

# Prevalence of HIV/AIDS and its associated factors among prevention of mother-to-child transmission (PMTCT) service users in Jinka town health institutions, south Omo zone, south Ethiopia

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**Abstract:** Background: According to the latest figures of the United Nations Agency for International Development/World Health Organizations (UNAIDS/WHO) 2007 AIDS Epidemic Update, an estimated 33.2 million people are living with Human Immune deficiency Virus (HIV). There was only 34% coverage for prevention of mother to child transmission. Of the estimated 2.5 million HIV-infected children under the age of 15, well over 90% are thought to have been infected through mother to child transmission. Objectives: To assess prevalence of HIV and its associated factors among Prevention from Mother To Child Transmission (PMTCT) service users from Jinka Town Health Institutions, South Omo Zone. Materials and Methods: one year secondary data was collected retrospectively from the health facilities that were reported PMTCT in that year and analyzed using SPSS statistical package. Results: of a total of 960 clients received PMTCT service during the one year report. Based on the report 3.4% of the pregnant women were affected or sero-positive for HIV. HIV prevalence among counter male partners was 6.5%. There was also missing some components of PMTCT services. Conclusion and Recommendations: HIV is still a major health problem among women of reproductive age. Preventive strategies should aim at partner tracing and risk reduction along full PMTCT program implementation is recommended.

**Keywords:** Prevalence, Mother to Child Transmission, HIV/AIDS

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## 1. Introduction

Prevention of mother-to-child HIV transmission (PMTCT) is still the most effective intervention in fighting new HIV infections. Globally, Human Immune deficiency Virus (HIV) is the leading cause of death and disease for women of reproductive age worldwide and a major contributor to infant mortality among women between the ages of 15 and 44 years (1). Over 60,000 women died from HIV while giving birth in 2008 from a lack of appropriate maternal and HIV/AIDS services (2). In 2009, only 53% of the pregnant women identified as HIV-infected worldwide received any Anti Retro Viral for PMTCT, resulting in approximately 370,000 new infant infections (3).

In sub-Saharan Africa, an estimated 22.5 million

people were living with HIV at the end of 2009, including 12 million women and 2.3 million children. During 2009, an estimated 1.3 million Africans died from Acquired Immune Deficiency Syndrome (AIDS). Almost 90% of the 16.6 million children orphaned by AIDS live in sub-Saharan Africa (4). According to the latest data, significant progress has been made in delivering PMTCT of HIV services in low and middle income countries, however, much work remains to be done (3). Prenatally acquired HIV infection is associated with rapid progression of the disease and death, particularly in resource limited settings (5).

Scale-up of AIDS treatment and PMTCT services is helping to reduce child deaths (6). In Sub Saharan Africa (SSA), mother-to-child-transmission (MTCT) is contributing substantially to rising child mortality and

shortages of human resources, making the quality of care substandard in the worst affected countries (7). Also MTCT remains a challenge in Ethiopia and the percentage of voluntary counseling and testing (VCT) users among pregnant women (PW) attending PMTCT clinic was <10% in 2006 and almost 20% in 2008 (8).

A study from an urban area in Zimbabwe to assess the impact of routine antenatal HIV testing for preventing mother-to-child transmission of HIV found that of the 4551 pregnant women presenting for Ante Natal Care(ANC) during the first 6 months of routine HIV testing, 99.9% were tested for HIV. (9)

A study in Ethiopia that examined the progress and an addressed need in access and utilization of PMTCT service showed that a significant progress had been made in the proportion of pregnant mothers who accepted HIV testing after receiving counseling services (10).

Also another Study conducted in Ethiopia from 2004 to 2009 The proportion of women who received pre-test counseling, testing and post-test counseling among new ANC attendees was 66.3% in 2004 based on the reports from the three sub-cities that started reporting in 2004. In 2005, following the PMTCT programme scale up to the rest of the sub-cities, the counseling and testing utilization dropped to 32.1%. The poor utilization persisted till 2007 when only 50.7% of the new attendees received HIV counseling and testing. The PMTCT programme gained momentum in 2008 when the revised guidelines that incorporated routine opt-out testing offer came into effect. Utilization of HIV counseling and testing increased to 84.5% in 2009. The trend in receiving post- test counseling remained stable at high level across the years which imply that almost all the tested women collected their HIV test result (11).

A study from South Africa revealed that 3% of the pregnant women who were found to be HIV negative in their first HIV testing during pregnancy became HIV positive in repeat test in late pregnancy, giving a 10.7% incidence per year .This indicated that women are at risk to acquire new HIV infection from their HIV positive partner anytime during pregnancy and even during breast feeding. Meanwhile, women who recently been infected with HIV are more likely to transmit HIV infection to their babies (12).

In the eastern and southern African region, including Ethiopia, 36-85% of the HIV positive individuals are believed to live with an HIV negative partner (13). HIV incidence is four times higher among pregnant women compared to their non-pregnant counterparts (14).

A retrospective study conducted in Ethiopia to examine the progress and an addressed need in access and utilization of PMTCT service showed that the prevalence of HIV among those pregnant mothers who underwent HIV testing had decreased from 8% to 2% within the reporting period 2006-2010. The pattern of reduction in HIV prevalence followed an exponential pattern. Although the prevalence had shown a significant reduction, the number of HIV

positive pregnant mothers identified per year had increased from 4,172 in 2006 to 13,257 in 2010. During the entire five-year period, a total of 42,195 HIV positive mothers were identified out of the 1,462,565 mothers tested for HIV making the overall prevalence of HIV 2.9 % (10).

In sub- Saharan Africa, out of 26 countries, only 50% of the HIV positive mothers had access to ARVS for Prevention of mother to child HIV transmission (15). To assess prevalence of HIV/AIDS and its Associated Factors among Prevention of Mother-To-child Transmission (PMTCT) Service Users in Jinka Town Health Institutions, South Omo zone, South Ethiopia.

## 2. Methods and Materials

*Study area and Period:* This study was conducted in South Omo zone. The study area is one of the fourteen zones in South Nation Nationality and Peoples' Region (SNNPR). This region was among the nine regions in Ethiopia. This region is among the region which has lowest economic growth. It is 750 KM south of the main capital city of the country, Addis Ababa and 550Km away from the regional capital, Hawassa. The zone is located in 4.43<sup>0</sup> – 6.46<sup>0</sup> North latitude & 35.79<sup>0</sup>-36.06<sup>0</sup> South longitude. The climatic condition ranges from Dega to Kola which constituted 34.4% of the zonal climatic condition. According to the 2007 National Census the zonal total population was estimated to be 661550 and it was a home for 16 tribes, magnificent cultural diversity and afro-traditionalism.

According to the zonal Health Department Annual Report the health infrastructure was constituted by one zonal hospital, 27 functional health centers, 209 rural health posts and 11 urban health posts which was equivalent with the national set standard for which universal health coverage is achieved.

Currently the zone has with one general hospital which was serving the zone's total population of 678417. Starting from 2006 the Hospital has been giving integrated ANC-PMTCT service for the pregnant women who have been follower of ANC service. As the national target, mothers who are pregnant expected to attend ANC and offered with PMTCT. And after, they are counseled the severity of the transmission of HIV from mother to child consequently results the death of child as well as the life of the mother was at risk. This study was conducted from 2010 to 2011

*Source population:* All pregnant women in South Omo Zone attending for PMTCT service and antenatal care

*Study population:* All pregnant women who attended PMTCT providing health institutions between time period 2010 to 2011. The study populations accordingly were all pregnant mothers with PMTCT & antenatal care visits during the study period.

*Inclusion and Exclusion criteria*

*Inclusion criteria:* All ANC and PMTCT service followers who received the services with a completed

record were included in the study.

**Exclusion criteria:** In the study period clients who attended for other services were not included in the study and PMTCT and ANC service users with incomplete record.

**Study design:** Cohort Analysis of PMTCT data was conducted on the recorded data of the Jinka Hospital and Health center in the year between 2010 and 2011

**Sample size determination and sampling technique:** The one year data (2010 to 2011) was used based on the availability of well-organized data.

### 2.1. Study Variables

**Dependent variables:** HIV prevalence among PMTCT service utilizes

**Independent variables:** The independent variables included: services related factors, maternal related factors, partner and child/infant related factors.

**Data collection tools:** For the relevance of the data a spread sheet was developed to collect data from the recorded registration book and patient card.

The one year data recorded on the patient's card that attended for ANC and offered PMTCT service was collected and organized according to the variables of this study.

**Data collection procedures:** variables for the study were first identified from client cards and PMTCT registration book. Recoding of the need variables was done to have valid and good result with a good quality data.

**Data quality control:** training was given for data clerks before data collection to assure the quality of collected data. And also close supervision of the data collectors during data collection time and cross checking the collected data.

**Data management and data analysis procedures:** Once the data was collected it was automatically entered in to a computer in prior developed data entry template and data was analyzed. Different statistical analysis was used to describe the study population. Binary logistic regression was used to identify the relationship between the dependent variable and independent variable. Significance level was set at 0.05 levels. Variable with  $p=0.2$  were included in subsequent step for further analysis.

**Ethical considerations:** Ethical permission of the research was secured from the zonal health department. All individual working in PMTCT and ANC clinic were informed about the study and participated in the study.

## 3. Results

### 3.1. Socio-Demographic Characteristics

The socio-demographic variables included in this study were age, residence, religion, occupation and marital status.

In this study a total of 960 pregnant women secondary records were collected and analyzed. Accordingly of the 960 pregnant women 835 (87%) were married. The remaining 10 (1%), 12 (1.3%), 28 (2.9%) were separated or divorced, widowed and unknown respectively.

A majority of the participants 749 (78%) were urban dwellers; the remaining 211 (22%) were rural. Their age characteristics' showed that the pregnant women 487 (50.7%) were aged 25-34 years. The outstanding 15-24 years and above 34 years were contributed 403 (42%) and 70 (7.3%). This result shows that the clients' preference of health institution is hospital, 634 (66%) (Table 1).

**Table 1.** Socio-demographic information of pregnant women who attended PMTCT service in Jinka town health institutions 2010 to 2011 (n=960)

Characteristics	Frequency (n=960)	Percent
Age		
15-24	403	42.0
25-34	487	50.7
34+	70	7.3
Residence		
Urban	749	78.0
Rural	211	22.0
Religion		
Orthodox	528	55
Protestant	288	30
Muslim	96	10
Others	48	5
Occupation		
House wife	336	35
Government employee	38	4
Merchant	154	16
Farmer	374	39
Others	58	6
Marital status		
Married	835	87
Separated	10	1
Widowed	12	1.3
Unknown	28	2.9
Health institution type		
Hospital	634	66
Health Center	326	34
Total	960	100

### 3.2. PMTCT Utilization

Of the total pregnant women who attended the PMTCT service utilization 960 (100%) were offered pretest counseling. Among these, 960 (100%) offered for pretest counseling 96 (10%) were refused to accept HIV testing and the rest 864 (96.5%) were accepted to be tested. The result showed the positivity of the pregnant women who were tested for HIV (PMTCT service utilized) was 29 (3.4%). And the remaining 835 (96.6%) were negative. Of the total of 864 pregnant women who were tested for HIV and accepted post test counseling were 764 (88.4%) and the remaining 100 (11.6%) were no accepted post test counseling. The pregnant women who were identified to be sero-positive and received ARV prophylaxis were 26 (89.6%), 2(6.9%) did not receive the service and one of the woman refused to receive the service. A majority, 714(74.4%) women were multipara, and 780(81.25%) were above 20weeks gestational age (Table 2)

**Table 2.** PMTCT utilization of pregnant women who attended PMTCT service in jinka town health institution in South Omo zone, SNNP 2010 to 2011 (n=960)

Characteristic	Frequency (n=960)	Percent (%)
Number of pregnancies		
Primigravida	246	25.6
Multigravida	714	74.4
Gestational Age		
<20weeks	180	18.75
>=20weeks	780	81.25
Pretest counseling		
Used	960	100
Not used	0	0
accepted HIV testing (n=960)		
accepted	864	90
Not accepted	96	10
HIV test result (n=864)		
Positive	29	3.4
Negative	835	96.6
Tested at this site		
Yes	864	90
No	96	10
Tested at another site		
Yes	96	10
No	864	90
Post test counseling (n=864)		
Yes	764	88.4
No	100	11.6
Referred for care, treatment and support		
Yes	26	2.7
No	2	0.2
Refused	1	0.1
Not applicable	931	97

### 3.3. Partner and child related services

Concerning the partner and child related services, the date of appointment for ARV enrollment was 26(89.6%); 432(45%) brought their partner for counseling and testing. Among those partners who came for counseling and testing, only 108(25%) were tested. Among the tested participants, 7(6.5%) and 103(95.45) were HIV sero positive and received the post test counseling respectively. Of the pregnant women who were counseled on child feeding options, 19(65.5%) were counseled on exclusive breast feeding and 10(34.5%) were counseled on exclusive replace-mental feeding. There were 26(89.7%) HIV exposed infants who received the ARV and 3(10.3%) did not received the service (Table 3).

**Table 3.** Partner and child related services among PMTCT utilizes in Jinka Town Health institutions, 2010-2011

Characteristics	Frequency	Percent
Date of appointment for ARV enrollment		
Mentioned	26	89.6
Not mentioned	3	10.4
Brought partner for counseling and testing		
Yes	432	45
No	528	55
Partner tested (n=432)		

Yes	108	25
No	324	75
Partners test result(n=108)		
Positive	7	6.5
Negative	101	93.5
Partner received result and post test counseling(n=108)		
Yes	103	95.4
No	5	4.6
Counseled on infant feeding option		
EBF	19	65.5
ERF	10	34.5
HEI received ARV		
Yes	26	89.7
No	3	10.3
Counseled and referred for FP		
Yes	708	73.75
No	252	26.25

### 3.4. The Prevalence of HIV

The prevalence of HIV in this study was 3.4% among women 6.5% among men. The discrepancy may be attributed to different factors.

### 3.5. The Bivariate Analysis

The bi-variant analysis showed that HIV sero-status was not associated to most of the variables under consideration.

**Table 4.** showing the bi-variant analysis of HIV sero-status and the independent factors among PMTCT service Utilizes of Jinka Health institutions of South Omo zone 2010 to 2011

Characteristic	Sero-status		OR (CI 95%)	P-Value
	Positive	Negative		
Age (n=960)				
15-24	10	413	0.68 (0.28, 1.61)	0.64
25-34	16	451	0.79 (0.21,3.52)	0.71
34+	3	67	1.00	
Marital status (n=960)				
Married	26	884	1.00	
Separated/divorced	3	47	2.17 (0.51,7.69)	0.20
Health institution (n=960)				
Health center	10	321	1.00 (0.47,2.30)	0.09
Hospital	19	610	1.00	
Residence (n=960)				
Rural	5	202	0.75 (0.25,2.11)	0.56
Urban	24	729	1.00	
Antenatal care visit (n=960)				

1st ANC visit	26	892	0.38 (0.10,1.64)	0.11
2nd ANC visit	3	39	1.00	
Sex				
Male	7	101	2.00(0.77- 4.93)	0.10
Female	29	835	1.00	

#### 4. Discussions

According to the results of the study, HIV prevalence was high among both sexes. Acceptance of participant test after counseling was high for females. A significant proportion of HIV exposed infants, did not take the service. A majority of the ANC attendant mothers received some components of PMTCT services.

Prevalence of HIV in this study was 3.4% for females and 6.5% for males. This result was high when we compared it with national HIV prevalence which is 2.1%. This may be due to the fact that HIV is more prevalent among pastoralist community where there are different tourists visiting and exposing to occupational risks and also due to the mobile nature of the pastoralist community.

Concerning PMTCT care nearly all had pretest counseling among other PMTCT service components. Prevention of Mother-to Child HIV Transmission is still the most effective intervention in combating new HIV infections. It estimated that over 90% of childhood HIV infections result from MTCT. Mere counseling on MTCT is not the effective way of PMTCT. When compared among mothers who provided with pre-test counseling, only 90% were tested. Other 10% refuses the test. This may also contribute to less reduction in Mother to child HIV transmissions.

Partner counseling and testing is one component of PMTCT. In this study, only 432(45%) mothers brought their partner to HIV counseling and testing. Among these only 108(25%) were tested and the HIV prevalence was 6.5%. This can also increase the likelihood of HIV infection among the newborns. There is also discordance in test result among the partners. This can also increase the chance of infecting a partner. Refusal for receiving test should also be considered for future intervention. Since males were not accepting tests, this may also affect the implementation of the program.

Concerning HEI service, 10% HIV exposed infants were not given the service. And also only 26 HIV positive mothers were referred to care and support. Some of the mothers were refused the service. This indicted that there is a need for intervention. Since the guideline for PMTCT required 100% service provision.

Nearly 3.4% of the women in the study were HIV-positive, indicating that HIV is still a major public health problem among women of reproductive age in Jinka Town Health institutions of South Omo Zone.

The prevalence observed (3.4%), is similar to the

prevalence of 7.3% described among women aged 15–49 years in Kilimanjaro region, in the recent Tanzania HIV/AIDS Indicator survey (16).

The HIV prevalence was greater among women aged 25–34 years. This suggests that most infections occur among pregnant mothers as their age increases they are more likely to have children and hence the transmission of HIV from mother to child may be high(17).

Marital status characteristics were strong predictors for HIV in other previous studies. Pregnant mother who have no partner currently were more affected than compared to pregnant mothers who have had partner. This may be due to mothers who have had no partner were practicing unsafe sex and have many sexual partners or may not encourage their sexual partner to use condom during sexual intercourse(18). As sexual partner increases it increases the chance to get HIV (19).

#### 5. Conclusions and Recommendations

HIV remains a major health problem among women of reproductive age. The implementation of PMTCT program in its full component coverage still needs intervention. Consequently some eligible groups are missing the service. Therefore, preventive mechanisms against HIV prevention in pregnant women and in all aspects of reproductive health programs is of the utmost importance if we want to advance the prevention of HIV in women generally, and in the community at large. Other important preventive strategies should aim at partner tracing and risk reduction among partners to fully achieve the PMTCT targets.

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