not receive farm inputs or direct financial support from the government and or from CSOs. The economic support was in different form (49.8%) especially in the

intervention sites (33.3% versus 28.1%) (X^2(df) =2.58(1), p=1.61). Approximately a small proportion (8.9%) for instance received minimal financial support (300 USD) for their established and formal group to start poultry farms. An average of 54.5%, 18.65, and 15.3% reported an improvement in their living conditions, improved housing, and access to new motorbikes respectively. Respondent's voices during discussions revealed that these improved living conditions resulted from their own effort. They say their monthly collection from formal and established HIV infected groups and associations sustain their livelihood. The findings are backed by [11] who in their study showed apart from the subsidy, dialogue with those individuals infected with HIV changed a living for most of them. Findings during focus group discussions sessions showed many respondents recognized and preferred aid offered by government, stating that the support is usually sustainable. Some respondents further described CSOs as not being truthful, and wondered why their projects never assist improve their livelihoods. According to respondents, CSOs arrival usually excited them, but when they wind up their projects, they find themselves in a more worse of situation.

Conclusions

Although HIV/AIDS pandemic is receiving growing attention in Busia County, players continue to develop interventions aimed in improving the overall livelihood of persons infected with HIV. However, the proportion of individuals infected with HIV remains low socio-economically in the area, with sensitization and educational campaigns warranted to break this cycle that contributes to high poverty levels.

Recommendations

The government and CSOs should develop sustainable interventions aimed at empowering those individuals infected with HIV in Busia County. Collaborators should disseminate comprehensible information on the behavioral attributes influencing HIV/AIDS to help battle this pandemic.

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