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Cross-border movement of people and its effect on the Spread of HIV/AIDS in Kisoro district South Western Uganda

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Abstract

Background: Cross-border movement as a driver of the HIV epidemic has been given little attention. Kisoro district shares borders with DRC Congo and Rwanda thus increased the chances of HIV transmission. This prompted the conduction of this study.

Purpose of the study. To establish the role of cross-border movement of people in the transmission of HIV/AIDS in Kisoro district to suggest appropriate prevention and control measures. **Materials and methods:** This was a descriptive cross-sectional study design using both qualitative and quantitative methods involving 217 people living with HIV registered at Kisoro and Mutorele hospitals that lived in border areas of Kisoro. Simple random sampling was used to select respondents who met the inclusion criteria and consented. Questionnaires and interview guides were used to collect data which was analyzed at three levels; univariate, bivariate, and multivariate to control confounding factors.

Results: From this study, trade was found to be the major factor for cross-border movement as per the majority of respondents 90(41.6%) followed by employment 49(22.8%), seek health care 41(18.7%), and conflicts in DR Congo 12(11.4%). The commonest HIV risk behaviors in border communities in Kisoro were; cultural practices, alcoholism, and drug abuse, and sexual gender-based violence.

Conclusion and recommendation: Factors for cross-border movement of people to and from Kisoro district are trade, seeking health care, employment, and conflicts in DRC Congo. There is a relationship between the movement of people across borders and the spread of HIV/AIDS in the Kisoro district. There is a need for the Central government of Uganda and Kisoro district local government leaders to engage their counterparts in DRC Congo and Rwanda in dialogue meetings to find lasting solutions to the increasing trend of HIV/AIDS arising from cross-border movement of people.

Introduction

Despite various interventions, the HIV pandemic has continued to wreak havoc on the mankind on the global, continental, national and local scene. HIV pandemic is on the rise despite the substantial investment in prevention, care and treatment services by governments and other development partners (1). Some studies have blamed the increase in the spread of HIV/AIDS on complacency, socio-economic and cultural issues as well as moral decadency with minimal emphasis on cross border movement (2). In a recent Uganda study, some people no longer fear HIV/AIDS due to good treatment outcomes as the result of taking antiretroviral drugs (3).

Anderson (4), revealed that the increase in the spread of HIV is due to the social behavior of individuals, emphasizing the fact that having multiple partners increases one's vulnerability to the infection. In a related study in South Africa on the spread of HIV among gold miners by Catherine (5), it was indicated that peoples' sexual behavior renders them vulnerable to the acquisition of HIV.

It also revealed that migration is one of the factors that can fuel the spread of HIV. SAS Foundation (6) report from Uganda shows that women are disproportionately affected by HIV/AIDS and that women whose husbands are migratory workers are especially vulnerable to HIV/AIDS as their spouses may have other sexual partners and that women also may engage in commercial sex in periods of economic stress. Green (7) highlights that majority of Ugandans have inadequate knowledge on the modes of spread of HIV. Despite impressive and innovative contributions from clinical and biomedical research on HIV/AIDS disease, prevention, and control of the HIV/AIDS pandemic has remained a nightmare and an issue of public health concern.

It is estimated that 40 million people are living with HIV and 30 million have already succumbed to the scourge. In Sub-Saharan Africa alone, 25 million people may be infected with the Virus (8). The UNAIDS (9) report on global statistics indicated that there are 1.6 million new HIV infections and 1.2 million death in Sub-Saharan Africa alone. Uganda's HIV/AIDS prevalence rate increased from 6.4% in 2005 to 7.3% in 2011(10). Uganda Demographic Health Survey (11) revealed that 22% of new HIV infections were through mother-to-child transmission of HIV (MTCT). UNAIDS (12) indicated that the most affected age group is 15-49 years. HIV prevalence is higher among women (8.3%) than men (6.1%) (13). The number of new infections has risen from 123,000 in 2009 to 128,000 in 2010 and approximately 145,000 in 2011 (12). In the Kisoro district of Uganda, the HIV prevalence is estimated to be at 6.2 % (14).

There is a rise in the number of new cases of HIV/AIDS in the Kisoro district, which may have contributed to an increase in HIV prevalence from 3.8% in 2010 to 6.2% in 2013 (14). The rise in HIV infection has paradoxically occurred despite various interventions by ongoing projects (such as STAR SW, AIDS Information Center, and Doctors for Global Health at Kisoro Hospital) whose main objective is to increase access to HIV/AIDS and Tuberculosis care and treatment, access to HIV counseling and testing (HCT) and improving referral and linkage services for people living with HIV. Due to ill-equipped health facilities in Rwanda especially areas bordering Kisoro and constant conflicts in DR Congo, the health system has greatly deteriorated in these two countries, encouraging inhabitants to seek health care in Kisoro district especially at Mutorele and Kisoro hospitals. Despite all the interventions for controlling the spread of HIV already in

place, provided by the above projects and the district, HMIS data from the records departments of the two hospitals still show a steady increase in the number of new HIV infections. Thus the above alarming picture in the district warrants urgent research attention and hence the interest in this study to improve the knowledge about the situation and suggest border –specific HIV/AIDS prevention and control

Purpose of the study

To assess the role of cross-border movement of people in the transmission of HIV/AIDS in Kisoro district to suggest appropriate prevention and control measures.

Objectives

To determine the factors for cross-border movement of people and their contribution to the spread of HIV/AIDS in Kisoro district; to establish HIV high-risk behaviors among border communities in Kisoro district, to assess the availability of HIV/AIDS prevention and control measures in Kisoro district

Materials and Methods

A descriptive cross-sectional study design using both qualitative and quantitative methods was used to collect data from respondents who were comprised of people living with HIV and key stakeholders involved in the implementation of HIV/AIDS activities in the Kisoro district.

The study was carried out in the Kisoro district. Kisoro District is located in the extreme South Western Uganda and forms the meeting point of the three countries of Uganda, the Democratic Republic of Congo (DRC), and Rwanda. This district is occupied by two principal ethnic groups the majority being Bafumbira followed by Bakiga who are mainly peasant farmers.

The district borders with Kanungu district in the north, Democratic Republic of Congo (DRC) in the west, Rwanda in the south, and Kabale District in the east. The district is generally hilly with a poor network communication system in most of the areas. It is divided into three Health Sub-districts of Bufumbira North, Bujumbura South, and Bujumbura East. The district is served by a set of health infrastructure comprising of 38 health units; 2 hospitals, 3 Health Centre IVs, 15 Health center IIIs and 18 Health Centre IIs. Out of the 38 sites, 20 are PMTCT sites, 7 ART sites, and 20 TB diagnostic and treatment centers units (DTUs). The district is comprised of 14 sub-counties, 36 parishes, and 389 villages.

Kisoro district (the study area) has an estimated total population of 254,800 people, comprising 133,500 females and 121,300 males with a fertility rate of 3.9%. The district population density is 290 persons per square kilometer (15). The study will target people living with HIV who live in cross border towns of Kisoro (Bunagana and Chanika) and are registered at Kisoro and Mutorele hospitals. The two hospitals serve over three-quarters of people living with HIV in the district (16). The two hospitals are strategically located to offer services to the majority of people living with HIV that live in cross-border towns. Therefore using both hospitals offered an adequate representation of the study population thus minimizing bias. Heads of the two hospitals, two charges of HIV clinics, and two key members of the district health team (District Health Officer and PMTCT focal person) were also part of this study as key informants.

The sample size was determined using Kish and Leslie's (1965) formula: $n = Z^2 pq/d^2$. Where n =Desired sample size, Z =standard deviation taken as 1.96 at a confidence level of 95%, P =percentage of people living with HIV/AIDS

in Kisoro district accessing ART=83 % (17). The desired sample size (n) was therefore 217 respondents. A simple random sampling technique was used to select the respondents in the hospitals in the Kisoro district. Kisoro district has two hospitals which are Kisoro hospital and Mutorele with a total of 1770 people living with HIV on ART out of which a total of 600 lived in cross-border towns. By the time of data collection, Kisoro hospital alone had 1200 people on ART out of which 420 lived in cross-border towns whereas Mutorele hospital had 570 people on ART out of which 180 lived in cross-border towns (According to records from the two hospitals). The direct proportional method was used to distribute the research participants that lived in cross-border towns from the desired sample size as follows; Kisoro hospital $420/600 \times 217 = 152$ respondents. Mutorele hospital $180/600 \times 217 = 65$ respondents. The two hospitals have two ART clinics a week. At Kisoro hospital, an average of 150 clients received ART per clinic day while at Mutorele hospital, an average of 70 clients received ART per clinic day.

Prior arrangements were made with the in-charges of ART clinics to sort and prepare all the people on ART that lived in cross-border towns. This was done during clinic days just before the time for interviews. Simple random sampling was applied to select the study participants who had to consent before participation. Simple random sampling was applied by use of a ballot box containing papers labeled "YES" and "NO". Whoever picked a "YES" would be selected to participate in the study. This was important to give all the eligible participants equal chances of participation hence minimizing selection bias. This continued during clinic days until the desired sample size of 217 was arrived at. The study also involved heads of hospitals, in charge of ART clinics, and relevant members of district health teams.

Inclusion and exclusion criteria

Only people living with HIV that consented had time to participate in the research and lived in cross-border towns were included. Only adult respondents (18 years and above) were considered for this study. All those people living with HIV, who did not live in border areas of Kisoro and Minors were excluded from the study.

Data collection method

Quantitative data was collected using questionnaires while qualitative data was obtained by use of key informant guides. Both structured and semi-structured questionnaires with open and closed-ended questions were developed by the researcher. Semi-structured questionnaires generated qualitative data while structured ones generated quantitative data. The questionnaires were designed in line with the study objectives to answer the research questions. After pretesting, questionnaires were administered by the researcher with the help of a research assistant. The research assistant was oriented on the topic and purpose of the study, contents of the tools, and ethical issues in research targeted study respondents, inclusion and exclusion criteria, and the sampling technique.

Key informant interviews: For purposes of gaining an in-depth understanding of the subject matter, the researcher interviewed Heads of hospitals, in charge of HIV Clinics, PMTCT focal person, and the District Health Officer. Qualitative data were obtained from these respondents by using interview guides with structured questions in line with the study objectives. The pre-visit appointments were made since these respondents are usually occupied with other duties. Recording of the respondents was also done after seeking their consent and permission. They were assured that the recorded message was to be kept

confidential and used for research purposes only.

Data quality control:

The data collection tools (questionnaires) were pre-tested at two HCIVs that offer HIV services using 5% of the desired sample size. Some of the errors detected were corrected and improvements in the tools were considered. From the pre-test, some systematic areas were detected where respondents gave responses that did not correspond to some questions in the tools. This was improved by rephrasing the questions more easily and understandably. Also, research assistants were re-oriented in questioning techniques to elicit responses that are in line with the questions. The researcher monitored the quality of data collected by research assistants by checking for completeness of the tools every day of data collection. The use of various methods of data collection (questionnaires and key informant interviews) ensured the reliability of the data collected.

Data analysis and presentation:

Qualitative data collected were summarized based on majority responses to draw an appropriate conclusion about it. Quantitative data were analyzed using SPSS version 16.0 and this was done at different levels, univariate, bivariate, and multivariate. At the univariate level, the socio-demographic variables of the respondents such as age, sex, income level occupation, etc. were analyzed independently. At the bivariate level, Spearman Rank correlation was used to determine the relationship between dependent and independent variables. At the multivariate level, logistic regression was used to study the significance of different independent variables such as trade, seeking health care, employment, conflicts, multiple sexual partners, alcoholism and drug abuse, and sexual gender-based violence to the dependent

variable which was cross-border movement and spread of HIV/AIDS. This helped in drawing conclusions based on the level of significance given by the P-values and confidence intervals.

Ethical consideration:

To ensure that the study upholds ethical consideration, the researcher ensured that the following are observed. Research approval and permission were obtained from the research and ethics committee of Kampala International University before the study commenced. The researcher also sought permission to research the District Health Office and medical superintendents of Kisoro and Mutorele Hospitals. The researcher and the research assistants ensured that nobody got to listen to the conversation during the interview process and the participants were assured that the data collected from them would be treated with the utmost confidentiality and that it was only for study purposes. The researcher and the research assistants ensured that the respondents understood the study by providing adequate information regarding its purpose, duration, benefits, and any risks involved. They were informed that participation was voluntary and their withdrawal from the study would not attract any penalty.

Respondents aged 18 years and above were considered for this study. This resulted in respondents making an informed decision on whether to participate or not. Consenting to participate was by signing the consent form. This was ensured by sticking to randomization during the selection of study participants and adhering to the inclusion criteria. This was intended to minimize bias and promote fairness. Research participants were assured that they had a right to participate or not and that they also had a right to withdraw from the study at any time without any penalty. It was anticipated that this study would benefit the participants and the entire Kisoro community

by informing the policymakers on the strategies of controlling the spread of HIV/AIDS arising from cross-border movement. The major benefit of this study was having a reduced HIV prevalence in the Kisoro district resulting in a healthier and more productive community. Considering the design of this study, no risks were anticipated and reported during and after its conduction.

Study Limitation/delimitation:

It was anticipated that some respondents would hesitate to provide adequate data due to stigma. Given the fact that the respondents were residing in border towns, getting them was expected to be difficult. The language barrier was also anticipated as a limitation. The issue of stigma was handled by ensuring privacy during the interview process and assuring the respondents of strict confidentiality. To easily access the respondents, data was collected on ART clinic days which gave a good representation of the study population. The issue of the language barrier was resolved by using research assistants who were proficient in a local language.

Result

This chapter covers the major findings from the study. The findings were illustrated in form of tables and graphs. The study involved 217 participants who were people living with HIV registered at Kisoro and Mutorele hospitals and lived at border towns of Bunagana and Chanika. They generated mainly quantitative data using 217 questionnaires that were administered by the researcher and 2 research assistants. To obtain qualitative data, six key informants were interviewed by the researcher using an interview guide. The findings were summarised, analyzed, and interpreted based on three study objectives i.e. To determine the factors that contribute to the movement of people across borders and their association

with the spread of HIV/AIDS in Kisoro district, assess the HIV high-risk behaviors among border communities in Kisoro district and assess the effectiveness of the strategies put in place to control the spread of HIV/AIDS in Kisoro district.

From table 3, the Majority 128(59.0%) of the respondents who participated in this study were females while 89 (41.0%) were males. The age of the participants was categorized into five age groups, the majority 87(40.1%) of the participants were in the age group (31-40) years, while 59(27.2%) of the respondents were in (41-50) age group, and the age group of (<20) and (>50) were the least engaged with 1.8% and 11.1% respectively. The selection of the age categories was guided by inclusion criteria and the commonly known sexually active age groups. The marital status of the respondents was categorized as married (47.0%), never married (11.1%), divorced/separated (28.6%), and widowed (13.4%). Therefore, the Majority of the respondents were married while never married was the last category.

The majority 80 (36.9%) of the respondents were illiterate (none), while 68(31.3%) of the sampled population reached the Primary level, 42(19.4%) reached the secondary level and 21(9.7%) reached tertiary and 6(2.8%) attained post-tertiary (university) level. The biggest number of the respondents 98 (45.2%) of the total respondents (n=217) were Catholics, followed by Anglicans 77(35.5%), Muslims (9.7%), Seventh-day Adventists 12(5.5%), and others 9(4.1%). The Occupation of Peasant farmers dominated this study with 112(51.6%) of the total respondents (n=217), followed by other occupations like tailoring, carpentry, truck drivers, and Boda- Boda riders were representing 42(19.4%) of the respondents, 41(18.9%) were business-oriented, and 22(10.1%) were teachers.

Factors for cross-border movement of people and their contribution to the spread of HIV/AIDS in Kisoro district

The first objective of this study was to determine the factors that contribute to the movement of people across borders and their contribution to the spread of HIV/AIDS in the Kisoro district. To achieve this, respondents were asked questions intended to establish peoples' awareness of cross-border movement, reasons for cross-border movement, whether there was an association between cross-border movement and spread of HIV with reasons. Here below were the findings/results.

The study findings revealed that the majority of the respondents 204 (94.0%) knew that there were a lot of movements across borders to and from Kisoro while 13(6.0%) did not know about it. The main reason for cross-border movements was Trade as reported by the majority 90 (41.6%) of the respondents. This was followed by employment as reported by 49 (22.8%) of the respondents, seeks health care 41 (18.7 %,) visit relatives 25 (11.4% and conflicts 12(4.6%). The majority of the respondents, 174(80.2%) agreed that there was an association between cross-border movement and the spread of HIV/AIDS while only 43 (19.8%) of the respondents reported that there was no association between cross-border movements and the spread of HIV/AIDS.

From the qualitative aspect, extramarital sexual temptations due to being away from spouses were advanced as one of the major reasons for the relationship between cross-border movement and the spread of HIV. Most respondents also alluded to the fact that when people move across borders, they become free from being monitored by their spouses and this makes it easy for them to indulge in HIV risky

behaviors such as promiscuity, alcoholism, and drug and substance abuse which increase their vulnerability to the acquisition of HIV and end up spreading it upon returning home

At the bivariate analysis level, trade ($p=0.000^*$), seeking health care ($p=0.001$), employment/work ($p=0.000^*$), and conflict/wars ($p=0.002^*$) showed a strong relationship with cross-border movement and spread of HIV/AIDS. However, visiting relative did not show any relationship with the cross border movement and spread of HIV/AIDS ($p=0.219$)

Multivariate analysis of factors for cross-border movement

Further analysis at the multivariate level revealed trade, seeking health care, employment/work, and conflict/wars all still showed a strong relationship with cross border movement and spread of HIV/AIDS at multivariate analysis. This, therefore, implies that they are the major factors for cross-border movement and are associated with the spread of HIV/AIDS in the Kisoro district.

Assessment of HIV high-risk behaviors among border communities in Kisoro district: table 2

The second objective of this study was to establish the HIV high-risk behaviors among border communities in the Kisoro district. To have this objective achieved, respondents were asked questions intended to establish the existence of HIV high-risk behaviors in border communities in Kisoro, common HIV risk behaviors there, and the suggested control measures for the stated risk behaviors. The findings were as follows. The majority of the respondents 157 (72.4%) revealed that HIV risk behaviors do exist in border communities in the Kisoro district while 60(27.6%) of the respondents revealed that they do not. This

could have increased peoples' vulnerability to the acquisition and spread of HIV in and across border areas.

The majority of the respondents 167(77%) agreed that having multiple sex partners can lead to the spread of HIV/AIDS while 50 (23%) said it cannot. The majority of the respondents 206(94.9%) agreed that cultural practices can lead to the spread of HIV/AIDS while 11(5.1%) did not agree. The majority of the respondents 172 (79.3) agreed that Commercial sex workers can contribute to the spread of HIV while 45(20.7) did not agree. The majority of the respondents 130(59.9%) agreed that Sexual Gender-Based Violence (SGBV) can contribute to the spread of HIV/AIDS in Kisoro while 87(40.1%) did not agree. The majority of the respondents 190(87.6%) said Alcoholism and drug abuse can lead to the spread of HIV/AIDS while 27(12.4%) did not agree.

Bivariate Analysis of HIV high-risk behaviors among border communities in Kisoro. At bivariate analysis, multiple sex partners ($p=0.040$, $p<0.05$), culture ($p=0.001$, $p<0.05$), alcoholism ($p=0.000$, $p<0.05$) and sex gender-based violence ($p=0.002$, $p<0.05$) showed a strong relationship with cross border movement and spread of HIV/AIDS. However commercial sex workers/promiscuity did not show any relationship with the cross-border movement and spread of HIV/AIDS ($p=0.197$; $p>0.05$). At this level of analysis, multiple sex partners, cultural practices, alcoholism/drug abuse, and sexual gender-based violence were found significantly associated with cross-border movement and spread of HIV/AIDS based on p-values and confidence intervals. This was achieved by running a logistic regression. However multiple sexual partners which showed a strong relationship only at the bivariate level might have occurred by chance or was a confounding factor in this study. From the qualitative aspect, the following were

suggested as measures to control HIV high-risk behaviors among border communities in Kisoro district;

Mass sensitization of border communities against risky behaviors, Promotion of condom use and other biomedical interventions such as safe medical male circumcision, by-laws against sexual gender-based violence and those who intentionally spread HIV, Strengthening behavioral change communication strategies, and strict laws against illicit drugs such as cocaine and marijuana as well as alcoholism. Existence of strategies to control the spread of HIV/AIDS in Kisoro.

The third and last objective of this study was to establish the existence of the strategies put in place to control the spread of HIV/AIDS in the Kisoro district. To achieve the above objective, the respondents were asked whether there were strategies put in place to control the spread of HIV/AIDS in Kisoro and whether the strategies were effective or not. Respondents were also asked to suggest measures to control the spread of HIV/AIDS arising from cross-border movement. The results were as summarized below;

The result shows that 199 (91.7% of the respondents stated that there were strategies in place to control the spread of HIV /AIDS while only 18 (8.3%) said they were not. This implied that knowledge of the existence of control measures may not be enough to control the spread of HIV. From the qualitative point of view, the following were the commonest HIV/AIDS prevention and control strategies in Kisoro district known to the respondents; Sensitization programs on radios, social gatherings and use of village health teams, promotion of condom use, PMTCT programs, Safe male circumcision, and ART services. According to figure II above, the majority of the respondents (60.8%) expressed that the strategies to control HIV/AIDS spread were

effective, while 39.2% of the respondents indicated that, the strategies were not effective.

Respondents who said that the HIV/AIDS prevention strategies were effective to give the following reasons to support their argument; Good uptake of condom use programs, increased uptake of ART and HCT services, increased awareness about HIV/AIDS services among community members, a good number of HIV positive mothers giving birth to HIV negative babies due to effective PMTCT programs and good health for those on ARVs.

Those who argued that the HIV/AIDS prevention and control strategies were not effective advanced the following reasons; HIV still rising despite the prevention strategies being in place, No complete cure yet, limited access to ART and HCT services by some people in the district especially in remote areas, some people still ignorant about HIV/AIDS prevention measures and some people living with HIV not adhering to treatment due to inadequate counseling and sensitization. The following were the Suggested measures to control the spread of HIV/AIDS arising from cross border movement (Qualitative analysis); Introduction of ART services and free HCT at the border areas Introduction of condom dispensing points at the border areas Increased advocacy and mass sensitization against HIV risk behaviors at the borders Improvement of Household income (limits movement of people across borders.

Qualitative data results (from key informants)

Six key informants participated in this study. They include; DHO, PMTCT focal person, In-charges of ART clinic, and medical superintendents of Kisoro and Mutorele hospitals. Their responses were in line with those captured using questionnaires based on the same objectives. All the participants

unanimously stated that HIV/AIDS was a significant health problem in the Kisoro district sighting an increase in HIV prevalence according to the available data from the health facilities.

Reasons for increase of HIV/AIDS in Kisoro

The commonly advanced reasons for the increase of HIV/AIDS in Kisoro were; Construction of Kabale- Kisoro tarmac road which started in 2011. This has boosted business in Kisoro and attracted many business companies to Kisoro that carry passengers from Rwanda and DRC Congo to Kampala. Some stay overnight in Kisoro and end up getting involved in sexual activities which may promote the spread of HIV. Cross border movements have brought commercial sex workers among other people to Kisoro. They also suggested that the influx of refugees from the Democratic Republic of Congo as a result of instability could have increased HIV prevalence in Kisoro.

Factors for cross border movement Table 1

The factors mentioned include; seeking employment, Trade/ business, and Seek health care services. They also mentioned that Conflicts and wars in DRC Congo have led to the influx of refugees from the Democratic Republic of Congo to Kisoro.

“Poor health services in DRC Congo and some border areas of Rwanda have also resulted in people coming to seek better health services in Kisoro. Some of them end up staying in Kisoro after receiving such services and eventually indulge in unprotected sexual activities thus increasing the spread of HIV/AIDS” PMTCT FOCAL PERSON KISORO (KEY INFORMANT). It was also unanimously agreed by all key informants that cross-border movement in and out of Kisoro can greatly contribute to the spread of HIV.

Suggestions for the control of HIV/AIDS arising from cross border movement.

They include; Introduction of condom dispensing points at the border areas; Introduction of ART services including free HIV counseling and testing at the border areas; Increased advocacy and mass sensitization to border communities against HIV high-risk behaviors and adoption of HIV prevention and control measures such as SMC, PMTCT among others. Improvement of household income limits the movement of people to seek employment opportunities elsewhere which puts them at risk of acquiring HIV as a result of staying away from their partners.

“If the government could come up with income-generating activities for the people, it could limit their movement across borders which increases their vulnerability to the acquisition of HIV” in charge art clinic Kisoro hospital (key informant)

High HIV risk behaviors in Kisoro

In table 2, All the key informants agreed that high HIV risk behavior does exist among border communities in Kisoro. The

commonest mentioned risk behaviors were; the presence of commercial sex workers mostly from Rwanda and DRC Congo who often go for higher pay for unprotected sexual intercourse, early marriages, multiple sexual partners, increased alcohol Consumption, and cultural practices. Similar views were held by other respondents interviewed with questionnaires.

Existing strategies to control the spread of HIV/AIDS

They include; Safe Male Circumcision (SMC), PMTCT, Condom distribution, massive sensitization on radios, and ART services including free HCT services. Most of the key informants were of the view that the above strategies have been effective citing reasons such as increased uptake of PMTCT, SMC, and ART services. Those who said the strategies were not effective based on the fact that HIV was still rising. All the key informants unanimously agreed that cross-border movement could be the major reason for the increase of HIV/AIDS in the district despite the above strategies

Table 1 Factors for cross border movement

	Frequency(n = 217)	Percent (%)
Movement Awareness		
Yes	204	94
No	13	6
Trade	91	41.6
Seek Health care	41	18.7
Visit relatives	25	11.4
Employment/work	50	22.8
Conflict/ wars	10	4.6
Total	217	100.0
Mvt & HIV prevalence		
Yes	174	80.2
No	43	19.8
Existence of HIV		
Yes	157	72.4
No	60	22.6

Table 2 High HIV risk behaviors in Kisoro

	Frequency	Percentage (%)
Multiple sex partners		
Yes	167	77.0
No	50	23.0
Total	217	100.0
Cultural practices		
Yes	206	94.9
No	11	5.1
Total	217	100.0
Commercial sex workers		
Yes	172	79.3
No	45	20.7
Total	217	100.0
Sexual gender-based violence		
Yes	130	59.9
No	87	40.1
Total	217	100
Alcoholism		
Yes	190	87.6
No	27	12.4
Total	217	100

Table 1: Demographic status of respondents

Sex of respondents	Frequency	(%)
Male	89	41.0
Female	128	59.0
Total	217	100
AGE		
Less than 20	4	1.8
21-30	43	19.8
31-40	87	40.1
41-50	59	27.2
Greater than 50	24	11.1
MARITAL STATUS		
Never married	24	11.1
Married	102	47.0
Divorced/separated	62	28.6
Widowed	29	13.4
Total	217	100.0
EDUCATION		
None	80	36.9
Primary	68	31.3
Secondary	42	19.4
Tertiary	06	2.8
Total	217	100.0
RELIGION		
Catholic	98	45.2
Moslem	21	9.7
Seventh day Adventist	12	5.5
Anglican	77	35.5
Others	09	4.1
Total	217	100
OCCUPATION		
Peasant farmer	112	51.6
Teacher	22	10.1
Business	41	18.9
Others	42	19.4
Total	217	100.0

Discussion, conclusion, and recommendations

Factors for cross-border movement of people and their contribution to the spread of HIV/AIDS. This study revealed that the major factor for the cross-border movement was trade as reported by the majority of the respondents, followed by employment, seek health

care and visit relatives. Other factors such as attending functions and insecurity also contributed. This study finding agrees with one on population mobility and spread of HIV across the India-Nepal border by Binod (18) which revealed that trade, work, cultural visits, and pilgrimage were the major factors for the people of Nepal to cross to India. The results from the same study also indicated a significant HIV prevalence among people who had crossed the Nepal-India border.

This is consistent with the findings of our study which has revealed that due to constant wars and conflicts in DRC Congo, there has been an influx of refugees from DRC Congo to the Kisoro district. The majority of the respondents in this study indicated that there was a relationship between the movement of people across borders and the spread of HIV. This is consistent with the study by COMESA (19) which showed that prevalence and patterns of spread of HIV/AIDS are closely associated with patterns of human mobility. The same study indicated that continuous movement of people underlies the spread of HIV/AIDS and high mobility jobs are associated with HIV.

Going by the findings of this study in comparison with other studies, the researcher's opinion is that cross-border movement increases people's vulnerability to the acquisition and spread of HIV/AIDS. This mostly emanates from the fact staying away

from families increases the chances of temptation to engage in extramarital sex that puts people at more risk of acquiring HIV more so if there is no use of condoms. From the qualitative aspect of this study, it was revealed that increasing peoples' income would limit their movement across borders which increases their vulnerability to the acquisition of HIV/AIDS.

This study finding is similar to that of Bradshaw (20) in Namibia and South Africa on HIV/AIDS which alluded to the fact settled populations are more likely to face social pressure from partners, friends, family members, and even communities to maintain a limited sexual network. The study further revealed that limited population mobility is likely to lead to a minimal level of HIV spread. Similarly, a study by Lucy and Marshall (21) on HIV/AIDS spread in Mozambique after its long civil war indicated that peacekeeping forces from high HIV prevalence countries and a marked increase in cross-border trade fueled the rapid spread of the HIV epidemic. Assessment of HIV high-risk behaviors among border communities in Kisoro district

This study revealed that the majority of the respondents acknowledged the existence of HIV high-risk behaviors among border communities in Kisoro. The following risk behaviors were associated with the spread of HIV/AIDS as agreed by the majority of the respondents; Multiple sex partners, cultural practices, commercial sex workers, Alcoholism and drug abuse, and sexual gender-based violence. However, further analysis at bivariate and multivariate level, only cultural practices, Alcoholism and drug abuse, and sexual gender-based violence were strongly associated with the spread of HIV/AIDS in Kisoro. This could imply that multiple sexual partners and commercial sex

workers could have occurred by chance or were confounders for this particular study.

The findings of this study are comparable with the findings of other studies with specific variations in some risky behaviors. For instance, in a study by Johnson et al, (22), it was revealed that the major HIV risk behaviors were drug abuse, multiple sex partners, and Men who have sex with men(MSM). Similarly, another study by Sonnabend (23) showed that unprotected sex, intravenous drug use, and promiscuity were the major HIV risk behaviors.

In a study by Nagachinta et al, (24), it was found out that lack of knowledge about one's serostatus was a risk behavior and they recommended widespread HV screening. Both Studies by Buregyeya et al, (25) on the prevalence of HIV risk behaviors among employees of a sugar factory in Uganda and the Uganda Demographic Health Survey (11) revealed that the commonest HIV risk behaviors were multiple sex partners and low condom use.

The above studies showed different findings regarding HIV risk behaviors. They also differed from the main findings of this study. Some of the factors that were found to be significant in the above studies were founder to confounding factors in this study. The probable explanation for the difference in the findings of this study and other studies could be based on the differences in the geographic location of the studies, community exposure, and behaviors as well as study designs. What is a risk behavior for HIV transmission in one area may not necessarily be in another area. Effectiveness of the strategies put in place to control the spread of HIV/AIDS in Kisoro district

This study revealed that the majority of the respondents agreed to the fact there were strategies in place to control the spread of

HIV/AIDS in the Kisoro district. And the majority of the respondents expressed that the strategies were effective while only a few said they not effective. The possible explanation for this discrepancy between the respondent's view and the situation on the ground (HIV still rising) could be based on the fact that the interventions were not targeting the issue of cross-border movement as a driver of the epidemic. From the qualitative aspect of this study, the following were the commonest HIV/AIDS prevention and control strategies in Kisoro district known to the respondents;

Sensitization programs on radios, social gatherings and use of village health teams, promotion of condom use, PMTCT programs, Safe male circumcision, and ART services. The findings of this study were in line with recommendations of MOH Uganda (26) National HIV prevention strategy which indicates that PMTCT, HCT, ART for prevention, Safe male circumcision, condom use and treatment of sexually transmitted infections as well as behavior change communication as the major and effective HIV/AIDS control strategies.

These study findings are also comparable with that of Hogan et al, (27) and that of WHO (28) which revealed that the commonest and effective HIV/AIDS control strategies were Mass media campaigns, HIV counseling, and testing, ART services, PMTCT. Another study by Puren and colleagues (29) reported Safe male circumcision as a strategy to control the spread of HIV/AIDS. This is in line with the finding of this study.

In a study by Staug et al, (30) and that of France (31) it was revealed that one of the major and effective HIV/AIDS prevention strategies was poverty eradication by enhancing people's income through the introduction of income-generating activities. These studies finding are also comparable with

the finding of this study since some respondents in the qualitative aspect suggested enhancement of household income as a strategy to limit peoples' movement across borders that increases their vulnerability to the acquisition of HIV/AIDS.

The difference in the findings of this study compared to other studies elsewhere regarding HIV/AIDS prevention and control strategies could be explained by the differences in the interests and priorities of different implementing partners of funding agencies of these interventions in different areas. This is because, in Uganda, most of the HIV/AIDS prevention and control strategies are funded by external agencies. Implementing partners tend to follow the activities highlighted in their proposals on which basis they receive external funding. They are therefore forced not to support any interventions that are not captured in their proposals even when they are convinced that they are vital as far as HIV prevention and control are concerned. This, therefore, explains why there are different HIV/AIDS strategies in different areas due to different implementing partners.

Conclusions

- Based on the findings of this study, factors for cross-border movement of people to and from Kisoro district are trade, seeking health care, employment, and conflicts in DRC Congo since they showed significance at the multivariate level of analysis.
- There is a relationship between the movement of people across borders and the spread of HIV/AIDS in the Kisoro district.
- Cultural practices, alcoholism/drug abuse, and sexual gender-based violence are the commonest HIV high-risk behaviors among border communities in the Kisoro district.
- Different areas have got different HIV risk behaviors or drivers of the HIV epidemic.

This is because the above risk behaviors revealed by this study are not necessarily the findings of other studies.

- According to the findings of this study, it can be concluded that there are proven HIV/AIDS prevention and control strategies in the Kisoro district but the increasing trend of HIV/AIDS is due to a cross-border movement that was never considered as a driver of HIV epidemic until this study.
- The presence of effective HIV/AIDS strategies in an area depends on the interest and priorities of the Funding agency.

Recommendations

- There is a need for the Kisoro district local government to intensify advocacy and mass sensitization against HIV high-risk behaviors since they showed significance in the spread of HIV/AIDS in the district.
- There is a need for the Central government of Uganda and Kisoro district local government leaders to engage their counterparts in DRC Congo and Rwanda in dialogue meetings to find lasting solutions to the increasing trend of HIV/AIDS arising from cross-border movement of people.
- There is a need for the government of Uganda and Kisoro district local government to improve peoples' household income since this may limit their movement to seek employment opportunities elsewhere which puts them at risk of acquiring HIV as a result of staying away from their partners.
- There is a need for the Kisoro district local government to consider introducing border-specific HIV/AIDS prevention control measures such as condom dispensing points, free HCT, and ART services at the border areas.
- Kisoro district local government should also institute some by-laws and ordinances

targeting the major drivers of the HIV epidemic in the district such as cultural practices, alcoholism, and drug abuse

- Much as this study did not concentrate on the role of poverty on the spread of HIV/AIDS in Kisoro, it came out eminently; we, therefore, recommend that future studies could target this area.
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Conflict of interest: Nil

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