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Unprotected sexual practice and associated factors among people on anti-retro-viral therapy at public health facilities of Arba Minch town: Cross-sectional study

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Unprotected sexual practice with multiple partners is identified as the greatest risk factor for transmission of human immunodeficiency virus (HIV) in Sub Saharan Africa and it is a public health concern among people infected with HIV. However, due to the focus of HIV prevention efforts was largely on people uninfected with HIV, people on anti-retroviral therapy (ART) were not addressed by prevention strategies in Ethiopia, particularly at the study area. Thus, the aim of this study was to determine prevalence of unprotected sexual practice and associated factors among people who were on ART at Public Health facilities of Arba Minch town. Facility based cross-sectional study was undertaken on a sample of 513 patients who were on Anti-Retroviral Therapy in public Health Facilities of Arba Minch town. The study was conducted from January to March, 2014 by asking participants without any interval. Interviewer-based questionnaire was used to collect the data. Statistical package for social science (SPSS), version 20 software was used to perform descriptive and logistic regression analysis. Statistical significance was declared for predictor variables at p-value less than 0.05. Among 513 participants who were currently sexually active, 267 (52%) practiced unprotected sexual practice within 3 months prior to the study period. Monthly income of less than 500 Ethiopian birr, AOR and 95% CI were 4.69: 3.5-11.87; non specified monthly income, AOR and 95%CI were 6.74: 2.14-21.26; less than one year duration since ART started, AOR and 95%CI were 5.5:2.08-14.5; lack of discussion about safe sex with partners, AOR and 95% CI were 7.03:4.20-11.80 and unknown partner's sero-status for HIV, AOR and 95%CI were 2.76:1.16-6.53, times more likely to practice unprotected sexual practice as compared to their counterparts. Prevalence of unprotected sexual practice was high. Low monthly income, unknown partner's HIV sero-status, less than one year duration on anti-retro viral treatment (ART) and lack of discussion about safe sex with sexual partner were positively associated with unprotected sexual practice. Health education at different level and local media should give due attention on partners testing, open discussion about safe sex, and positive living information for recently enrolled ART patients. Income generating activities should be planned by carefully identifying those patients with low income status.

Key words: Unprotected sexual practice, human immunodeficiency virus (HIV), anti-retro viral treatment (ART).

INTRODUCTION

Human immunodeficiency virus (HIV) is a major global public health problem with more than 25 million lives lost over the past three decades and majority of new infections occur in Sub Saharan Africa (SSA) where sixty nine percent of all the people live with HIV (UNAIDS, 2010). Ethiopia is one of the highly affected countries in SSA with a large number of people living with HIV, approximately 44,751 human immune deficiency syndrome (AIDS) related deaths occur (WHO, 2011). According to the report of 2011 Ethiopian demographic and health survey (EDHS), HIV prevalence in Ethiopia was 1.9% for women and 1.0% for men with an overall prevalence of 1.5% (CSA, 2011).

Unprotected sexual practice with multiple partners is identified as the greatest risk factor for transmission of HIV in SSA, and it is a public health concern among people infected with HIV (PLHIV). The prevalence of unprotected sexual practice is very high in African countries ranging from 40.1% among males and 46.3% among females in Cape Town, South Africa to 83% in Uganda (Eisele et al., 2008; Quirk et al., 2008).

The health status of HIV infected patients was improved due to widespread availability of antiretroviral therapy (ART), despite this benefit, treatment may have unintended effects on sexual practice. Understanding the sexual practices and its risk factors among people living with HIV, who are on ART is critical for preventing the transmission of the disease, prevent the acquiring of new strain and improving the life of people on ART (Crepaz and Marks, 2002).

However, due to the focus of HIV prevention efforts was largely on people uninfected with HIV, people on ART were not addressed by prevention strategies in Ethiopia, particularly at the study area. Therefore, this study determined magnitude for unprotected sexual practice and risk factors among people on ART at public facilities of Arba Minch town. The finding of this study will help concerned bodies to design appropriate interventions and it will be used as a baseline for further study.

METHODS

Study setting, design and population

The study was conducted among HIV patients who were on ART in public health facilities of Arba Minch town, which is a capital city of Gamo Gofa Zone. There were one public hospital and one health center which provide ART services for the town and surrounding community. Facility based cross-sectional study design was undertaken from January to March 2014 at the two health facilities.

Study participants were those patients who were taking ART, who had sexual experience within 3 months of the study period. HIV patients who were enrolled in ART services and whose age greater than or equal to 18 years were included. However, people who were seriously ill and unable to respond were excluded.

Sample size and Sampling procedure

From the two health facilities, all patients who had sexual experience within the last three months and attending ART clinic during study period was included without any interval in this study. The total sample size, 513 was eligible population included from both facilities without any interval (consecutively) until the end of three months. Further, strong care was taken to prevent the repetition during data collection.

Data collection

A face to face interview using pretested structured questionnaire was used for data collection. Four diploma nurse as data collectors and one bachelor degree in public health as supervisor were recruited for data collection.

Measurement

1. Unprotected sexual practice: Non-use, inconsistent use or inappropriate use of condom during sexual intercourse with either HIV-negative, positive or unknown sero-status partners in the previous three months.
2. Steady partner: One with whom the respondent had a regular sexual relationship and who is perceived by the respondent to be the spouse or regular boy/girlfriend for more than three months.
3. Casual partner: one other than the regular partner with whom the respondent had sexual intercourse with or without payment during three months prior to the study period.
4. The independent variables: Socio-demographic characteristics including age, sex, ethnicity, education, religion, marital status, occupation and income status; relationship factors including the number of sexual partners, types of sexual partner and any discussion about condom use, partner's HIV sero-status and their disclosure status. Other independent variables included medically related factors like safer sex beliefs and the duration of HIV diagnosis and start of ART, safe sex beliefs about ART and safer sex knowledge, pleasure and effectiveness. Active substance and alcohol use; behavioral factors included self-efficacy to use a condom, and general social support by family and friends.

Data analysis

The data were cleaned, coded and entered to Epi Info version 7 and exported to SPSS for analysis. Descriptive statistics was used to present mean, frequency and percentage distributions. Chi-square was checked for each independent and dependent variables, for those variables which could not fulfil the chi-square assumptions, variable recoding was done. Bivariate and multivariate logistic regression model were used to identify factors associated with unsafe sexual practices. Significance of association and precision was tested by odds ratio and p-value, where p-value less

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than or equal to 0.2 and 0.05 were considered significant for bivariate and multivariate, respectively.

Quality assurance

The questionnaire was first prepared in English and then translated into Amharic, and then back translated to English to check for consistency by two different individuals who were fluent both in English and Amharic. Pre-testing of the questionnaire was done on clients who were receiving ART at Geresse health center, which was at the nearby district. Accordingly, corrections were made based on the errors identified to improve the tool. The data collectors and supervisors were trained in the methods, objectives, and other technical aspects of the study before the commencement of data collection. During the data collection process, the principal investigator and supervisors closely supervised process for errors and completeness.

Ethical consideration

Ethical approval was obtained from Arba Minch University college medicine and health science ethical review board. Official letter was sent to the hospital and the health centre from Arba Minch University College of Medicine and Health Sciences, and permission was obtained from respective mangers before data collection. Informed consent was obtained from the study participants, and the information was confidential.

RESULTS

Socio demographic characteristics of respondents

A total of 513 respondents were involved in the study. Majority, 350(68.2%) of the respondents were female. The mean age of the participants was 32.7± 8(SD) and 238 (46.4%) were in the age group of 25 to 34 years. Average monthly income of the participants was less than 500 Ethiopian Birr for 176(34.3%) (Table 1).

Medical and lifestyle related characteristics of respondents

Sexual practices of respondents

Of the total participants, more than half, 267 (52%) had used condom inconsistently or not used at all in the last 3 months. More than one fourth of the participants, 153 (29.8%) had multiple sexual partners within the last three months. Among the participants, 348(67.8%) had sexual experience with steady partners, 78(15.2%) had sexual experience with causal partners and the rest with mixed partnership (Table 3).

Factors associated with unprotected sexual practice

To identify factors associated with unprotected sexual practice, bivariate and multivariable analysis were done.

For those variables which fulfilled the Chi-square test assumptions, bivariate analysis was done and variables with P-value<0.25 such as: Age, sex, current marital status, current occupation, average monthly income, time since ART started, discussion about safe sex, partner HIV sero-status, reduced concern of safe sex b/se of ART, poor knowledge on safer sex, perception on sexual pleasure with condom, perception on effectiveness of sex with condom, alcohol use within the last three months, number of sexual partner in the lastthree months, type of sexual partner partnership, with sexual partner at bivariate analysis were identified (Tables 1 to 3) were taken in to multivariable analysis.

All variables with P-value<0.25 in bivariate analysis were included in the multivariable analysis to see the effect of individual variables on the dependent variable while controlling for potential confounding variables. The multivariable logistic regression analysis result revealed that monthly income of less than 500 Ethiopian birr, AOR and 95% CI were 4.69: 3.5-11.87; monthly income of non-specified income, AOR and 95%CI were 6.74: 2.14-21.26; less than one year duration since ART started, AOR and 95%CI were 5.5:2.08-14.5; lack of discussion about safe sex with partners, AOR and 95% CI were 7.03:4.20-11.80; unknown partner's sero-status for HIV, AOR and 95%CI were 2.76:1.16-6.53 more likely to practice unprotected sexual practice as compared to their counterparts (Table 4).

DISCUSSION

The aim of this study was to determine magnitude of unprotected sexual practice and identify factors associated with it. The prevalence of unprotected sexual practice in this study was 52% (95% CI: 48, 56). This high magnitude of unprotected sexual practice might be due to patients feel better after anti-retro viral therapy initiation, and they assume as if they are free of virus. There is markedly higher variation between the finding of this study and that of reports from Addis Ababa and North Shewa, Ethiopia, where the prevalence was (36.9%) and (38%) respectively (Assefa, 2011; Dessie et al., 2011). The variation could be due to difference in socio-cultural situation and, health service delivery approach at different regions of the country, for instance engaging minorities and HIV positive people at different social situations help them to use different positive living approach so as to enhance their health status.

In this study, participants on ART follow up for less than a year (12 months) were 17.3%. Similar finding was reported from the study conducted in Debrezeit town, Ethiopia (16.8%) (Etsub et al., 2014).

Unknown HIV sero-status among partners of participants was 37.8% in this study. The study from Debrezeit town, Ethiopia reported 12.14% (Etsub et al., 2014). This visible difference on the magnitude of the

Table 1. Socio-demographic characteristics of respondents attending ART clinic at public health facilities of Arba Minch Town, 2014 (N=513).

Variable	Frequency (%)	Unprotected sex (n/N*100)	COR(95% CI)	P-value
Age				χ^2=0.025*
18-24	112(21.8)	13.6	3.9(1.40, 10.90)	0.010
25-34	238(46.4)	23.4	2.4(0.90, 6.40)	0.08
35-44	143(27.9)	13.8	2.3(0.80, 6.30)	0.106
>44	20(3.9)	1.2	Ref.	
Sex				χ^2=0.062*
Male	163 (31.8)	14.6	0.70(0.48, 1.09)	0.062
Female	350 (68.2)	37.4	Ref.	
Educational status				χ^2=0.408
Unable to write and read	171(33.3)	18.7	1.4(0.80, 2.35)	0.283
Primary	270(52.6)	26.5	0.982(0.554, 1.568)	0.791
Secondary and above	72(14.1)	6.8	Ref.	
Current marital status				χ^2=0.00*
Married	243(66.9)	28.8	Ref.	
Single	118(23.0)	15.6	2.77(1.78, 4.32)	0.00
Divorced	39(7.6)	6.04	5.10(2.28, 11.40)	0.00
Widowed	13(2.5)	1.6	2.108(0.678, 6.57)	0.199
Area of residence				χ^2=0.58
Urban	459(89.5)	46.1	0.85(0.48, 1.50)	0.58
Rural	54(10.5	5.8	Ref.	
Current occupation				χ^2=0.006*
Employed	66(12.9)	5.2	Ref.	
House wife	365(71.2)	35.8	1.468(0.863, 2.50)	0.157
Students	31(6)	4.1	3.03(1.23, 7.5)	0.016
Commercial sex workers	51(9.9)	6.8	3.16(1.465, 6.81)	0.003
Average monthly income				χ^2=0.00*
Non-specified	279(54.4)	31.5	3.07(1.68, 5.63)	0.00
<500 ETB	176(34.3)	16.9	2.17(1.5, 4.07)	0.016
≥500ETB	58(11.3)	3.5	Ref.	

χ^2 =refers to p-value of Pearson chi-square test, n=unprotected frequency in the given category (N=513).

study might be due to the reported magnitude in the mentioned reference was sero-status of single partners. With regard to this fact, those who reported about discussing condom use (safe sex) with their sexual partners was 35.6%, which is similar with the study finding reported from North Shewa, Ethiopia 35.9% (Dessie et al., 2011).

The current study revealed that those who had no or unspecified income and those who had an income of less than 500 birr were positively associated with practicing unprotected sex. Similar study done in France showed positive association between being in low monthly income and risky sexual practice (Bouhnik et al., 2007).

This similarity could be due to financially unsecured

people might expose themselves to unprotected sex to generate money.

Participants who never or partly discussed with their sexual partners about safe sex were more likely to practice unprotected sex as compared to their counter parts. This is in line with a study finding reported from Addis Ababa, Ethiopia (Assefa, 2011), and the reason might be those who did not discuss about sexual life among HIV positive people might not have knowledge on the importance of protected sex for preventing HIV and other sexually transmitted infections to HIV positive people.

In this study, participants who attended ART for less than a year were more likely to practice unprotected sex

Table 2. Medical and lifestyle related characteristics of respondents attending ART clinic at public health facilities of Arba Minch Town, 2014.

Variable	Frequency (%)	Unprotected sex (n/N*100)	COR(95% CI)	P-value
Time since ART start				χ^2=0.00*
< 1 year	54(10.5)	9	6.02(2.78, 13.08)	0.00
1-2year	66(12.9)	5.6	0.821(0.485, 1.387)	0.460
>2year	393(76.6)	37.4	Ref.	
Time since tested positive				χ^2=0.84
$\leq$ 2 years	49(9.54)	5.81	1.5 (0.82, 2.72)	0.179
> 2 years	464(90.44)	46.1	Ref.	
Discussion about safe sex				χ^2=0.00*
Yes	183(35.6)	18.5	Ref.	0.00
No/partly	330(64.4)	33.3	7.89(5.17, 12.00)	
Partner sero-status for HIV				χ^2=0.00*
Negative	62(12.13)	6.04	Ref.	
Positive	327(63.7)	26.3	0.703(0.408, 1.20)	0.205
Unknown	124 (24.17)	19.6	4.391(2.20, 8.60)	0.00
Reduced concern of safe sex b/c of ART				χ^2=0.00*
Yes	246(48)	36.06	6.08(4.10, 8.90)	0.00
No	267(52)	16	Ref.	
Poor safer sex knowledge				χ^2=0.07*
Yes	82(15.9)	10.9	2.25(1.36, 3.75)	0.07
No	431(84.1)	41.1	Ref.	
Condom reduces sexual pleasure				χ^2=0.843
No	200(39)	20.07	Ref.	
Yes	313(61)	31.96	1.03(0.73, 1.5)	0.843
Condom has poor effectiveness to prevent infection				χ^2=0.006*
No	489(95.3)	48.3	Ref.	
Yes	24(4.7)	3.7	3.7(1.4, 10.4)	0.011
Alcohol use within the last 3 months				χ^2=0.028*
Yes	209 (40.7)	23.5	1.5(1.04, 2.10)	0.028
No	304 (59.3)	23.4	Ref.	
Addiction to substances				χ^2=0.176
Yes	378(73.7)	37.03	1.3(0.80,1.90)	0.177
No	135(26.3)	15	Ref.	
HIV status disclosure				0.70
Yes	368(71.7)	31.2	Ref	
No/partly	145(28.2)	20.8	3.66 (2.40, 5.90)	0.70

*Refers to eligible variable for multivariable analysis at p-value<0.25; tested by chi-square and bivariate analysis;N=513, n=frequency of unprotected sexual practice in the given category of variable; b/c=because.

Table 3. Current sexual practices of respondents among patients attending ART clinic at Public Health Facilities of Arba Minch town, 2013/2014 (N=513).

Variable	Frequency (%)	Unprotected sex(n/N)	COR(95% CI)	P-value
Use condom always and appropriately				
Yes	246(48)	0		
No	267(52)	100		
Number of sexual partner in the last 3 months				
One	360(70.2)	32.3	Ref.	χ^2=0.00*
Multiple	153(29.8)	19.7	2.2(1.50, 3.30)	0.00
Type of sexual partnership				χ^2=0.00*
Steady	348(67.8)	30.7	Ref.	
Causal	78(15.2)	8.90	1.7(1.05, 2.8)	0.031
Mixed	87 (20)	12.28	3.1(1.88, 5.20)	0.00

*Refers to eligible variable for multivariable analysis at p-value<0.25, tested by chi-square; N=frequency of the specific variable category;n=frequency of unprotected sexual practice.

Table 4. Multivariable analysis results for factors of unprotected sexual practice among respondents who are attending ART clinic at public health facilities of Arba Minch town, South Ethiopia2013/2014.

Variable	Unprotected sexual practice (N=267)	Protected sexual practice (N=246)	AOR 95%CI	p-value
Monthly income				
Not specified	162(60.7)	117(47.6)	6.745(2.14, 21.26)	0.001*
<500 birr	87(32.6)	89(36.2)	4.69(1.85, 11.87)	0.001*
>=500 birr	18(6.7)	40(16.3)	Ref.	
Time since ART was started				
< 1 year	46.7(17.3)	7.3(3)	5.5(2.08, 14.5)	0.001*
1-2 year	28.7(10.7)	37.3(15.1)	0.70(0.36, 1.36)	0.300
>2 year	191.8(71.8)	201.2(81.7)	Ref.	
Discussion about safe sex with partners				
Yes	95(36)	88(35.4)	Ref.	
No/partly	172 (64)	159(64.6)	7.03(4.20, 11.80)	0.00*
Partner's sero-status for HIV				0.00
Negative	31(11.6)	31(12.6)	Ref.	
Positive	135(50.5)	192(78.04)	0.57(0.29, 1.106)	0.097
Unknown	100.5(37.8)	23.5(9.5)	2.76(1.16, 6.53)	0.021*

*Significant category of the variable at cutoff point, p-value<0.05.

as compared to their counterparts. This might be due to behavioral change; might not be brought over night, and when patients stay longer on ART, they better practice positive living parameters. This finding was inconsistent with study conducted in Debrezeit town, Ethiopia (16.8%) (Etsub et al., 2014), which reported no significant difference on the length of stay on ART follow-up. This might be due to the eligible participants in the cited study is sexually active participants in the last one year and in this study it is three months, which might mask the actual information due to recall bias.

In the current study, respondents who had sex with

partners of unknown HIV sero-status were more likely to experience unprotected sex. This might be due to the fact that HIV status determination reduces risky sexual behavior, and in other hand, the study participants might feel ashamed of demanding protected sex from their partners who did not know their HIV-status, if they themselves did not disclose their HIV-status to their partners. However, the finding from this study is not consistent with findings reported from studies done in Addis Ababa, Ethiopia and the Dominican Republic, where the likelihood of risky sex was found to be higher among respondents who had positive partners (Sears et al., 2008; Assefa, 2011). This variation might be related to socio-cultural difference among respondents. Another reason might be this study is done at rural setting other than the reference studies mentioned above, and in Ethiopian context people at rural level usually considers HIV positive status as a taboo, and do not want to tell the status for anybody.

In conclusion, prevalence of unprotected sexual practice was found to be high among people attending ART at public health facilities of Arba Minch city administration. Low monthly income, unknown partner sero-status, recent enrollment on ART, and lack of discussion about safe sex with sexual partner were factors positively associated with unprotected sexual practice. Therefore, health education at different level of health system and local media too should give due attention to partners testing, open discussion about safe sex for all patients attending ART, and positive living information to recently enrolled ART patients. Income generating activities should be planned by carefully identifying those patients with low income status.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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