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Know your HIV Epidemic (KYE) in Somali Region, Ethiopia

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Abstract

Background: *In 2016, an estimated 718,500 of people living with HIV and about 19,743 AIDS related deaths has occurred in Ethiopia. The current national HIV/AIDS strategic plan [2015-2020] capitalizes on implementing targeted prevention interventions to reach those at risk and vulnerable population groups and preparing district based epidemiologic synthesis using routine data.*

Methods: *Know Your Epidemic (KYE) method was used to come up with know your epidemic synthesis. Primary and secondary data also used for triangulation of the synthesis in order to identify an updated picture of the HIV epidemic and its drivers of epidemic in Somali region, Ethiopia. The study was conducted in Somali region between May to August 2017.*

Result: *HIV epidemic scenario in Somali region is relatively low (0.75%) in prevalence according to 2017 EPHI projection. However, it is more heterogeneous among zones, ranges from 6.88% in Sitti zone to 0% in many zones in Somali region, and even more heterogeneous between districts, ranging from 18.86% in Dekasuftu to 0% in many districts. It also various among settings: rural (3.8%) highest figure nationally and Urban (3.5%) according to ANC sentinel surveillance.*

Majority of the data shows increasing HIV prevalence trends in Somali region over time in both sex groups.

Somali region has responded the diseases both institutionally and program levels, which is more centralized.

Conclusions: *The overall HIV prevalence in Somali region, Ethiopia is relatively low (0.75%, 2016 EPHI) but more varied significantly among zones and districts.*

Keywords: *Drivers of HIV epidemic, Know epidemic.*

Introduction

In the World, the number of people living with Human immune deficiency virus (HIV) continues to increase to 36.7 million. At the same time, there are still an unacceptably high number of new HIV infections and acquired immunodeficiency syndrome (AIDS)-related deaths occurring at each year. In 2015, around 2.1 million people were newly infected with HIV and 1.1 million People died of AIDS-related illnesses (UNAIDS, 2016).

The burden varies across countries of the world. In Western and Central Europe and North America, 2.4 million people live with HIV, an estimated 91 000 new HIV infections and 22 000 AIDS-related deaths occur. Whereas 5.1 million people live with HIV, an estimated 300, 000 new HIV infections and 180, 000 AIDS-related deaths occur in Asia and the Pacific. The figure even increase by about 5 times in sub Saharan Africa where 24.5 million people live with HIV, an estimated 1.37 million new HIV infections and 800,000AIDS-related deaths occur (UNAIDS, 2016). In 2016, an estimated 718,500 of people living with HIV and about 19,743 AIDS related deaths occurred in Ethiopia (EPHI,

2016).Moreover HIV prevalence is four times greater among populations that reside within 5km from a main asphalt road compared to those further away(World Bank Global HIV/AIDS Program, 2008).

In Ethiopia, efforts to collect epidemiological data began shortly thereafter the first case detection in the country, and there are many studies from the late 1980s and 1990s reporting prevalence data and risk factors in a number of high-risk groups (Aklilu M, 2001). However, the first epidemiological synthesis of HIV data carried out in 2008 reported that the HIV epidemic in Ethiopia was heterogeneous with marked regional differences and concluded that HIV programs should not be led by national level statistics but instead targeted at districts or communities with higher prevalence. For this reason, know your epidemic (KYE) in Somali region of Ethiopia need to be assessed to come up with tailored HIV/AIDS prevention and control program that addresses the specific vulnerability and risk factors driving the HIV epidemic in the region particularly and national in general.

Justification of the study

National Epidemiological synthesis conducted by Federal HIV Prevention and Control Organization (FHAPCO) in 2008 & 2014 noted that "the HIV epidemic may be less severe, less generalized and more heterogeneous than previously believed, with marked regional variation. The current national HIV/AIDS strategic plan (2015-2020) also capitalizes on implementing targeted prevention interventions to reach those at risk and vulnerable population groups and preparing district based epidemiologic synthesis using routine data(HAPCO, 2014). Moreover, study done in trans-Africa highway shows targeted interventions have significant impact in averting HIV infections (Morris and Furguson, 2006).

Therefore, HIV/AIDS programs should not only be based on national-level statistics, but need to be more focused geographically, and directed to those regions, districts or communities exhibiting higher prevalence rates. So far, KYE and know your response (KYR) studies in Ethiopia conducted in five regions: Tigray (May 2012), Gambella (Feb.2013), Oromia (Nov 2013), SNNP (Nov 2014) and Amhara (July 2015) that put those regions to be in line with the current national HIV/AIDS strategic plan (2015-2020). Therefore, this necessitates conducting Somali region specific KYE.

Study objectives

General objective

The general objective of this study is to assess the dynamics and drivers of HIV/AIDS epidemic in Ethiopian Somali region and to inform the regional HIV prevention response

Specific objectives

1. Identify the distribution of most recent infections (who, when and where), this includes a gender assessment/analysing gender disparity.
2. Establish the factors involved in driving the epidemic in the region, through analysis of behavioural, biological, socio-economic and demographic data.
3. Make recommendations for prevention policy and programmatic action to ensure a stronger and more effective prevention strategy.

Research methods

Study setting

Ethiopian-Somali region is located in the east and southeast part of Ethiopia, with an area and population of 350,000 Km^2 and 5,748,998 respectively. Externally, it has border with Kenya in the South, Somalia in the East, and Djibouti in the northwest. Administratively, Ethio-Somali region consists of eleven administrative zones and two administrative cities with 86% pastoralists and agro-pastoralists lifestyle.

Study design

Know Your Epidemic (KYE)) method was used to come up with know your epidemic synthesis. Primary and secondary data were also utilized for triangulation of the synthesis. The study was conducted in Ethio-Somali region between May to August 2017.

Data collection methods

Quantitative primary study/ data collection

Participatory rapid appraisal (PRA) was conducted by using PRA standard format and its procedure to identify the list of HIVs "hotspots areas", locally relevant most at-risk people

(MARPs) and available interventions/responses for MARPs in the region.

Qualitative

Four [4]focus group discussions (FGDs) and four [4] key informant interviews (KIIs) were conducted at each selected woredas [namely: Jijiga, Errer, Tog-wochalle and Godeworedas] by using standardized tool which was adopted from UNAIDS in each selected high HIV/AIDS epidemic districts/council to identify the determinants/drivers of the epidemic, transmission patterns, sexual mixing, existing prevention efforts; program reach and gaps.

Secondary data sources

Antenatal care (ANC)-based HIV prevalence, voluntary counseling and test[VCT], Provided initiated HIV counseling and test(PIHCT), Anti retro viral therapy(ART), Demographic and health survey(DHS) and prevention mother to child transmission(PMTCT) data were collected from all available sources to identify areas with elevated HIV risk; epidemic heterogeneity, epidemic trends and determinants/drivers of the epidemic.

Ethical clearance

Ethical approval for the study was secured from Jigjiga University (JJU) ethical review board and letter of cooperation from Somali Regional HIV prevention and control organization (RHAPCO) Ethiopia. A verbal consent of all participants interviewed were obtained for the study.

Results

Know your epidemic

HIV prevalence in ethiopian somali region

In 2016, an estimated number of 27,288new HIV infections have occurred in Ethiopia, of which 10% has contributed from Ethio-Somali region (EPHI, 2017). This makes the region to be top four regions with highest new HIV cases currently.

The 2005 and 2011 EDHS was reviewed as it is first and second time included HIV test anonymously, which revealed the HIV prevalence among general population unlike ANC based surveillance. The 2005 EDHS shown that adult HIV prevalence in Somali region was 0.7 % (1.3% among females and 0.0% among males). Whilst it was 1.1% (1.6% among females and 0.4% among males) in Ethiopian Somali region according to 2011 EDHS, which is the lowest next to southern nation nationality and peoples (SNNP) and Oromia regions respectively.

Similarly, the regional adult HIV prevalence is 0.75% in 2016 according to Ethiopian Public Health institute (EPHI) recent estimate that is the third lowest next to Benshangul - Gumuz and SNNPR respectively. Like EDHS data, ANC based HIV estimate in Somali region also shows increasing trends over time, which is consistent with EDHS data. The overall regional HIV prevalence among pregnant women age15-49 has increased from 1.2% in 2005 to 3.8% in 2014. However, the scenario is different when the data is disaggregated by rural and urban location. In urban and rural ANC sites, only Gode Hospital and Erer HC have declining trends (P>0.05), whilst Kabribaya HC shows increasing trends (P> 0.05) in three consecutive surveillance data which is 2009, 2012, & 2014 [table 1.].

The overall HIV prevalence in urban and rural is 3.5% and 3.8% according to ANC round 2014. Rural HIV prevalence (3.8%) is higher than the urban and highest nationally. This may be due to a lack of awareness, misconception about the routes of HIV transmission and ways of prevention, higher FGM (female genital mutilation) practice, Lack of official pastoralist-specific policy and strategy on HIV, the practice of polygamy and window inheritance as study in Somali nomads shows (Omar M and K, 2006) and (CSA, 2016). It may also due to Centralized organizational structure in the study area due to limited budget and partners as our study shows.

"The HIV interventions are often limited to urban areas mainly but the reach of rural and distant communities is very limited, it seems the interventions are condensed around the major cities ignoring the most vulnerable populations who are living outside the cities." KII in Erer & Gode.

HIV prevalence among VCT (voluntary counseling and test) clients by sex and zone in somali region, 2015/2016

The overall HIV prevalence among VCT clients was 2.93%, of which 3.23% is males and 2.61% is females respectively, which is not the case in most settings in the region and the nation. This may be due to low proportion of females do participate voluntary health services like VCT,

family planning and others in the region especially rural part where HIV prevalence is higher because low decision making among females towards these services (table 2.). According to both EDHS and ANC surveillance data reveals being women and age group of 35-49 are most affected or with the highest HIV prevalence population in Ethiopia. Consistently, in Somali region, 25-49 (241, 45.6%) age group is the most affected one flowed by 20-24 (144, 27.3%) and 15-19 (88, 16.7%). (Table 2).

HIV prevalence trends in Somali region based on routine data: ANC, PICHT & VCT, 2012/13 to 2015/16.

The routine data of ANC and PICHT of Somali region shows declining trends over time, whilst VCT data shows similar trends from year 2004/2012 (2.9%) to year 2007/15 (1.1%), and then increased in 2008/16 (2.8/%) (RHB, 2012/13 to 2016/17). This result contradicts both DHS and ANC surveillance result, which shows increasing trends over time. However, Chi-Square test were applied to each of the line graph separately and none of the trend shows significant decline over time (ANC, P=0.6), PICHT (P=0.8) and VCT (P=0.87) (figure.2).

VCT data of 2016/17 shows HIV prevalence is more heterogeneous among districts in Somali region, ranging from 18.86% in Dekasuftu to 0% in many districts. Dekasuftu, Afdem and Karamara Hospital areas are 5, 4, and 1.6 times higher the regional prevalence. This may be due to location, which is adjacent to Nageleborana, Oromia [hotspot woreda] in Dekasuftu. In Afdem wodera, there was Chinese railway construction station where many daily laborers from different regions of Ethiopia used to live together and share every possible risk behavior [figure.3].

High HIV prevalence in Dekasuftu and Afdem may also be due to lack of awareness, misconception about the routes of HIV transmission and ways of prevention, higher FGM practice, Lack of official pastoralist-specific policy and strategy on HIV, the practice of polygamy and window inheritance as study in Somali nomads shows (Omar M and K, 2006) (CSA, 2016). Moreover, high-risk sexual activity like high partner change rate, low condom use, casual and transactional sex and engaging with female sex workers which are major drivers of the epidemic in Oromia region may also are the drivers of the epidemic in hotspot districts of Somali region as one key informant said

"*One of the major factors that facilitate the increase of HIV/AIDS is lack of acceptance and believe of the existence of HIV/AIDS. Somali People don't have a solid knowledge about the disease. Unsafe sex is common among the youth and unmarried people because they do not use condom at all*". KII Gode.

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Table 1. Trends of HIV prevalence (%) at urban (97-2014) and rural (2002-2014) ANC sites

Region	Site name	97	99	2001	2002	2003	2005	2007	2009	2012	2014
Somali	Over all	-	-	-	-	-	1.2	-	2.8	-	3.8
Urban	Jigjiga Hosp	12.7	-	19	15.7	7.3	5.5	4.9	3.9	7.2	4.8
	Gode Hosp	-	-	-	5.6	2.5	1	3.8	5	4.2	2.4
Rural	Kalafo HC	-	-	-	1.8	-	-	-	4	5.7	4.6
	Awbare HC	-	-	-	-	-	-	-	2	2.5	1.8
	Kebrebaya HC	-	-	-	-	-	-	1.7	1.5	4.4	4.9
	Erer HC	-	-	-	-	-	-	6.3	5.9	3.2	3.1
	DoloOdo HC	-	-	-	-	-	-	-	3	5.1	4.7

Source: EPHI, 2014

Table.2: Voluntary testing and counseling clients by gender and zonal distribution, annual report Somali region, Ethiopian fiscal year 2008 (2016/2017)

Region	Male			Female			Total		
	Tested	HIV^{+ve}	%	Tested	HIV^{+ve}	%	Tested	HIV^{+ve}	%
Afder	352	0.00	0.00	419	0.00	0.00	771	0.00	0.00
Dollo	162	0.00	0.00	99	0.00	0.00	261	0.00	0.00
Fafan	2932	76	2.59	2729	58	2.13	5671	134	2.36
Jarar	328	2	0.61	197	0	0.00	525	2	0.38
Korehe	193	0	0.00	240	0	0.00	433	0	0.00
Liban	1758	116	6.60	1681	82	4.88	3439	198	5.76
Nogob	191	0	0.00	145	0	0.00	336	0	0.00
Shebele	2165	7	0.32	1937	15	0.77	4102	22	0.54
Sitti	1279	101	7.90	1221	71	5.81	2500	172	6.88
Total	9360	302	3.23	8668	226	2.61	18038	528	2.93

Source: Ethio-Somali RHB)

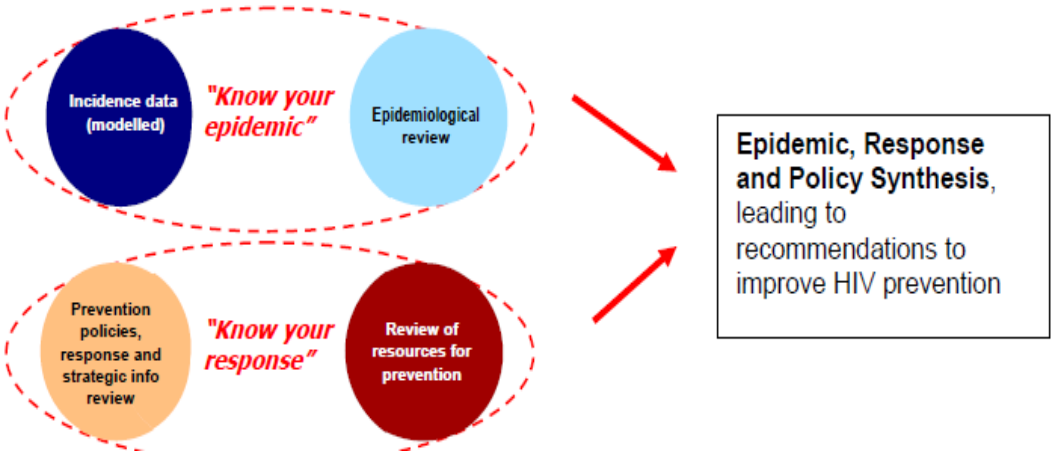

Figure 1. Conceptual framework for KYE/KYR synthesis

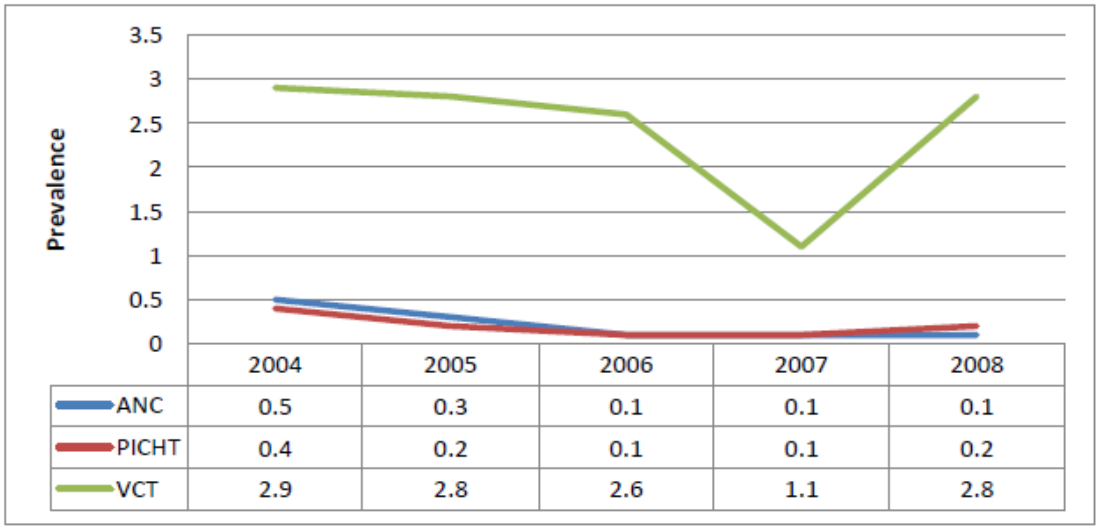

Figure.2. HIV positivity rate (%) trends among ANC, VCT and PICHT clients by year, somali region, ethiopia, EFY 2004 up to 2008(2012/13 to 2015/16)

Source: Ethio-Somali RHB

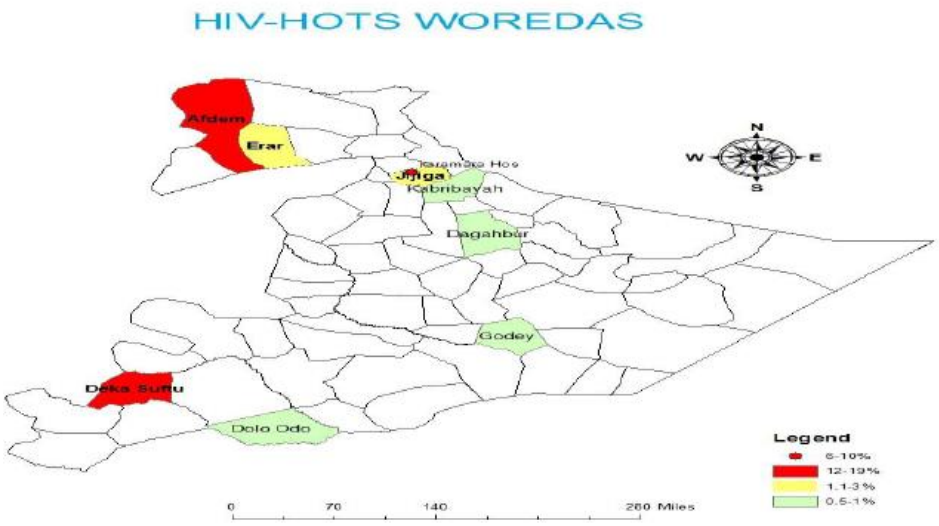

Figure.3. HIV hotspot districts in ethiopian somali region based on VCT data 2016/17

Risk Population Groups

Exhaustive discussion and interviews with main HIV prevention and control partners in the region, the following are important key population for HIV due to their exposure to unsafe sexual relations and vulnerability for financial and livelihood demands. These groups include:

Female commercial sex workers [FSWs], KII findings show FSWs are high risk for HIV infection. One key informant said

"FSWs are always involved in sexual intercourse with different customers; some of these customers prefer sex without condom by paying double the price." **KII RHAPCO.**

Consistently the most FSWs clients use condom for the first few days but not later on as study on MARPs in Jigjiga town shows(PSI, 2013). Moreover; FGDs shows FSWs in Somali region are more concerned about HIV and practice condom regularly for paying clients but not nonpaying partners as one discussant said

"*I always go out with my condom and use it consistently in any situation, however; I don't use condom when it comes to my non-paying partner as he is going to be the father of my children.*

However mostly the term of non-paying sex relationship is short which by itself promotes the risk and vulnerability of HIV infection as one of the discussants said

"I may have many more nonpaying friends with in short period of time as a friend of mine today may become a friend of another FSWs in the next day." FGD Jigjiga. Similarly, one key informant said, "*HIV risky groups include commercial sex workers who are very dominant in the town because the condom distribution is very low among these groups".*

Long truck drivers, long distance truck drivers have multiple sex partners, live away their family and visit FSWs more frequently particularly in developing countries (Morris and Furguson, 2006, Jamal Nasir et al, 2015). Consistently, this group are clients of FSWs as study on MARPs in Jigjiga found (PSI, 2013). FGDs of the current study shows similar finding, "I have many paying sex partners' students, long truck drivers, soldiers and many others." FSWs in Jigjiga.

Mobile female merchants, highly mobile population are drivers of HIV epidemic in Ethiopia as they exhibit high sexual risk behavior (Shebbir I and Larson CP, 1995) Consistently, being mobile population may increase the likelihood of HIV infection (Talile Asres Gebremariam et al., 2008). Moreover, "Mobile female merchants are may be risk for HIV infection in Somali region as they stay away from their homes and go risk area like Wujale, Kenya and Djibouti frequently." **KII Wujale.**

University students, Risk behavior practices like drinking alcohol, chewing Khat and multiple

sexual partners is quite common among campus students compared to the general population as study conducted in Jimma University revealed (Eshetu Girma et al., 2013). Consistently one discussant of current study said

"Jig jiga university female students overtake our paying sex partners mainly Saturday and Sunday. Clients of sex workers prefer university students as they are very cheap in price and they don't go out with condom like us frequently."

FSW in Jigjiga. Social media facilitate multiple sex for campus students as one discussant said

"in the past there was no internet, media, electricity, mobile phones and other social medias, but now every young boy and girl are following this medias from which they learn a lot of things like pornographic films, provocative messages and so on, that's why they start dating and sexual intercourses early." **University student.**

Discordant couples, one key informant said, "The most common mode of HIV transmission in the host community is through marriage (from husband to wife and vice versa) as HIV screening practice does not exist during marriage." **People living with HIV, Jigjiga**. This finding is consistent with a study conducted in Somalia (IOM., 2012).

Daily/seasonal laborers, FGDs conducted as part of this study show mobile workers are regular clients of FSWs, and use condom rarely due to poor accessibility and awareness

"Condom *is not available in most of the places in Jigjiga town like hotels, local drinking establishments, shops and even most of the pharmacies.*" **Daily laborer in Jigjiga**.

Bajaj drivers/School dropout youth (Looxtuur), School youth populations whom we call in Somali (Looxtuur) is one of the locally relevant MAPRs for HIV due to their exposure in unsafe sexual relations and vulnerability for financial and livelihood demands according to KIIs.

"*Previously we used to label drivers and soldiers to be high risk group for HIV infection. Conversely school dropout youth have higher risk of HIV infection than both drivers and soldiers in Gode town as they do visit FSWs regularly and they don't have idea about HIV*." "*In another way most of school dropout youth in Somali region are Bajaj drivers who expose many risk behaviour like Khat chewing, migrate to other towns, multiple sex partners and spent their leisure time at Khat settings according to one local Bajaj driver who were interviewed*." KII HIV expert.

In addition to this Bajaj drivers in the study area are paying clients of FSWs (PSI, 2013).

People who work in Khat settings and Butcher, The FSWs participants on FGD suggested, "Mostly female sex workers are spending their day time by using khat and shisha from the shisha rooms. Another FSW discussant said, "Our most nonpaying sex partners are butchers and Khat setting friends respectively." FGD Gode.

Wife/husband successors, the practice of wife inheritance by the brother of a woman's deceased husband was mentioned repeatedly in KIIs and FGDs as being prevalent in Ethiopian Somali region.

"In Somali communities there are rigid cultural believes including when the husband is dead, the wife should marry one of his brothers or his immediate relatives without any preconditions." KII.

Drivers of HIV epidemic in Somali region, Ethiopia

Based on our study findings the following are the possible major drivers of epidemic in the study area:

Social factors

Poor screening, expressions like no HIV in Somali peoples and no HIV transmission through marriage relationship, high mobility and discordant couples.

Cultural factors

High rate of harmful traditional practices like FGM, wife inheritance/husband inheritance, polygamy.

Behavioral factors

Refusal/poor attitude of condom utilization, poor knowledge of HIV transmission, poor screening, high-risk sexual activities, substance abuse like Khat/Alcohol.

Livelihood factors

Being pastoralist, emerging region/urbanizing and being at boundary line

Discussion

Source of Data

Ethiopian demographic and health survey (EDHS) 2005-2016, ANC surveillance, PRA findings, Ethiopian public health institute (EPHI, 2017) and Routine investigation data are the main sources of this study. In addition to this few MARPs survey and blood donor data is also accessed to get insight about HIV epidemic dynamics in the study area.

Facts of HIV epidemiology in Somali region

What does exist data show that over all HIV prevalence in Ethio-Somali region is increasing over time in both sex groups. The regional HIV prevalence was 0.7 % (1.3% among females and 0.0% among males) and 1.1% (1.6% among females and 0.4% among males) according to 2005 and 2011 EDHS respectively. On the other hand, overall HIV prevalence among pregnant women (15-49) in the region has increased from 1.2% in 2005 to 3.8% in 2014. This contradicts the declining national HIV prevalence over similar duration and data. Moreover, published document also shows increasing trends of HIV prevalence (0.1% in 2010, to 0.2% in 2013) in the study area(Yusuf and Alemayehu., 2016).The possible reasons of HIV prevalence increase overtime in the study area are

1. Socio- cultural factors such as high (29%) proportion of polygamy practices [the highest] as EDHS, 2016 found, wife and husband inheritance, discordant couple, and believe of no HIV in Somali communities.
2. Cultural practices such highest (99%) proportion of FGM practices according to EDHS, 2016.
3. Behavioral risk factors like lowest proportion of HIV screening (9% by female and 8% by male) and knowledge of HIV prevention (with 10% of women and 38% of men) according to EDHS, 2016.

On the contrary, regional routine trends data from 2012 to 2016 (ANC, PICHT & VCT) shows slightly decrease of HIV trends over time in Somali region (Ethio-Somali RHB).

Concisely, HIV epidemic scenario in Somali region is relatively low prevalence (0.75% and 1.1%) by 2017 EPHI projection and 2011 EDHS respectively. However, it is heterogeneous among zones, ranges from 6.88% in Sitti to 0% in many zones in Somali region, and even more heterogeneous between districts, ranging from 18.86% in Dekasuftu to 0% in many districts (VCT, 2016). This finding is consistent with study conducted in Tigrai region, 2012 (ranging from 0.4% to 2.2%) and FHAPCO finding in 2008.

Moreover, our study shows HIV prevalence in Somali region varies widely between rural (3.8%) and urban (3.5%) according to 2014 round ANC surveillance report. Reportedly similar finding is documented in routine data where HIV prevalence in Dekasuftu is 18.86% and 6% in Karamarra hospital (RHB, 2012/13 to 2016/17). This contextual variation is may be due to different distributions of MARPs and disparity in HIV prevention among the zones and districts. In Somali region, 25-49 (241, 45.6%) age group is the most affected one flowed by 20-24(144, 27.3%) and 15-19 (88, 16.7%).

Despite relatively low HIV prevalence in the region, 10% of national new HIV infection in 2016 is contributed from Ethio-Somali region (EPHI, 2017). This makes the region to be top four regions with highest new HIV case currently.

Weakness of the study

Incidence data

Due to limited data on HIV prevalence, population size estimates and specific behaviors (condom use and frequency of HIV risk exposure) of key populations particularly in the study area, it has not been possible to conduct incidence modeling to estimate where the new HIV infections would occur and the magnitude of incident infections(figure 1).

Conclusion

Based on our study findings the following points are concluded

1. The overall HIV prevalence in Ethio-Somali region is relatively low (0.75%, 2016 EPHI) but more varied significantly among zones and districts.
2. When it comes to incident, the Ethio-Somali region exhibits high new HIV infection rate: 10% of the national (EPHI, 2016).
3. HIV prevalence is higher among females than males and highest among 25-49(241, 45.6%) age group in the region which is in line with national
4. Despite low prevalence of HIV in Somali region, existing data shows increasing

trends of HIV over time in both sex groups which is not in line with national trends.

5. Existence of high risk socio-cultural (wife/husband inheritance & FGM) and behavioral (very poor HIV screening) factors due to poor mobilization and awareness creation in the study area.

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Author's contribution

Ahmed Tahir has contributed the design, analysis and drafted the article particularly know your epidemic part. Ahmed T. has also produced the extract. Binyam B. has contributed design of know your epidemic. Mawlid Abdirahman, Dr. Abdikadir Mohamed and Abdulahi Haji. have contributed the qualitative part and edited the article. All read the article and approved.

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