

## Dual-Contraceptive Method Utilization and Associated Factors among HIV Positive Women Attending Art Clinic in Gebretsadik Shawo Hospital, SNNPR, South West Ethiopia

Meseret W Mariam Erashi<sup>1\*</sup>, Fekadu Yadassa Tesso<sup>2</sup> and Tekleberhan Tema Beyene<sup>2</sup>

<sup>1</sup>Bonga Health Bureau, Kefa Zone, SNNPR, Ethiopia

<sup>2</sup>Jimma University, college of health sciences, department of nursing and Midwifery, Ethiopia

### Abstract

**Background:** The sexual and reproductive health of HIV positive people is fundamental to their well-being and that of their partners and children. So the simultaneous protection against both unwanted pregnancy and STIs or dual protection is an important care core to be taken into consideration.

**Method:** With the objective to assess dual-contraceptive method utilization and associated factors among HIV positive women attending ART clinic in Gebretsadik Shawo Hospital a cross-sectional study was carried out using both quantitative and qualitative approaches of data collection methods on a sample of 243 HIV positive mothers selected by simple random sampling technique from 718 HIV positive women using their ART registration numbers. Data was collected through face-to-face interview using pre-tested structured questionnaire and in-depth interview for the qualitative one. The quantitative data was analyzed using SPSS-16.0; multiple logistic regression analysis was done to see the association between the outcome and predictor variables with statistical significant level of  $p < 0.05$  and CI of 95%. For qualitative study 18 purposively selected community mother support HIV positive mothers were included and data was analyzed thematically.

**Result:** Out of 246, 243 of HIV positive women participated in the study making a response rate of 98.78%. The study finding showed that the prevalence of dual contraceptive use by HIV positive women attending ART clinic was 48(19.8%).

A multivariate Logistic regression analysis showed that the dual contraceptive family planning method utilization was associated with age [(age > 30 years women were more likely to use dual contraceptives than those of age group 15-24 years [(AOR 2.445, 95% CI (1.131, 5.284)], marital status [widowed women were more likely to use dual contraceptive method than married ones (AOR 4.018, 95% CI(1.219, 13.21)], CD4 count [women with CD4 count greater than 350 cells/dl were more likely to use dual contraceptive methods than those with CD4 count <250 cells/dl [(AOR 8.516, 95% CI (1.005, 72.168)], and free discussion with partners and deciding on contraceptive method were more likely to use dual contraceptive methods than those who don't have open discussion, [(AOR 17.45, 95% CI(8.198, 37.14)].

**Conclusion:** Dual contraception utilization by HIV positive women was very low and advanced age, CD4 count, discussion with partners, residence, counseling, were associated with dual contraceptive use by HIV positive women. Use of dual contraceptive methods utilization is a vital core in prevention of HIV infection in children and transmissions of new HIV strains among HIV positive population.

**Keywords:** HIV positive; Dual contraceptives; Counseling; Utilization; ART; CD4

**Abbreviations:** HIV: Human Immunodeficiency Virus; AIDS: Acquired Immunodeficiency Syndrome; STIs: Sexually Transmitted Infections; SNNPR: South Nation And Nationality People Region; ART: Antiretroviral Therapy; SPSS: Statistical Package for the Social Science; CI: Confidence Interval; CD4: Cluster of Differentiation 4; PV: P value; UNAIDS: United Nations Program on HIV and AIDS; CPR: Contraceptive Prevalence Rate; NVP: Nevirapine; LPV/r: Lopinavir/Ritonavir; NLF: Nelfinavir; RTV: Ritonavir; COC: Combined Oral Contraceptive; FP: Family Planning; AOR: Adjusted Odds Ratio; IUCD: Intrauterine Contraceptive Device; US: United States; PMTCT: Prevention Of Mother-to-Child Transmission

### Introduction

The use of contraception had been advocated on three major grounds-demography (population control), health (women and children) and human (women) rights. In recent times the use of contraception has been identified as a potent instrument in the control of HIV/AIDS in women and children. According to UNAIDS, 2009 over 50% of the infected adults were women who acquired the infection

predominantly through heterosexual route. Children (under 15 years) account for 2.5 million of the infected population and majority (90%) were acquired through mother-to-child transmission route. Over 90% of the yearly 420,000 new infections in children occur in Africa [1,2].

It has been estimated that an increase in CPR in sub-Saharan Africa with corresponding reduction in primary HIV infections and unintended pregnancies in HIV infected women has potential to decrease the proportion of infants infected with HIV by 35-55%. Hence the provision of appropriate contraceptive information, counselling

\*Corresponding author: Meseret W Mariam Erashi, Bonga Health Bureau, Kefa Zone, SNNPR, Ethiopia, Tel: 0473310006; E-mail: [meseretwoldemariam@yahoo.com](mailto:meseretwoldemariam@yahoo.com)

Received July 17, 2015; Accepted July 19, 2015; Published August 19, 2015

**Citation:** Erashi MWM, Tesso FY, Beyene TT (2015) Dual-Contraceptive Method Utilization and Associated Factors among HIV Positive Women Attending Art Clinic in Gebretsadik Shawo Hospital, SNNPR, South West Ethiopia. J Women's Health Care 4: 267. doi:10.4172/2167-0420.1000267

**Copyright:** © 2015 Erashi MWM, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

and services will play a significant role in reducing the burden of HIV/AIDS in Africa [3].

With respect to rates of dual-contraceptive method use, it has been shown that it ranged from 3% to 42%, depending on study design, country, combination of methods used, period of assessment, users' and partner characteristics and the relationship [4].

To ensure the effectiveness of contraception for women on ART with Nevirapine (NVP), Lopinavir/Ritonavir (LPV/r), Nelfinavir (NLF) and Ritonavir (RTV), dual protection is recommended. HIV-positive women on ART with any of the above ARTs who are also using COCs or hormonal methods need to be monitored closely. Rifampicin often used to treat tuberculosis in HIV-positive clients, also decreases the effectiveness of COCs by reducing circulating oestrogen, necessitating the woman on Rifampicin and COCs use dual contraceptive methods in order to prevent pregnancy [5].

A study published in March 2010 gave a population estimate that all women in the US who use one highly effective contraceptive method added a second one, such as a condom, then approximately 80% of unintended pregnancies and abortions among these women could be prevented. This would result in an annual reduction of 786,000 unintended pregnancies and nearly 152,000 abortions [6]. It is estimated that HIV-positive pregnant women are at 1.5-2 times greater risk of maternal mortality [7]. Dual Protection has been advocated as strategy for the reduction of the risks of unplanned pregnancy, horizontal transmission of HIV to a non-infected partner, transmission of resistant virus to a partner with HIV infection, and the risk of acquisition of other STIs like Human Papilloma virus and Hepatitis B&C [8].

A cross-sectional survey done in US examined the rates of dual method use varied by age, race, ethnicity, education, marital status, pregnancy history, insurance status, and number of sexual partners. In particular, young women (15–20 years) who are at highest risk of both STI and unintended pregnancy reported the highest rates of dual-method use (22.8%). African American women had higher rates of dual-method use (9.4%) compared with Caucasian or Hispanic women. Education was associated with rates of dual-method use with the highest levels among women with some college education (12.0%). Never married women were most likely to report dual-method use (18.9%), as were null gravid women (16.0%). Continuously insured women were more likely to report dual-method use (8.0%) than those with some period of no insurance (5.6%) [9].

Furthermore, providing safe and effective contraception to HIV-infected women who desire it has also been identified by World Health Organization as a primary strategy for prevention of pediatrics infections. Public health programs that emphasize dual family planning methods highly effective modern contraception, coupled with condom use will ensure protection from both unintended pregnancy, & STIs. It also avoids acquiring other strains of HIV that may lead to develop ART drug-resistance. Addressing dual contraceptive utilization practice should form the cornerstone of reproductive health care. In HIV care and treatment programs, medication adherence counseling provides a unique window of opportunity to address preventive health recommendations, including family planning and STI prevention [10,11].

Ethiopia is one of the countries most severely hit by the HIV epidemic. Besides the dominant heterosexual transmission, the vertical virus transmission from mother to child accounts for more than 90% of paediatric HIV/AIDS infection [5].

As to the knowledge of the investigators there was no study done on issues related to dual contraceptive utilization among HIV Sero-positive women in study area. Thus, the principal investigators consider it worth studying of the topic at the area with the purpose of assessing the prevalence of the dual contraceptive method utilization and associated factors among HIV positive women attending ART clinic attending Bonga Gebretsadik Shawo Hospital ART clinic.

## Methods and Materials

A facility based cross sectional descriptive study was carried out from February 20, to March 30/2014 with the objectives of assessment of prevalence of dual contraceptive family planning method utilization and associated factors on systematically sampled 246 HIV positive women attending ART clinic in Gebretsadik Shawo Hospital, found in Keffa Zone, SNNPR State, 449 kms away from Addis Ababa, the capital city of the country. For qualitative part of the study 18 purposively selected mothers were included. There are about 3,224 people living with HIV in the zone among which 1,050(32.6%) are males, while 2174(67.4%) are females and are attending ART and pre- ART services from Gebretsadik Shawo Hospital. Ethical approval was obtained from Gebretsadik Shawo Hospital, and verbal consent from the participating women. Quality of data was validated through testing of the instrument, ensurance of completeness and consistence of data collected in the field, strict supervision and follow up of the data collection and Data was and collected by face to face interview using pre-tested structured questionnaire having both close and open ended questions. Data collectors were two trained diploma nurses from the health centre. Two supervisors were assigned from the Hospital to handle any problem; ensure data quality and to check proper completeness of questionnaire. Quantitative data was entered, cleaned and analyzed using SPSS version 16.0 statistical software. The univariate analysis such as percentages, and frequency distributions were computed and presented using suitable graphs, charts, tables and texts. Bivariate analysis on socio-demographic, client's circumstance, and community related factors, Service providers and availability of modern contraceptive services also carried out. Then, variables having statistical significance (PV=0.25 and above) were included in multivariate logistic regression analysis Model. The dependent variable is dual contraceptive method utilization, while the independent variables are socio demographic characteristics (age, marital status, educational status and religion), social and cultural factors (partner support, peer influence, cultural norms), clients conditions (number of children, knowledge of dual contraceptives, occupation, and disclosure), service related factors (provider skills including counseling about contraceptive utilization, availability and accessibility of FP services, and integration of services).The qualitative component was analyzed thematically, and triangulated with the quantitative one accordingly.

## Result

In this cross-sectional study a structured questionnaire was administered to 243 study participants and qualitative data was collected from 18 Sero-positive women (five community mother support worker and 5 other clients attending ART service from this study area Hospital) by in-depth interview using in depth interview guide-line to support and complement the quantitative data.

### Socio demographic characteristics of HIV positive women attending ART unit in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

Out of a total of 246 expected participants, 243 of HIV positive

women participated on the study making a response rate of 98.78%. With respect to age distribution, majority 94(38.7%) were found to lie within 25-29 years, followed by 30-39 years which accounted for 70(28.8%) (Table 1). Among the respondents, majority [120(49.4%)] have completed primary school while 55(22.6%) were illiterate concerning ethnicity, among the participants 159 (65.4%) were Keffa, 32(13.2%) were Amhara while 7(2.9%) were others. Majority were followers of Orthodox religion [160(65.8%)], followed by Catholics 34(14%). The marital status distribution shows over half 132(54.3%) of the study groups were currently married, 30(12.3%) were widow. Occupationally, majority [86(35.4%)] were house wives followed by daily laborer 45(18.5%) (Table 1).

### Sexual activity, and use of dual contraceptive methods by HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

One hundred ninety-nine (81.9%) of Sero-positive women have sexual intercourse practice after knowing their HIV diagnosis result and 44(18.1%) women preferred and practiced abstinence. Prevalence of any modern contraceptive method utilization practice among all study respondents was 69.1% while nearly half 103(42.4%) of respondents have Knowledge about dual contraceptive methods and

99(40.7%) had dual contraceptive method utilization experience but only 48(19.8%) women used dual contraceptive method currently, correctly and consistently. Major reasons for using dual contraceptive methods were, for prevention of pregnancy 104(42.8%), prevention of new strain virus infection, 76(31.3%) and to prevent HIV transmission to discordant partners 17(7%).

### Contraceptive methods utilization among HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

Among the types of contraceptive methods used by HIV positive women respondents attending ART Clinic, condoms were the most commonly used (54.3%) contraceptive methods followed by inject able contraceptives 44.4% and 18.1% of respondents abstained from sexual intercourse after they were diagnosed HIV Positive.

### Dual-contraceptive method utilization pattern among FP user HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

From all various forms of contraceptive method users of HIV positive women, it was found that 48(28.6%) used dual contraceptive methods always during sexual intercourse, 57(33.9%) used some times and the rest 63(37.5%) never used. From the qualitative part of the study result "a woman of 28 years old, married and 3 children mentioned: after discussion with health professionals about dual contraceptive methods' benefits, we also discussed openly at home about with my partner. Thus, currently we always use condom to prevent STIs along Norplant".

### HIV status, medication, stigma and socio-cultural factors for current non-utilization of dual contraceptive methods among HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

About 79(32.5%) of participants responded that HIV positivity, 28(11.5% medication, and 38 (15.6%) fear of stigma affect dual contraceptive method utilization. Some 35 (14.4%) of the participants linked their non-use of dual contraceptive methods to their Culture or norm and 21(8.6%) said their spouse or partner would not allow them to use dual protection (Table 2). From the qualitative part of the study result "a woman of 27 years old, married 3 children mother said; I never used any type of FP methods because my husband is not voluntary to use condom and even not allowed me to use other type of FP methods". On the other hand, "a woman of 38 years old, widowed and government employee said: really I don't want to come to Hospital ART Clinic when people are many, rather, I come early morning before clients rive or afternoon when all clients returned, because of fear of meeting peoples who may know me."

### Discussion with partners about dual contraceptive utilization among HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

As to the existence of discussions between the partners related to dual contraceptive methods, the study showed that only 66(27.2%) of the respondents had discussion with their spouse or partner while 177(72.8%) never had. From the in-depth interview result a 20 years old married woman said; "my husband is not voluntary to be tested and know whether he is HIV positive or not, additionally, not voluntary to use any type of FP methods. Thus, though I know the benefits of dual contraceptive method utilization, I don't practice it".

Characteristics (variables) (N=243)	Frequency(n)	Percent (%)	
Age	15-19	12	4.9
	20-24	50	20.6
	25-29	94	38.7
	30-39	70	28.8
	40-49	17	7
Religion	Orthodox	160	65.8
	Catholic	19	7.8
	Protestant	34	14
	Muslim	30	12.4
Education	Illiterate	55	22.6
	Primary (1-8 grade)	120	49.4
	Secondary (9-12 grade)	49	20.2
	Tertiary (12+)	19	7.8
Ethnicity	Dawro	159	65.4
	Amhara	32	13.2
	Gurage	8	3.3
	Oromo	27	11.1
	Tigrie	10	4.1
	Others`	7	2.9
Marital status	Single	38	15.6
	Married	132	54.3
	Divorced	43	17.7
	Widowed	30	12.4
Occupation	Government employee	25	10.3
	private employee	16	6.6
	Daily laborer	45	18.5
	House wife	86	35.4
	Merchant	33	13.6
	Student	23	9.5
	commercial sex worker	15	6.1
Residence	Urban	182	74.9
	Rural	61	25.1

Wolyita, Yem\*

**Table 1:** Socio demographic characteristics of HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

### Association of dual contraceptive method Utilization of HIV positive women on ART follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

A multivariate logistic regression analysis indicated that current dual contraceptive methods utilization among HIV positive women was significantly associated with age ( $\geq 30$  years were more users than age group of 15-24 years) with AOR 2.445, 95% CI (1.131, 5.284, widowed women more users of dual contraceptive methods 2 times users of dual contraceptives than married HIV positive women with; AOR 4.018, 95% CI (1.219, 13.21), HIV positive women with current CD4 count  $>350$  cells/dl use dual contraceptive methods more than

CD4 count less than 250 cells/dl with AOR 8.516, 95% CI (1.005, 72.168), partners having free discussion on contraceptive methods, utilize dual contraceptive methods more than partners who don't have open discussion, AOR 17.45, 95% CI(8.198, 37.14) , women living in urban area utilize dual contraceptive methods more than those who live rural area with AOR 0.309, 95% CI (0.317, 0.985), women who didn't have counseling about family planning services use dual contraceptive methods less than those who received counseling with AOR 0.042, 95% CI(0.016, 0.111). Variables such as educational status, Occupation and number of children showed statistically insignificant relation between dual contraceptive method utilization and not utilization by multivariate logistic regression analysis (Table 3).

Characteristics(variables) (N=243)	Frequency(n)	Percent (%)	
HIV positivity	Yes	79	32.5
	No	164	67.5
Drug & stigma related factors	Side effect of ART drugs	13	5.3
	Medication	28	11.5
	Fear of stigma	38	15.6
Socio-cultural factors	Spouse	21	8.6
	Peers	16	6.6
	Faith or religion	19	7.8
	Culture/norm	35	14.4
	Sterility	2	0.8

**Table 2:** Factors for non-utilization of dual-contraceptive methods among HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.

### Discussion

The finding of the study showed that 48 (19.8%) of the participants reported using dual-contraceptive methods currently and the finding is almost similar with finding from cohort study conducted on HIV Sero-positive women in Lusaka Zambia 17.7% however, less than a cross-sectional survey result in Soweto, South Africa on HIV-positive women which is (33%) [12,13].

Factors like age, marital status, residence, CD4 count, number of children, receiving counseling and discussion with partners were found to significantly associate with dual contraceptive method utilization. As to the relationship of age and dual contraceptive utilization the finding of this study differ from that of Zambia in which women of age  $\geq 35$  years use the dual contraceptive methods less than those of age  $\leq 25$

Characteristics		Used dual contraceptive methods	Didn't use dual contraceptive methods	Crude OR (95% CI)	Adjusted OR (95% CI)
		N (%)	N (%)		
Age (years)	15-24	31(50%)	31(50%)	1	1
	25-29	48(51.1%)	46(48.9%)	0.958(0.505, 505)	0.874(0.427, 1.790)
	$\geq 30$	20(22.9)	67(77.1)	3.350(1.655, 6.781)*	2.445(1.131, 5.284)**
Education	Illiterate	17(30.9%)	38(69.1%)	1	1
	Primary(1-8)	47(39.2%)	73(60.8)	1.938(0.653, 5.752)	0.812(0.362, 1.823)
	Secondary(9-12)	23(46.9%)	26(53.1%)	2.663(0.978, 7.250)	0.626(0.232, 1.687)
	Tertiary(12 <sup>th</sup> +)	12(63.2%)	7(36.8%)	3.832(1.284, 11.438)*	0.272(0.055, 1.334)
Marital status	Married	57(43.2%)	75(56.8%)	1	1
	Single	19(51.4%)	18(48.6%)	0.720(0.347, 1.495)	2.097(0.727, 6.052)
	Divorced	19(51.4%)	25(56.8%)	1.000(0.502, 1.991)	1.303 (0.542 3.135)
	Widowed	4(13.3%)	26(86.7%)	4.940(1.632, 14.953)*	4.018(1.219, 13.21)**
Occupation	House wife	36(41.9%)	50(58.8)	1	1
	Daily laborer	16(35.6%)	29(64.4%)	1.305(0.619, 2.751)	0.801(0.273, 2.353)
	Employee	22(53.7%)	19(46.3%)	0.622(0.294, 1.314)	0.995(0.293, 3.374)
	Merchant	6(18.2%)	27(81.8%)	3.240(1.213, 8.658)*	3.194(0.927, 10.999)
Residence	Student	4(17.4)	19(82.6)	3.420(1.072, 10.91)*	0.720(0.145, 3.573)
	Urban	82(45.1%)	100(54.9%)	1	1
CD4 count	Rural	17(27.9%)	44(72.1%)	0.471(0.251, 0.886)*	0.309(0.317, 0.985)**
	$<250$ cells/dl	28(75.7%)	9(24.3%)	1	1
	250-350 cells/dl	31(43.7%)	40(56.3)	4.014(1.656 9.731)*	6.905(0.749, 63.61)
Counseling about F/P	$>350$ cells/dl	40(29.6%)	95(7.4%)	7.389(3.200, 17.06)*	8.516(1.005, 72.168)**
	Yes	84(88.4%)	11(11.6%)	1	1
Discussion with partner	No	15(10.1%)	133(89.9%)	0.015(.0006, .0034)*	0.042(0.016, 0.111)**
	Yes	56(84.8%)	10(15.2)	17.45(8.198, 37.14)	10.234(3.525, 29.718)**
Discussion with partner	No	43(24.3%)	134(75.7%)	1	1

\*COR, Significant at  $P < 0.05$

\*\* AOR, Significant at  $P < 0.05$

**Table 3:** Association of dual contraceptive method utilization of HIV positive women on ART and follow up care in Gebretsadik Shawo Hospital, Keffa Zone, SNNPR, Ethiopia.



years [13]. The difference may be linked to the differences in socio-economic background and sample size among the two studies.

The relationship between marital status and dual contraceptive method utilization appears to be more or less similar in this study. In this study it was shown that widowed women use dual contraceptive methods more than the married ones while the findings of the study in US showed that unmarried use the method with more rate [6]. The similarities lie in that both the unmarried and widowed seem to choose the method freely without the interference of the second party.

Residence of the respondents was one of the significantly associated factors for dual contraceptive method utilization, HIV positive women who came from rural area were less dual contraceptive method users than those from urban area, This variation may be attributable to information gap among rural and urban area and accessibility of family planning services and logistics in urban than rural area.

The study also showed that CD4 cell count also had association with dual contraceptive utilization in that women of HIV positive with CD4 count greater than 350 cells/dl were found to use dual contraceptive methods than those with CD4 count less than 250 cells/dl and this finding is consistent with cohort study result in Zambia. Free discussion with partner as well as with health professional and receiving counseling about dual contraceptive methods are associated with current dual contraceptive method utilization practice. HIV positive women who have open discussion with partner use dual contraceptive methods ten times more than women who have no discussion with their partners. This finding is similar with finding from Soweto South Africa and Lusaka Zambia [12,13], Uganda [10] and Adwa northern Ethiopia [14]. Most of the respondents in in-depth interview mentioned that even if they know the benefits of dual contraceptive method utilization and they wanted to use it, their partners were not volunteers to use it. To improve the practice of dual contraceptive method utilization, counseling both partners is one of the important points to be underlined from this study finding

## Conclusion and Recommendation

The study showed that the proportion of HIV positive women who use dual contraceptive methods was 48 (19.8%) and shows that the prevalence is low. Factors like age, marital status, residence, CD4 count, number of children, receiving counseling and discussion with partners were found to significantly associate with dual contraceptive method utilization.

Therefore, the authors would like to recommend the respective region to work in collaboration with woreda and zonal health office towards the increment of coverage of dual contraceptive utilization by HIV positive women for effective PMTC (prevention of mother-to-child-transmission of HIV) with particular emphasis to address the related factors.

## Acknowledgement

Authors would like to express their deepest gratitude to Jimma University, college of public health and medical sciences for its support and funding to carry out this study and accomplish the project. Furthermore, we would like to thank Keffa Zonal health office and Gebretsadik Shawo Hospital staff for their cooperation and support during all the processes of data collection activities.

## References

1. Federal Democratic Republic of Ethiopia (2012) Country Progress Report on HIV/AIDS response.
2. Townsend C, Mario Cortina Borja, Catherine S, Peckham A, Annemiek H, et al. (2008) Low rates of mother-to-child transmission of HIV following effective pregnancy interventions in the UK and Ireland, 2000 – 2006. *Lippincott Williams & Wilkins* 22: 973-981.
3. Chris O (2012) Contraception in the Context of HIV/AIDS. *African Journal of Reproductive Health* 16: 1-25.
4. Joanne E, Mantell S, Hoffman T, Exner Z, Kim S (2003) Family Planning Providers' Perspectives on Dual Protection. *New York State Psychiatric Institute, USA*. 35: 71-78.
5. Federal HIV/AIDS Prevention and Control Office under Federal Ministry of Health (2011) Guidelines for Prevention of Mother-to-Child Transmission of HIV in Ethiopia P: 1-224.
6. Pazol K, Kramer M, Hogue C (2010) Condoms for dual protection patterns of use with highly effective contraceptive methods. *Public Health Report* 125: 208–217.
7. Cole Bundersa (2010) Differences in perceptions on sexual and reproductive health between services providers and people living with HIV.
8. Oluwole O (2012) Factors influencing the choice of contraceptive methods by HIV positive women in the Cofimvaba, Stellenbosch University.
9. David L, Jenifer E (2012) Correlates of Dual-Method Contraceptive Use by analysis of the National Survey of Family Growth 2006–2008. *Journal of Infectious Diseases in Obstetrics and Gynecology*, Washington University.
10. Barbara N, Jianghong L, Sandra C, Christopher G, Jaya E (2011) Family planning among people living with HIV in post-conflict Northern Uganda, *Makerere University* 5: 1-12.
11. Bethany P, Assunta M, Joel M, Markowitz P, et al. (2005) The Use of Existing Prevention Methods for Contraception and Sexually Transmitted Infections and Interest in Microbicides among Women in California. Unpublished theses.
12. Chibwesa C, Matoba C, Mbewe R, Stringer J, Stringer E (2011) Modern Contraceptive and Dual Method Use among HIV-Infected Women in Lusaka, Zambia: 1-8.
13. Kaida A, Laher F, Strathdee S, Money D, Janssen P (2010) Contraceptive Use and Method Preference among Women in Soweto, South Africa. *HIV, HAART, and Contraception* 5: 1-11.
14. Teklu T, Gail D (2008) Which factors influence North Ethiopian adults' use of dual protection from unintended pregnancy and HIV/AIDS. *Ethiop J Health* 22: 226-231.