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Prevalence of HIV/AIDS in West Hararghe Zone, Oromia Regional State, Ethiopia from 2016 – 2019

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ABSTRACT : Human immunodeficiency virus (HIV) is the virus that causes acquired immune deficiency syndrome (AIDS). Retrospective study on HIV prevalence was conducted in ten health institutions in West Hararghe Zone, Oromia Regional State, Ethiopia. The aim of this study was to assess the prevalence of HIV/AIDS from 2016 - 2019. All the data were collected from the HIV voluntary counseling and testing registration log book and the quarterly reporting format of the health institutions. A total number of 113,242 individuals were tested for HIV in 10 Health institutions. According to the present study, 1,005 of the study participants were HIV positive among this, 43.58% of the HIV positive individuals were males and 56.42% were females. The assessment of the current retrospective clinical data record showed 0.89% average annual prevalence of HIV/AIDS and the trend shows that HIV prevalence had slight increase within the study period. The data showed that the disease was more prevalent in the age groups of 15-49 years. Thus, health professionals in each health institution should design programs on comprehensive education on sexual and reproductive health to protect people from situations that would place them at risk of HIV infection.

Keywords/Phrases: - Health institutions, HIV/AIDS, Prevalence, West Hararghe zone

INTRODUCTION

The global pandemic of HIV/AIDS has turn into one of the most critical public health emergencies of this century. Initial reports of HIV/AIDS date back to 1981 and different data propose that HIV/AIDS has existed for at least several decades. Both forms of the human immunodeficiency virus (HIV type 1 and type 2) are retroviruses capable of causing fatal HIV/AIDS infection (Schwartz and Nair, 1999).

World Health Organization (2020) reported that, there were an estimated 38.0 million people living with HIV/AIDS at the end of 2019. HIV/AIDS is a leading cause of death among women of reproductive age. Gender inequalities, differential access to service and sexual violence increase woman vulnerability to HIV/AIDS; especially younger women are biologically more susceptible to HIV/AIDS. Differences in the number of new HIV/AIDS infections between men and women are more pronounced at younger ages, in 2016 and new infections among young women (aged 15–24 years) were 44% higher than they were among men in the same age group (UNAIDS, 2017).

In 2017, an estimated 300,000 men in sub-Saharan Africa died of HIV/AIDS related illnesses were reported when compared to 270, 000 women. Eastern and southern Africa was remains as a region most affected by the HIV/AIDS epidemic that accounting for 45% of the world's HIV infections and 53% of people living with HIV/AIDS globally (UNAIDS, 2018).

According to the report of FHAPCO (2018), in Ethiopia, the annual number of HIV infected people showed declining trends since 2002. For instance, HIV/AIDS prevalence rate decreased from 3.3% in 2000 to 0.9% in 2017, and AIDS -related deaths from 83,000 deaths in 2000 to 15,600 in 2017. On the other hand, HIV leftovers as a major public health apprehension in Ethiopia with a prevalence of 0.9% ranging from 0.1% to 4.8% among people aged 15–49 years in 2018. As indicated by Getiye Dejenu *et al*., 2019, in 2005 Ethiopian Demographic and Health Surveys (EDHS), in general the overall prevalence of HIV was 1.4%. The prevalence with women and men was 1.9 and 0.9% respectively. Based on Regional category, Gambella (6.0%), Addis Ababa (4.7%), and Harari (3.5%) had the highest prevalence.

In the 2011 EDHS report, the prevalence of HIV of the total population, women and men was 1.5, 1.9 and 1.0% respectively. The highest prevalence of HIV was reported from Gambella (6.5%) and

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followed by Addis Ababa (5.2%) and Dire Dawa (4.0%). According to 2011 EDHS report, HIV prevalence shows a slight increment but, the 2016 EDHS survey shows decrease in HIV prevalence, So far there is no a published data on the prevalence of HIV/AIDS in West Hararghe Zone. Thus, the overall objective of this study was to assess the prevalence of HIV/AIDS in West Hararghe Zone, Oromia Regional State, Ethiopia.

MATERIALS AND METHODS

Description of the study area

The study was conducted in West Hararghe Zone, Oromia Regional State between September 2018 and February, 2019. West Hararghe Zone is located in the eastern parts of Ethiopia about 316 km far from Addis Ababa (Figure 1). Four Hospitals and eighty-three health centers are under West Hararghe Zone Health Office. Based on the 2007 Census conducted by the Central Statistical Agency (CSA), this Zone has a total population of 1,871,706, an increase of 47.16% over the 1994 census, of whom 958,861 are men and 912,845 women; with an area of 15,065.86 square kilometers, West Hararghe has a population density of 124.23. While 160,895 or 9.36% are urban inhabitants, a further 10,567 or 0.56% are pastoralists. A total of 395,127 households were counted in this Zone, which results in an average of 4.74 persons to a household, and 380,019 housing units. The three largest ethnic groups reported were the Oromo (90.12%), the Amhara (7.24%) and the Somali (1.26%); all other ethnic groups made up 1.38% of the population. Afaan oromo was spoken as a first language by 89.47%, Amharic was spoken by 8.82% and Somali by 1.2%; the remaining 0.51% spoke all other primary languages reported. The majority of the inhabitants were Muslim, with 88.05% of the population having reported they practiced that belief, while 11.11% of the population professed Ethiopian Orthodox Christianity. Among the different health institutions found in this zone, Bedessa, Teyfe, Boke xiqo, Mechara Kumona, Kuni, Mi'esso, Hirna health centers, Chiro and Gelemso Hospitals were the study site.

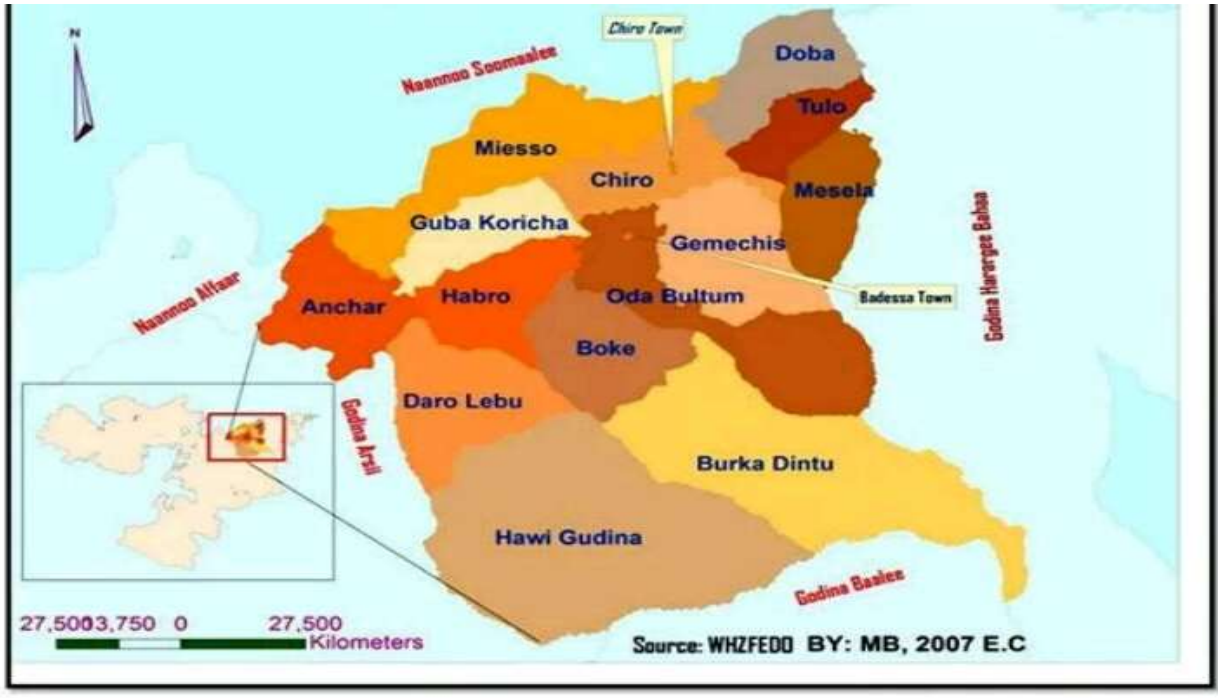

Figure 1. Map showing the study area (adopted from the Ethiopian GIS association, 2007 E.C).

Study design

From four hospitals and eighty-three health centers found in the zone two hospitals and eight health centers were selected for this study. The technique of selecting health institutions for this study was a purposive method (availability of a well-recorded data was the major criteria for the selection of the above mentioned ten health institutions). The purposive method was preferred because of proximity of the areas, ease of access and availability of well-recorded data. The study was carried out based on quantitative data that collected from the ten health institutions in the ten woredas out of the 17 woredas. Retrospective data was collected by tally method from the "Voluntary Counseling and Testing Registration Log book" and from the quarterly reporting formats of the health institutions.

Study population

Resident populations aged above six months who were visiting the ten health institutions (two hospitals and eight health centers) and tested for HIV were subject for this study.

Data collection and procedure

The permission letter obtained from the Department of Zoological Sciences was submitted to West Hararghe Zone Health Office and this Office send a message to woredas' Health offices to support this study. After permission, secondary data was collected from the Voluntary Counseling and Testing Registration Log Book and from the quarterly reporting formats of the health institutions.

Data analysis

The retrospective data entry and analysis was performed using the statistical package for Social Sciences of windows SPSS (version 23.0). The retrospective data was collected and subjected to descriptive statistics, using average values and percentiles (prevalence rate). The percentage and total HIV infected individuals tested at ten health institutions of West Hararghe Zone were expressed in the form of figures and tables.

Data Quality Assurance

The completeness of the Voluntary Counseling and HIV Testing Registration Log Book and the quarterly reporting formats of the ten health institutions were first assessed to ensure the quality of data. Then, data collection format sheet was prepared and used for data recording. The investigators performed the overall process of data extraction. Sample with complete data was selected and checked daily for accuracy, completeness, and consistency. Finally, the administrator of each health institution confirmed the correctness of the data extracted from Voluntary Counseling and HIV Testing Registration Log Book and the quarterly reporting formats of the health institutions.

Ethical clearance

This study was conducted after obtaining the Permission letter from Department of Zoological Sciences, Addis Ababa University and West Hararghe Zone Health Office to use the described retrospective HIV/AIDS data.

RESULTS

Prevalence of HIV in the study sites

Within the 4 years (2016-2019) in ten health institutions of West Hararghe Zone, a total of 113, 242 individuals were tested (44,853 males and 68,389 females) and 1,005 of them were HIV positive (438 males and 567 females) and the average annual HIV prevalence rate of the West Hararghe zone was 0.89 % (Table 1).

Number of individuals tested for HIV in the study area (in the ten health institutions)

Among ten health institutions, the numbers of individuals tested at Gelemso hospital were higher than the other health institutions. In addition, the numbers of females tested for HIV at this hospital were greater than the number of males.

HIV prevalence rate in the study site

In this study from ten health institutions, the HIV prevalence rate was higher in Boke xiqo (4.96%) when compared with other health institutions. In terms of HIV prevalence, Hirna (3.56%) and Mechara (3.45%) Health Centers were the second and third, respectively (Figure 3).

Table 1. Prevalence of HIV in the study Area

Health institution	Total number of screened individuals		Number of HIV positive individuals		Percent of HIV positive
	M	F	M	F	
Gelemso Hospital	23883	45874	60	95	0.22
Chiro Hospital	3223	2890	51	80	2.14
Bedessa health center	1477	1436	30	37	2.3
Teyfe health center	340	443	8	15	2.94
Boke Xiqo health center	302	262	15	13	4.96
Machara health center	415	482	14	17	3.45
Kumona health center	3662	5591	33	45	0.84
Kuni health center	4462	4408	36	54	1.01
Mi'esso health center	3106	3635	69	71	2.10
Hirna health center	3983	3368	122	140	3.56
Total	44853	68389	438	567	0.89

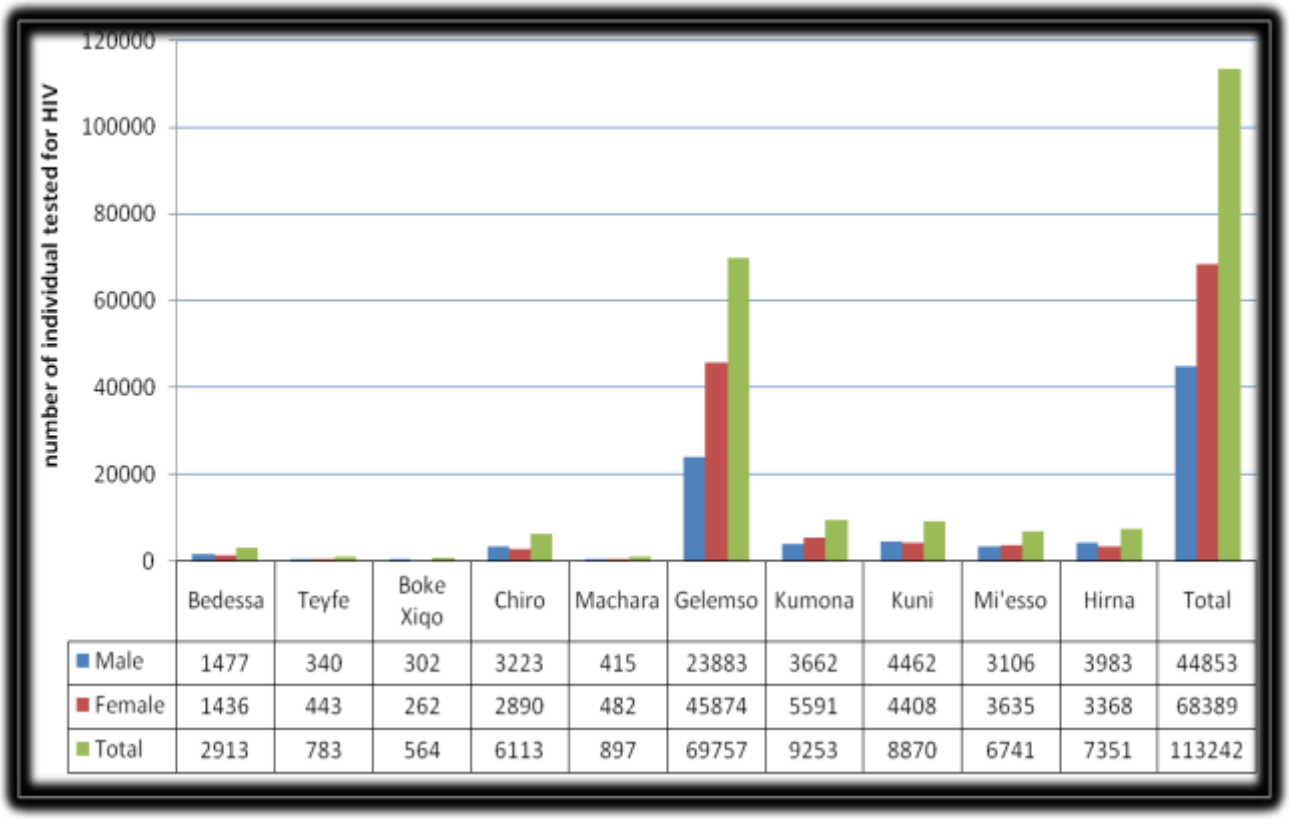

Figure 2. Number of individuals tested for HIV in ten health institutions.

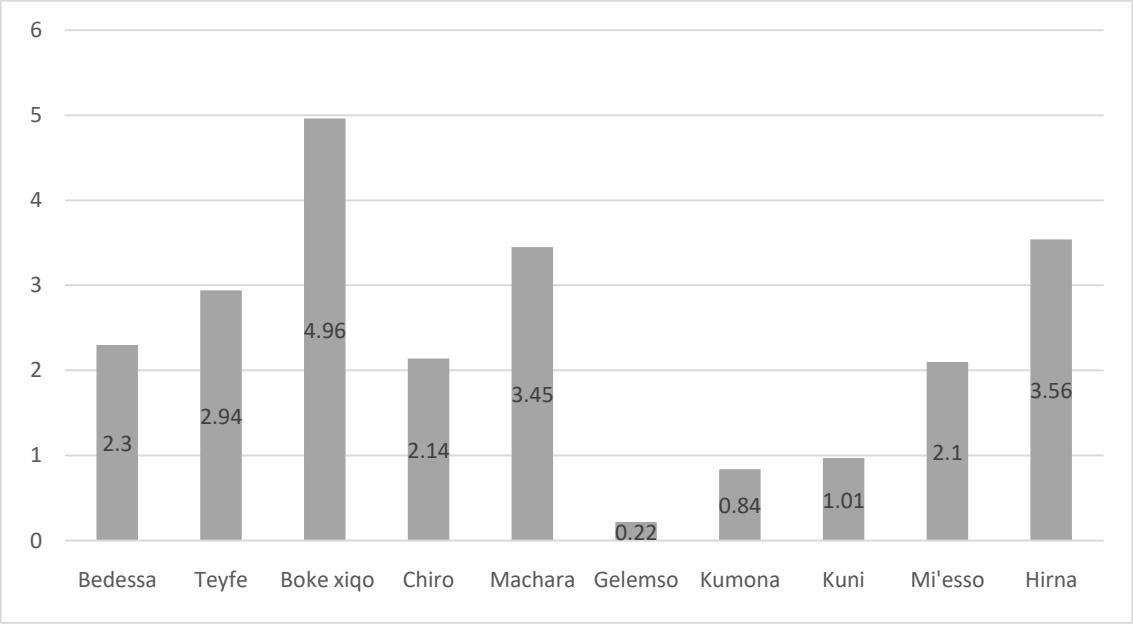

Figure 3. Prevalence rate of HIV in the study site

Prevalence of HIV cases in relation to sex and age

Table 2 shows the number of confirmed HIV cases by sex over the past 4 years. Out of 1,005 confirmed HIV cases, 438 (43.58%) and 567 (56.42%) were reported in males and females, respectively, with a female to male ratio of 1.29. For each year, the numbers of HIV-positive females were higher than that of males. Among different age groups in both sex categories, the individual mostly affected by HIV were found to be from 15-49.

Annual trends of HIV Prevalence in West Hararghe Zone

The annual trends of HIV prevalence of the four years clinical data records of voluntary counseling and testing (VCT) of ten health institution shows that 113, 242 individuals were screened and 1,005 of them were HIV positive. The percent of HIV positivity shows slight increment (Table 3).

Table 2. Prevalence of HIV cases in relation to sex and age

Year	Sex	M				F				
	Age	6-14 months	15-30	31-49	≥50	Total	6-14 months	15-30	31-49	≥50	Total
2016		11	44	37	11	103	13	60	45	17	135
2017		5	44	41	12	102	9	59	55	21	144
2018		8	44	41	11	104	19	54	49	15	137
2019		6	54	48	21	129	4	64	57	26	151
Total		30	186	167	55	438	45	237	206	79	567
Average		7.5	46.5	41.75	13.75	109.5	11.25	59.25	51.5	19.75	141.75

Table 3. Annual trends of HIV Prevalence in West Hararghe Zone (2016-2019).

Year	2016		2017		2018		2019	
Gender	M	F	M	F	M	F	M	F
Number of HIV screened individuals	10351	18524	9337	17344	11242	16160	13923	16361
Number of HIV positive individuals	94	129	97	142	112	131	135	165
Total number of HIV positivity	223		239		243		300	
Percent of HIV Positivity	**0.91**	**0.70**	**1.03**	**0.82**	**1.0**	**0.81**	**0.97**	**1.83**

Individual using ART in Chiro and Gelemso Hospital

Table 4 shows a total number of 2,880 individuals were using ART in the Chiro Hospital and 2,327 in Gelemso Hospital. The clinical data obtained from the antiretroviral treatment (ART) department of Chiro and Gelemso Hospital, shows the annual trends of people using ART from January 2016 to June 2019 (table 4). The number of people using antiretroviral treatment (ART) in Chiro and Gelemso Hospital increases from 650 in 2016 to 810 in 2019 and 574 in 2016 to 594 in 2019, respectively.

Table 4. Number of HIV Patients using Antiretroviral Treatment in Chiro and Gelemso Hospital

Year	2016	2017	2018	2019	Total
Number of individuals using ART(Chiro Hospital)	650	741	679	810	2,880
Number of individuals using ART(Gelemso Hospital)	574	584	575	594	2,327

DISCUSSION

The average annual HIV prevalence rate of the West Hararghe zone was 0.89. This prevalence rate is less than the overall prevalence of HIV in Ethiopia that were 1.4, 1.5 and 0.9 in 2005, 2011 and 2016 respectively (Getiye Dejenu *et al*., 2019). Over a period of 4 years (2016-2019), a total of 113, 242 individual were tested for HIV in ten health institutions at the study area. Among this, the number of males and females were 44,853 and 68, 389 respectively (Table 1).

The numbers of HIV positive individuals in this study were 438 (43.58%) males and 567 (56.42%) females, the prevalence of HIV was higher in a female than male and it is in conformity with the study conducted by Tadele Girum *et al*. (2018) that reported HIV was 1.62 times more prevalent among adult women than men. HIV prevalence among women and men aged 15-49 in Ethiopia is 0.9 percent (CSA and ICF, 2018).

In the current study, the highest prevalence of HIV was observed at Boke xiqo (4.96%), Hirna (3.54%) and Machara (3.45%) health center while the least prevalence was observed in Gelemso hospital (0.22%). Among adults' ages 15-64 years in urban Ethiopia, prevalence of HIV varies geographically, ranging from 0.8% in Ethiopian Somali region to 5.7% in Gambella region (EPHI, 2020).

In our study, the highest rate of HIV positive individuals was in the age groups of 15-49 (Table 2). This finding is congruent with similar studies from several HIV endemic areas of Ethiopia, which reported a high HIV prevalence in this age group [Getiye Dejenu *et al*., 2019; Fekadu Alemu, 2014; Tadele Girum *et al*., 2018]. This shows that the virus affected more the productive age groups of the community than other age groups.

In the present retrospective data, HIV prevalence trend shows slight increase in the past 4 years (2016 - 2019). In Ethiopia, the annual number of HIV infected people showed declining trends since 2002. HIV prevalence rate decreased from 3.3% in 2000 to 0.9% in 2017. However, HIV remains a key public health concern in Ethiopia with a prevalence of 0.9% ranging from 0.1% to 4.8% among people aged 15–49 years in 2018 (FHAPCO, 2018).

In the current study, when the prevalence of HIV (0.89%) was compared with the prevalence of HIV at Gambella, Addis Ababa, Dire Dawa and Harari it was less. As indicated in the 2016 EDHS survey, the overall prevalence of HIV was found to

be 0.9%, of which 1.2% was with women and 0.6% with men (CSA and ICF, 2018). Regionally, the highest prevalence (4.8%) was from Gambella regional state and followed by Addis Ababa (3.4%). The number of ART user and HIV prevalence in Gelemso hospital was smaller than Chiro hospital.

CONCLUSION

HIV/AIDS is one of the major health problems in West Hararghe Zone. The estimated HIV prevalence rate in the study area was 0.89%. Out of 1,005 HIV positive individuals, 567 of them were females (56.42%) and 438 of them were males (43.58%). Even if the prevalence <1% in total, there are some pockets with high prevalence. Therefore, there is need of targeted selective prevention strategies in population segments and geographies.

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