

Prevalence of HIV and Associated Risk Factors Among Adults in Negele Borena Hospital, Guji zone, Oromia Region, Ethiopia

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Abstract

Background:- The peak incidence of Human Immunodeficiency Virus (HIV) infection occurs among adults who are at the most productive age of the population. They are vulnerable to HIV because of their age, living arrangement, and cultural influences. **Objective:-** The aim of this study is to determine the prevalence of HIV infection and its risk factors among adults in Negele Borena Hospital. **Method:-** A cross-sectional study was conducted on 384 adults in Negele Borena Hospital from April to September, 2017. Self-administered questionnaire was used to collect data on socio-demographic variables, knowledge of HIV/STIs and behavioral factors. In collaboration with the hospital work, whole blood samples were tested for the presence of antibody to HIV infection using National HIV rapid diagnostic tests algorithm. Chi-square test was conducted to identify risk factors, and finally, regression analysis was computed to identify the independent risk factors that influence the incidence of HIV/AIDS. **Results:-** The sero-prevalence of HIV was 11(2.86%) where 4(2.03%) and 7(3.74%) were males and females respectively. Alcohol drinking (AOR=5.2(1.1-25) and khat chewing (AOR=5.8, 95%CI 5.8 (1.3-27) discuss about sexual issues openly with their family AOR=13, 95%CI 13(1.6-102), peer pressure AOR=22.9, 95%CI 22.9 (3.9-131) and multiple sexual partner (AOR=5.2, 95%CI 5.2(0.9-29) were the risk factors for HIV infection and HIV/AIDS transmission determinants. **Conclusion and recommendation:-** The prevalence of HIV infection among adults of Negele Borena Hospital is high. New infection among young people suggested that the disease is not under control yet in the country. Therefore, planning strategy to prevent the spread of HIV infection in town is critical.

Keywords: Behavior, HIV/AIDS, prevalence, risk factor, transmission

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1. Introduction

AIDS, an acronym of acquired immune-deficiency syndrome, is a disease that becomes one of the world's most serious health and development challenges; especially within Sub-Saharan Africa, the AIDS epidemic was noticed first in central Africa. Soon after, the epidemic was observed in East Africa, and subsequently in West Africa. There is a great deal of similarity between the HIV virus a retrovirus closely related to the Simian Immunodeficiency Virus (SIV) which is responsible for clinical immunodeficiency in other non-human primates especially the African green monkey, although the SIV does not cause immune-suppression among monkeys. This apparent correlation has led to speculation among scientists that African hunters who butchered and ate monkeys (a traditional food source) might have been exposed to a mutated form of the virus that was infective to humans (Carter *et al.*, 2007).

AIDS was first recognized in USA in 1981 GC among homo sexual males. The opportunistic infections like pneumocystic carnie pneumonia was seen among five homo sexual and Kaposi sarcoma was diagnosed in 26 homosexuals with the virus. HIV virus was isolated from patients with lymphadenopathy in 1983 GC and on 1984 GC. The virus was clearly demonstrated to be the causative agent for AIDS (Lissan, 2004).

The disease AIDS makes the body too weak to fight off infectious diseases. This disease is caused by a virus known as the (HIV). It causes AIDS by injecting and damaging part of the body's defense against infection, part of the white blood cells known as lymphocytes, which are supposed to fight off invading germs. This virus attacks specific lymphocytes called T helper cells takes them over and multiplies this destroys more T cell that damages the body's ability to fight off invading germs and diseases.

When the number of T cells decreases in number to a very low level, people with HIV becomes more susceptible to other infections and they may get infections or certain types of cancer that a healthy body would normally be able to fight off. This weakened immunity is known as AIDS and can result in severe life threatening infections, some forms of cancer, and the deterioration of the nervous system. Characterized by spectrum starting from primary infection with or without the acute syndrome by relatively long period of asymptomatic stage after which in most patients progress to advanced disease. Although AIDS is always the result of an HIV infection, not everyone with HIV has AIDS. In fact Adults who become infected with HIV may appear healthy for years before they get sick with AIDS (Tadesse, 2007).

The Ethiopian Behavioral Surveillance Survey First Round, which used both survey and qualitative methods among 10 socioeconomic groups, reported above 90% knowledge of HIV and AIDS in all groups but high rates of risk behavior and low awareness of preventive measures, with the worst scores for rural females. Only 27% of

those who had engaged in unprotected sex considered themselves to be at risk of HIV infection, and about two-thirds of the regular drug and alcohol users had recent unprotected sex with a non-marital partner. More than 90% of the infections in Ethiopia take place among aged ranges between 15-49; the most economically productive segment of the population. Therefore, the aim of the current study is necessary to know the current status of HIV infected individual in the study area and exploring the knowledge, attitude and risky practice among the study participants toward HIV/AIDS (HAPCO, 2002).

2. Materials and Methods

2.1. Study Area Description

Negele Borena is a city administration and found in Guji Zone, state of Oromia. It is located at 600km Southeast of Addis Ababa and about 340km from Hawassa. The town is surrounded at east by Ethiopia Sumale regional state, at South by Borena zone, at the West by West Guji zone and in North by Bale zone of Oromia regional state. The town has one hospital, one health center and many other private clinics which is giving service for the whole population. Based on figures from the central statistical agency in 2004 E.C., this town has an estimated total population of 72,817 of whom 37,527 were males and 35,290 were females. The study will be carried out between April - September, 2017 at Nagele Hospital.

2.2. Study Design (Approach)

Health institutional based cross sectional study design was employed on the selected Nagele Borena Hospital from April - September, 2017.

2.3. Source Population

All adult population of age between 15-49 years in Nagele Borena city administration, Guji Zone.

2.4. Study Population

The target populations of this research was all adults aged 15 to 49 years, that were consult their physician or see their doctor during the study period in Nagele Hospital.

2.5. Sample Size

Sample size for this study was determined by using single population proportion formula. Since the prevalence of HIV/AIDS in the study area is unknown, the probability of HIV infection 0.5 (50%), 95% confidence interval, 5% margin of error.

$$n = \frac{\left(\frac{Z\alpha}{2}\right)^2 P(1-P)}{d^2},$$

Where n=minimum sample size needed

p=proportion (50%), assuming that proportion of HIV infection is 0.5.

Z=significance level at confidence interval of 95%

d=margin of error (0.05)

Z $\alpha/2$ =value of standard normal distribution corresponding to significant level of alpha (α) 0.05 which is 1.96.

$$n = \frac{1.96^2 \cdot 0.5(1-0.5)}{0.05^2} = 384$$

Therefore, n = 384

2.6. Sampling Methods

Health institutional based comparative cross-sectional study was conducted in Negele Hospital from April - September, 2017. A total of 384 sample size was determined and made to participate in the study. The simple random sampling technique was employed to recruit participants in the Hospital. Male to female ratio was almost kept proportional to participants size.

2.7. Methods of Data Collection

Socio-demographic variables, and behavioral factors such as, sexual relationship with multiple sexual partners, alcohol drinking, khat chewing, Cigarette smoking, peer pressure, Discussion honestly about risky sexual issue within the family and knowledge on sexually transmitted infection and AIDS was collected using a structured questionnaire. The above variables were completed in the questionnaire by adults themselves in order to increase participation and honest responses.

2.8. HIV Infection Screening

In collaboration with hospital, capillary blood was collected using sterile lancet from each study participant after thoroughly cleaning fingertips with 70% alcohol swabs. Then, the first drop of blood was wiped away and the remaining blood drops were collected using capillary tubes. Antibody to HIV infection was tested using the national HIV rapid diagnostic tests algorithm. Initially, HIV infection was screened using KHB (Bio-Engineering, Shanghai, Kehua). HIV positive samples were re-tested with STAT PAK (Chembio diagnostic, INC, Medfold, Newyork). HIV positive samples yielding discordant results between the first and the second tests were tested again with Unigold (Trinity Biotech PLC, Bray, Ireland). The results were interpreted using the current national algorithm for screening of HIV infection from whole blood which was adopted from WHO.

2.9. Eligibility Criteria

2.9.1. Inclusion Criteria

All the adult peoples who were aged between 15-49 years that was registered to consult their physician and for voluntary counseling and testing (VCT) of HIV virus during the study period included in the study.

2.9.2. Exclusion Criteria

- The study participant less than 15 years old and who are very sick unable to respond to the questions.
- All the adults who were aged between 15-49 years and registered out of the study period.

2.10. Data Analysis

All data was entered into SPSS Version 20 statistical software and the prevalence and risk factors associated with HIV/AIDS was determined. Test of association between outcomes of interest (HIV positive or AIDS patient) and other independent variable socioeconomic, demographic, biological, cultural factors (age, sex, wealth status, type of work, type of partner work, mobility behavior, sexual behavior, knowledge of HIV/AIDS and educational status, risky sexual practice like multiple sexual partner, chewing chat, drinking alcohol) was evaluated using Analysis of Variance assessment. P-values less than 0.05 statistically considered significant.

Separate data for HIV risk factors and HIV testing results was merged to form one database for survey. HIV serostatus was set as an outcome variable in the analysis. Data were analyzed using Bivariate analysis and Backward elimination test was used to see the association between dependent and independent variables.

3. Results

3.1. The Socio-demographic Factors of the Adults

A total of 384 adults were invited to participate in the survey with the response rate of 100%, and completed the questionnaires. Among the total of 384 respondents, 197 (51.3%) and 187 (48.7%) were males and females, respectively. Among all the respondents, 213(55.5%), 161(41.9%), 6(1.56%), 4(1.04%) were single, married, separated, and divorced respectively. Of the respondents 216(56.3%) of them were from urban and 168(43.8%) were come from rural. Regarding their education level, 64(16.7%) and 159(41.4%), 106(27.6%), 55(14.3%) of the respondents were attending, and others completed primary, secondary, Diploma, and Degree, respectively. The occupation of the respondents were 107(27.8%), 93(24.2%), 46(11.9%), 26(6.7%), 62(16.1%), 29(7.5%), 21(5.5%) Governmental, private, business, farmer, waiter, daily laborer and students others without their work respectively. When the respondents classified based on their monthly income, as perceived by the respondents, 78(20.3%), 76(19.8%), 78(20.3%), 152(39.5%) is fall in less than 500, 500-1000, 1000-2000, greater than 2001birr/month.

Table 1: The percentage distribution of result of adults in Negele Borena Hospital, 2017.

Variables	Categories	Frequency	Percentage
Sex	Male	197	51.3%
	Female	187	48.7%
Age	15-19	75	19.5%
	20-25	104	27.1%
	26-35	123	32%
	36-49	82	21.4%
Marital status	Single	213	55.5%
	Married	161	41.9%
	Separated	6	1.56%
	Divorced	4	1.04%
Residence	Urban	216	56.3%
	Rural	168	43.8%
Educational Level	Primary	64	16.7%
	Secondary	159	41.4%
	Diploma	106	27.6%
	Degree	55	14.3%
Occupation	Governmental	107	27.8%
	Private	93	24.2%
	Business	46	11.9%
	Farmer	26	6.7%
	Waiter	62	16.1%
	Daily laborer	29	7.5%
	None	21	5.5%
Income	<500birr/month	78	20.3%
	501-1000	76	19.8%
	1001-2000	78	20.3%
	>2001	152	39.5%
Total			384(100%)

3.2. The Prevalence of HIV/AIDS and Socio-demographic Factors Among Adults

Regarding HIV prevalence of the studied population, prevalence among female 7(3.74%) adults was relatively higher than males 4(2.03%). The prevalence in age distribution among adults from 25-36 was higher with 5(4.06%) and the others was 3(2.88%), 2(2.44%), and 1(1.33%) among 20-25, 36-49, 15-19 respectively. The marital status of adults was associated with risky behavioral practice with higher among single 6(2.82%) and that of married, divorced, and separated was 3(1.86%), 1(25%), and 1(16.67%) respectively. Respondents from urban, and rural was with prevalence of 9(4.2%) and 2(1.19%) respectively. The adults' prevalence with respect to educational levels was considered 2(3.64%), 5(3.14%), 2(3.12%) and 2(1.88%) with degree, secondary, primary and diploma respectively. From the adults' occupational point of view the prevalence was seen 2(6.89%), 4(3.74%), 1(3.85%), 2(3.22%), 1(2.2%), and 1(1.1%) with daily laborer, governmental, farmer, waiter, business, and private respectively. Yet again adults' prevalence was considered as 2(2.56%), 3(3.95%) and 6(3.95%) with their respective income of <500birr/month, 1001-2000birr/month, >2001birr/month. Furthermore, the unadjusted relationship between the demographic factors that influences adults to acquire HIV/AIDS and the risk behavioral practice that inputs for the prevalence of the disease was mentioned in the(Table 2) below.

Table 2: The prevalence of HIV/AIDS and the demographic factors among adults in Negele Borena Hospital, 2017.

Variables	Categories	HIV-Status (n=384)		Total	COR(95%CI)	P
		Positive(n=11)	Negative(n=373)			
Sex	Male	4(2.03%)	193(97.97%)	197(51.3%)	1	0.32
	Female	7(3.74%)	180(96.3%)	187(48.7%)	1.8(0.5-6)	
Age	15-19	1(1.33%)	74(98.67%)	75(19.5%)	1	0.49
	20-25	3(2.88%)	101(97.1%)	104(27.1%)	2.2(0.2-21)	
	26-35	5(4.06%)	118(95.94%)	123(32%)	3.1(0.4-27)	
	36-49	2(2.44%)	80(97.56%)	82(21.4%)	1.8(0.2-20)	
Marital status	Single	6(2.82%)	207(97.2%)	213(55.5%)	1	0.5
	Married	3(1.86%)	158(98.12%)	161(41.9%)	0.6(0.2-2.7)	
	Separated	1(16.67%)	5(83.33%)	6(1.56%)	6.9(0.7-68)	
	Divorced	1(25.00%)	3(75.00%)	4(1.04%)	11.5(1-127)	
Residence	Urban	9(4.2%)	207(95.83%)	216(56.3%)		1
	Rural	2(1.19%)	166(98.81%)	168(43.8%)	0.8(0.1-1.3)	0.1
Educational Level	Primary	2(3.12%)	62(96.88%)	64(16.7%)	1	0.9
	Secondary	5(3.14%)	154(96.85%)	159(41.4%)	1(0.19-5)	
	Diploma	2(1.88%)	104(98.11%)	106(27.6%)	0.5(0.1-4)	
	Degree	2(3.64%)	53(96.4%)	55(14.3%)	1.2(0.2-8)	
Occupation	Governmental	4(3.74%)	103(96.26%)	107(27.8%)	1	0.2
	Private	1(1.1%)	92(98.9%)	93(24.2%)	0.2(0.03-2.5)	
	Business	1(2.2%)	45(97.83%)	46(11.9%)	0.5(0.1-5.2)	
	Farmer	1(3.85%)	25(96.2%)	26(6.7%)	1(0.11-9.6)	
	Waiter	2(3.22%)	60(96.77%)	62(16.1%)	0.8(0.15-4.8)	
	Daily laborer	2(6.89%)	27(93.1%)	29(7.5%)	1.9(0.3-10)	
	None	0(0.00%)	21(100.0%)	21(5.5%)	NA	
Income	<500birr/month	2(2.56%)	76(97.43%)	78(20.3%)	1	0.63
	501-1000	0(0%)3(3.95%)	73(96.05%)	76(19.8%)	1.56(0.2-9.6)	
	1001-2000	0(0.00%)	78(100.0%)	78(20.3%)	NA	
	>2001	6(3.95%)	146(96.05%)	152(39.5%)	1.56(0.3-7.9)	
Total		11(2.86%)	373(97.14%)	384(100%)		

NA- Not Applicable, COR- Crude Odd Ratio, Reference category-1

3.3. The Knowledge of Adults on Sexually Transmitted Infections (STIs)

In the study the knowledge of the study participants about sexually transmitted infections was evaluated and 380(98.9%) of the respondents claimed to have ever heard about sexually transmitted infections (STIs), while (1.04%) did not. More than half 74.7%of adults mentioned that they know the modes of STIs transmission, and about25.3%did not know how STIs transmitted. The treatability and preventability of STIs known by the adults goes to 267(69.5%), 286(75.4%) and the other share of the adults 67(17.44%), 94(24.5%) responded that they do not know it respectively. Beside this the knowledge gap between the sex was determined in the (table 3) below.

Table 3: The percentage distribution of adults' result on knowledge of STIs in Negele Borena Hospital, 2017.

Variables/Categories		Sex		Total(384)
		Male(197)	Female(187)	
Do you heard about STIs? N=384	No	3(75.0%)	1(25.0%)	1.04%
	Yes	194(51.1%)	186(48.9%)	98.9%
Do you know modes of transmission of STIsN =380	No	38(39.5%)	58(60.4%)	25.3%
	Yes	156(54.9%)	128(45%)	74.7%
In your opinion, can STIs treatable? N = 380	No	43(64.2%)	24(35.8%)	17.44%
	Yes	119(44.6%)	148(55.4%)	69.5%
	Not sure	32(69.6%)	14(30.4%)	11.98%
Can STIs be preventable? N = 380	No	41(43.6%)	53(56.4%)	24.5%
	Yes	153(53.5%)	133(46.5%)	75.4%

3.4. The Knowledge Adults on HIV/AIDS

Almost all of the adults in this study had heard about HIV/AIDS, and modes of transmission were responded as 381(98.9%), 321(84.3%) respectively. 358(95.2%), 9(2.4%), 9(2.4%) respondents mentioned ways of HIV transmission is through un safe sex, common use of sharp materials, and mother to child respectively. 9(2.4%) of adults were responded as a pregnant woman can transmit HIV to her unborn child. About 33(8.66%) adults responded as Peoples are likely to get HIV by deep kissing. Adults also Responded as how taking a test for HIV one week after having sex will tell a person if she or he has HIV and AIDS preventability 27(7.1%)and 302(79.3%). Abstain 279(73.2%), condom usage 89(23.4%), being faithful 11(2.88%) as means of HIV/AIDS prevention were reported by the adults as shown on (Table 4) below.

Table 4: The percentage distribution of adults' result on knowledge of HIV/AIDS in Negele Borena Hospital,2017.

Variables/Categories		Sex		Total n=384
		Male	Female	
Do you heard about HIV? N= 384	No	1(33.3%)	2(66.7%)	3(0.8%)
	Yes	196(51.4%)	185(48.6%)	381(99.2%)
Do you know modes of transmission of HIV?N=381	No	4(28.5%)	10(71.4%)	14(3.68%)
	Yes	192(52.3%)	175(47.7%)	367(96.3%)
If the answer for Q. above is YES tell me the major ways of transmission of HIV? N = 376	unsafe sex	182(50.8%)	176(49.2%)	358(95.2%)
	common sharp material	6(66.7%)	3(33.3%)	9(2.4%)
	mother to child	5(55.6%)	4(44.4%)	9(2.4%)
All pregnant women infect HIV will have babies born with AIDS? N = 381	no	190(51.1%)	182(48.9%)	372(97.6%)
	yes	6(66.7%)	3(33.3%)	9(2.4%)
Total		196(51.4%)	185(48.6%)	381(100%)
Peoples are likely to get HIV by deep kissing?	no	152(49.8%)	153(50.2%)	305(80.1%)
	yes	21(63.6%)	12(36.4%)	33(8.66%)
	Not sure	23(53.5%)	20(46.5%)	43(11.3%)
Taking a test for HIV one week after having sex will tell a person if she or he has HIV?	no	177(50.0%)	177(50.0%)	354(92.3%)
	yes	19(70.4%)	8(29.6%)	27(7.1%)
Can AIDS be preventable?	no	30(38.0%)	49(62.0%)	79(20.7%)
	yes	166(55.0%)	136(45.0%)	302(79.3%)
Total		196(51.4%)	185(48.6%)	381(100%)
Which is the best means of HIV prevention? N= 381	abstain	153(54.8%)	126(45.2%)	279(73.2%)
	use condom	36(40.4%)	53(59.6%)	89(23.4%)
	be faithful	7(63.6%)	4(36.4%)	11(2.88%)
	Not sure	0(0%)	2(100%)	2(0.5%)

3.5. The Source of Information about HIV/AIDS of Adults

The source of information about HIV/AIDS was reported as it was from health extension workers, parents, school clubs, and media(Radio, Television) with the respective percentage of 107(28.1%), 23(6%), 99(25.9%), and 152(39.9%)as shown on (table 5) below.

Table 5: The percentage distribution of result of the source of information of adults about HIV/AIDS in Negele Borena Hospital, 2017.

		Source of information about HIV/AIDS				Total
		Health extensions	Parents	School club	Media(radio, television)	
Sex N= 381	Males	53(49.5)	13(56.5%)	68(68.7%)	62(40.8)	196(51.4%)
	Females	54(50.5)	10(43.5%)	31(31.3%)	90(59.2)	185(48.6%)
	Total	107(28.%)	23(6%)	99(25.9%)	152(39.9%)	381

3.6. The Number of CD4 Cells of Adult Patients

(Table 6); below shows the number of CD4 of all adult patients were determined and started ART drugs in hospital. The females are highly vulnerable to AIDS than males with 4(57.1%) their CD4 count is less than 100/mm³ of blood, while this was not a case in males, but about 2(50%) of male range between 101-350/mm³. Among the positive adults males 2(50%) and 3(42.8%) females was above 350 CD4/mm³. Regarding the age distribution,

3(60%) of adults with age ranges between 26-35 years old are with less than 350 CD4/mm³. Yet again 4(66.7%) of unmarried adults were comprising of CD4 count of less than 350/mm³ of blood as shown below.

Table 6: The percentage distribution of result of the number of CD4 cells of patients per mm³ of blood in Negele Borena Hospital, 2017.

Variables/Categories		Number of CD4 cells per mm ³ of blood				Total
		Less than 100	101-200	201-350	Greater than 350	
Sex	Male	0(0%)	1(25%)	1(25%)	2(50%)	4(36.4%)
	Female	4(57.1%)	0	0	3(42.8%)	7(63.6%)
Age	15-19	0	0	0	1(100%)	1(9.1%)
	20-25	1(33.3%)	0	0	2(66.7%)	3(27.3%)
	26-35	1(20%)	1(20%)	1(20%)	2(40%)	5(45.5%)
	36-49	2(100%)	0	0	0	2(18.2%)
Marital status	Single	2(33.3%)	1(16.7%)	1(16.7%)	2(33.3%)	6(54.5%)
	Married	1(33.3%)	0	0	2(66.7%)	3(27.3%)
	Separated	0	0	0	1(100%)	1(9.1%)
	Divorced	1(100%)	0	0	0	1(9.1%)

3.7. The Adults' Individual Character and Behavioral Risk Practice

Sometimes the individuals characters practiced badly so far become to control and pressure them to perform certain risk practice. The risk of HIV infection is determined by the total number of unprotected sex acts with an HIV-infected partner and the efficiency of HIV transmission as shown on (Figure 4) below.

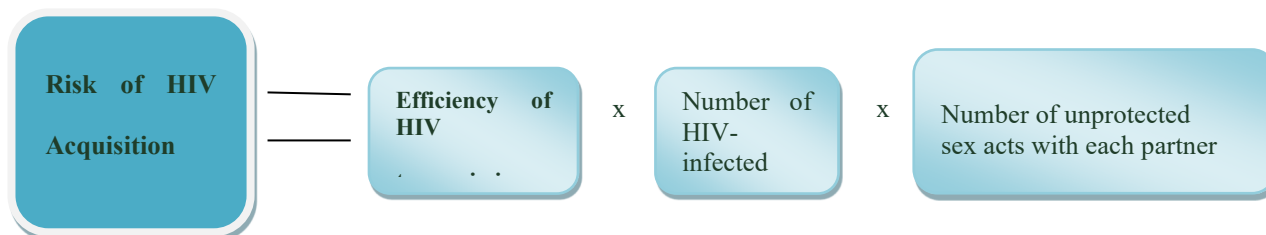


Figure 2: Framework of biomedical and behavioral risk factors for HIV acquisition.

3.8. The Bivariate and Multivariate Analysis of Risk Behavioral Practice Among Adults in Negele Borena Hospital.

Table 7 below shows the unadjusted and adjusted association between risk behavioral practice as well as HIV/AIDS prevalence that were determined in bivariate and multivariate analysis respectively. In order to investigate the association of independent variables with both univariate and multivariate analysis were used. A total thirteen variables (age, sex, residence, level of education, marital status, occupation, income, drinking alcohol, chewing chat, smoking cigarette, sexual partner, discussion about sexual issue, peer pressure were considered for the bivariate analysis. However only ten variables (age, sex, residence, marital status, drinking alcohol, chewing chat, smoking cigarette, sexual partner, discussion about sexual issue, peer pressure) were associated with risk behavioral practice on the bivariate analysis and were selected as candidate variables for multivariable logistic regression analysis. To determine independent predictors of HIV infection, multivariable logistic regression analysis was employed by taking variables whose *p*-value was < 0.1 in the binary logistic regression model. *P*-value of < 0.05 was considered statistically significant. The multivariable logistic regression analysis was used by taking all the ten factors into account simultaneously and only five of the most contributing factors remained to be significantly and independently associated with risk behavioral practice (drinking alcohol, chewing chat, discussion about sexual issue in the family, peer pressure, and multiple sexual partner). Drinking alcohol had showed statically significant association with outcome variable. Adults who were frequent drinker were 5.2times more likely to have risky behavioral practice as compared with those who did not drink (AOR=5.2(1.1-25). Adults those who drink alcohols daily were 3.3 times more likely to experience risky behavioral practice as compared to who did not (AOR=3.3(0.21-50), but not statistically significant. Besides this factor chewing khat is another risk behavior in which adults those who chew khat frequently were 5.8times more likely to have risky behavioral practice as compared with those who did not chew khat (AOR=5.8 (1.3-27).

Furthermore, those adults who did not discuss about sexual issues openly with their family were 13times more likely to have risky behavioral practice as compared to those whom their family discuss about sexual issues (AOR=13 (1.6-102). The adults who were under peer influence practically were 22.9times more likely to have risky behavioral practice as compared to those who didn't (AOR=22.9(3.9-131). Yet again, the adults who had

multiple sexual partner were 5.2 more likely to have risky behavioral practice than those who didn't have multiple sexual partner in the last 12 month (AOR=5.2(0.9-29).

Table 7: Bivariate and multivariate analysis showing the risk factors of HIV prevalence among adults in Negele Borena Hospital, 2017.

Variables	Categories	HIV-Status		Total	COR(95%CI)	P	AOR(95CI)	P
		Positive	Negative					
Drink Alcohol	Never	4(1.34%)	294(98.65%)	298(77.6%)	1		1	
	sometime	6(8.33%)	66(91.66%)	72(18.8%)	6.68(1.8-24)	0.04	5.2(1.1-25)	0.04
	Daily	1(7.14%)	13(92.85%)	14(3.6%)	5.6(0.59-54)	0.1	3.3(0.21-50)	0.3
chew Khat?	Never	5(1.81%)	271(98.18%)	276(71.8%)	1			
	sometime	6(7.59%)	73(92.41%)	79(20.5%)	4.4(1.3-15)	0.01	5.8(1.3-27)	0.02
	Daily	0(0%)		29(100%)	NA		NA	
smoke cigarette?	Never	9(2.65%)	330(97.34%)	339(88.3%)	1			
	sometime	2(7.69%)	24(92.31%)	26(6.7%)	3.05(0.6-14)	0.1	1.4(0.18-11)	0.7
	Daily	0(0%)	19(100%)	19(4.9%)	NA			-
Discuss about Sexual issue.	YES	3(1.58%)	186(98.4%)	189(48.4%)	1		1	
	NO	8(4.1%)	187(95.89%)	195(50.7%)	0.3(0.09-1.4)	0.1	13(1.6-102)	0.01
Is there Peer pressure?	NO	2(0.68%)	289(99.3%)	291(75.8%)	1		1	
	YES	9(9.67%)	84(90.32%)	93(24.22%)	15.5(3.3-73)	0.001	22.9(3.9-131)	0.000
Multiple Sexual partner in the past 12 month?	NO	5(1.77%)	277(98.22%)	282(73.4%)	1		1	0.02
	YES	6(5.88%)	96(94.11%)	102(26.5%)	3.5(1-11)	0.04	5.2(0.9-29)	0.05
Total		11(2.86%)	373(97.14%)	384(100%)				

NA- Not Applicable, AOR- Adjusted Odd Ratio, Enter method, Reference category-1.

3.9. HIV/AIDS Transmission Determinants among Men and Women

Table8, below show results from the logistic regression model of determinants of HIV transmission during the study period and their variation between men and women among sexually active individuals age 15-49 in Nagele Borena Hospital. The unadjusted prevalence HIV/AIDS is highly correlated with their respective transmission determinants. However, there is variation between men and women. From what was mentioned in table 7, adults who drinks alcohol frequently were 5.2times more likely to have risky behavioral practice as compared with those who did not drink. Moreover, HIV/AIDS was considered as it was prevalent in men with this large probability 40(55.6%) in those who were frequent drinker than in women 32(44.4%). In frequent chewer of females more than half 53(67.1%) of the probability put them under the risk doing of contracting HIV/AIDS than males 26(32.9%) and it was 40(55.6%) for males who drink alcohol frequently. The large sharing prevalence of HIV/AIDS among adults who were influenced and did not discuss about sexual issue goes to females with percentage of 53 (57%) and 106 (54.4%) respectively. Similarly, it was 54.6% for males who has multiple sexual partners.

Table 8. The prevalence of HIV/AIDS and its transmission determinant among adults in Nagele Borena Hospital, 2017.

	Gender of respondent		Total	HIV Status		Total
	Male(197)	Female(187)		+Ve(11)	-Ve(373)	
Have you ever chew chat?						
Never	149(54.0)	127(46.0)	276	5(1.8)	271(98.2)	276
sometimes	26(32.9)	53(67.1)	79	6(7.6)	73(92.4)	79
every day	22(75.9)	7(24.1)	29	0(0.0)	29(100.0)	29
Do you consume alcohol (beer)?						
Never	148(49.7)	150(50.3)	298	4(1.3)	294(98.7)	298
Sometimes	40(55.6)	32(44.4)	72	6(8.3)	66(91.7)	72
Everyday	9(64.3)	5(35.7)	14	1(7.1)	13(92.9)	14
Discussion habit on sexual issues						
no	89(45.6)	106(54.4)	195	8(4.1)	187(95.9)	195
yes	108(57.1)	81(42.9)	189	3(1.6)	186(98.4)	189
Having there peer pressure ?						
yes	40(43)	53(57)	93	9(9.7)	84(90.3)	93
no	157(54)	134(46)	291	2(0.7)	289(99.3)	291
Multiple sexual partner for the past 12 months						
yes	56(54.6)	46(45.1)	102	6(5.9)	96(94.1)	102
no	141(50.0)	141(50.0)	282	5(1.8)	277(98.2)	282

4. Discussion

This study identifies the risk associated factors such as drinking alcohol, chewing khat, peer pressure, multiple sexual partner that influence the presence of unsafe sex which are the positive predictor of the prevalence of HIV infection in Nagele Borena Hospital.

This study indicated that 380(98.9%) and 381(99.2%) of the respondents claimed to have ever heard about sexually transmitted diseases (STIs) and HIV/AIDS respectively. This finding was comparable with the findings of the study conducted in Tanzania in which majority of students (98%) have heard about STIs (Kazaura, *et al.*, 2009). Similarly, 98.9% of respondents males and females with 196(99.5%) and 185(98.9%) respectively showed that they had heard about HIV/AIDS. This finding was almost similar with EDHS, (2011) report in which 99% of men and 97% of women respondents had heard of about HIV/ AIDS.

In this study 74.7% and 96.3% of adults know about transmission of STI and AIDS. Other study finding indicated that above half (59.8%) of participants know about transmission of STI and 96.4% of participants know about ways of transmission of HIV/AIDS (Andualem *et al.*, 2015). The difference might be due to difference in study subject which is adults in this study and most of them (83.3%) were above secondary level of education.

In this study there were several misconceptions responded on the knowledge of HIV/AIDS in which 9(2.4%), 19.96% and 0.5% accounts for all pregnant women infect HIV will have babies born with AIDS, Peoples are likely to get HIV by deep kissing, confusion about method of HIV prevention respectively. Similarly, EDHS, (2011), indicated that prevention is generally stronger than knowledge about sexual transmission, while misconceptions regarding mosquitoes and transmission by supernatural means remain persistent.

In this study, the events after drinking alcohol, chewing khat and living with many sexual partner, peer pressure, and absence of sexual issue within the family were the predictor variables for HIV infection. Adults who were frequent drinker were 5.2times more likely to have risky sexual behavior as compared with those who did not drink (AOR=5.2(1.1-25). Similarly, chewing khat is another risk behavior in which adults those who chew khat frequently were 5.8times more likely to have risky sexual behavior as compared with those who did not chew khat (AOR=5.8 (1.3-27). Among these adults the probability of being under the risk was goes to females (67.1%) with frequent chewer than males (32.9%). The reason may be goes to habit females in the study area on khat chewing. In Negele there were some women who chew khat were two times more likely of performing risk sexual behavior to acquire HIV/AIDS. The large number of respondents among alcohol drinker was larger in males than females. Thus, larger probability goes to men in doing risk sexual behavior.

Comparable study (Wondemagegn *et al.*, 2014) with (AOR= 8.7, CI=1.26 - 60) and (AOR=8.16, CI=1.07-62)of alcohol and khat chewing respectively showed that, how adults who drink alcohol were 8.7 times more likely to have risky sexual behavior than who did not drink and adults who chew khat were 8.16 times more likely to have risky sexual behavior than who did not chew khat. Similar findings were also observed in studies conducted in southwest, Ethiopia, revealed that Youths who drink alcohol were more than two times more likely to engage in risky sexual behavior (Fantahun *et al.*, 2014). In addition, studies have showed that youths who drink alcohol

are more likely to engage in risky sexual behaviors like having multiple sexual partners, performing unprotected sexual intercourse, and having sex with high-risk partners like commercial sex workers (Miller *et al.*, 2007). Another studies reported that substance abuse causes loss of inhibition and involvement in risky sexual behaviors such as unprotected sex, multiple sexual partners, prolonged and traumatic sex (Tura *et al.*, 2012).

In this study, a problem related to the discussion about the impact of the HIV disease was found to be significantly associated unsafe sex, which leads to HIV infection. 195(50.7%) of adults was not discuss about sexual issues with their family. This is greater than research conducted (Zemenu *et al.*, 2016) that found 43% and less than 52% research conducted (Andualem Henoket *et al.*, 2015). The difference is because of cultural unacceptability 6(9.23%), shame 43(66%) lack of knowledge 16(24.6%), were considered as reasons for the adults not discussing sexual issue within their family. The study shows 13 (1.6-102) that adults who did not discuss about sexual issue related to HIV/AIDS were more likely 13 times risky of performing unsafe sex than those who discuss. Out of 195 (50.7%) of the total adults who were not discuss about sexual issue more than half 106(54.4) of them were females. This entail that still females have higher probability of conducting risk behavior, because of discussion about issues.

This is similar to (Elias *et al.*, 2014) research conducted which shows 2.23 (1.29, 3.96) that participants who did not discuss about sexual issues were more likely 2.23 times risky to unsafe sex which lead to HIV infection than those adults who discuss about sexual issues within the family.

The other risk factor considered in this study was peer pressure to have sexual intercourse. Adults who were influenced, in this study account 93(24.22%) which, is almost similar 144 (17.2%) to (Almaz Gizaw *et al.*, 2014); with the odd ratio of 1.13 (0.72, 1.79). The study revealed 22.9 (3.9-131) that adults who were influenced by their peer were more likely 22.9times risky of doing unprotected sex which lead to HIV infection than adults who were not influenced. Moreover, unadjusted prevalence was higher in females with greater probability of comprising more than half of the total adults who were at risk 53(57%) than in males 40(43). This case related to the problem decision making that observed in women than males

Regarding to sexual partner history of adults in this study 26.5% of adults have multiple sexual partner which is 21.1% higher than research conducted by (Andualem Henok *et al.*, 2015). The difference may be related to age of participants where many adults can be involved in extra and pre-marital sex than adolescents. The odd ratio of AOR= 5.2(0.9-29) in this study shows that adults who have multiple sexual partners were more likely 5.2 times risky of HIV infection than adults who did not have multiple sexual partners. More than half of adults who were considered as having multiple sexual partners, were males 56(54.6%) than females 46(45.1%). Since having many wives, which extra marital is not restricted by religion and culture, males, involved in many partner than females in the study area.

Similar study was found to be(AOR=2.96, 95% CI=0.1-87) that indicated adults who have multiple sexual partners were more likely 2.96times risky of HIV infection than adults who did not have multiple sexual partners(Wondimagegn *et al.*, 2014).

HIV infection is a significant public health problem particularly in developing countries, including Ethiopia. The prevalence of HIV infection in this study was (2.86%) which is higher than study conducted (EDHS, 2011) which is 1.5 and still lower 3.5% than those that was conducted by (HAPCO, 2007). Higher prevalence of the adults in the Negele Borena Hospital was because many of the adults were under the positive predictors of risky factors as indicated in this study such as drinking alcohol, chewing khat, lower discussion about sexual issues, existence of peer pressure, and having multiple partners which are identified with their respective odd ratio. The other reason may be associated with location of the town in which higher contraband invites mixed populations, labour migration to urban, large dam construction projects nearby the town, higher number of female sex worker as well as a growing service industry. Moreover (EDHS 2011), analysis showed HIV prevalence is four times greater among populations that reside within 5km from a main asphalt road compared to those further away. Moreover, the presence of tourists, pensions in the study area might have encouraged transactional sex and sexual relationship with partners in the city which might in turn have led to the existence of high rate of HIV infection (Tewabe *et al.*, 2012).

Similarly, in this study the prevalence of women (3.74%) is higher than men (2.03%). EDHS, (2011), indicate the prevalence which was higher among women (1.9%) than men (1%). The difference is because relatively most of the females 183(48.6%) did not know modes of transmission of HIV than males 193(51.3%). So, that they get involved in risky sexual behavior like unprotected sex which increase the probability of contracting HIV/AIDS. Similarly, other studies show that prevalence of HIV infection among female students might be due to greater risks to factors such as early sexual debut, early marriage, sexual abuse, violence and transactional sex (Malaju *et al.*, 2013). Moreover, females' sexual relationship and networking with men to meet their financial needs., might be the contributing factors and biological factors including immature genital tract, male to female HIV transmission and lack of comprehensive knowledge about HIV/AIDS, poor access to health services could also explain this difference.

5. Conclusion

In this cross-sectional survey of adults in Nagele Borena Hospital, awareness of HIV and its mode of transmission were high. However, there were some misconceptions on HIV/AIDS where some of adults believe that as HIV can pass through deep kissing, pregnant mother always give infected child and transmission of HIV. Similarly, this finding showed that there were low communications about sexual health issues. Cultural taboo, feel ashamed and lack of knowledge affect family communication on sexual matters. This is an encouraging finding that health workers 107(28.1%), media (Television and Radio)152(39.9%), parents 23(6%), and school clubs 99(25.9%), were playing an important role in the dissemination of information about HIV/AIDS. Communications about sexual matters depend on same sex basis. Promote family communication on sexuality and improve peer to peer sexuality education program. As educational level of parents is a critical factor in advancing member of family communication about sexual health matters, policy makers and program managers should focus on encouraging parents to pursue education. Moreover, health workers should be effective in equipping member of family with adequate sexual health information. This Improve knowledge, attitude and stigma parameters, including increased condom use with non-regular partners and improve accepting attitude toward HIV-infected people.

This study explains, drugs like alcohol, and khat when taken into body of people enhance desire to risky behavior so that judging capacity of peoples lower. So that the drug abuse were considered as driving force of both males and females to contract HIV/AIDS. Adults who were frequent drinker were 5.2 times more likely to have risky sexual behavior as compared with those who did not drink. Similarly, adults those who chew khat frequently were 5.8 times more likely to have risky sexual behavior as compared with those who did not chew khat. Similarly, the existence of peer pressure, the problem of sexual issue discussion within the family, and multiple sexual partners positively influence peoples to carryout unsafe sex which leads to HIV infection.

Prevalence of HIV infection among Nagele Borena and surrounding adults in the study period was 2.86%. Females 7(3.74%) are highly affected by HIV infection than males 4(2.03%). Similarly, respondents with age range 26-35 years old were highly affected with virus in which the prevalence is large (5(4.06%). The others were 1(1.33%), 3(2.88%), 2(2.44%) with their corresponding age groups were 15-19, 20-25, and 36-49 respectively. New infection among young people suggested that the disease is not under control in the country yet.

The females are highly vulnerable to AIDS than males (0.00%) with 4(57.1%) their CD4 count is less than 100/mm³ of blood. Another vulnerability was seen in single 2(33.3%) both for boys and girls. This indicates that females and single individuals were fear to go to Hospitals so that VCT has to work hard to save lives of the peoples.

Generally, drinking alcohol, chewing khat, peer pressure, discussion about sexual issues, and multiple partners were factors identified as predictor of HIV/AIDS infection, and they are determinants of HIV transmission. Finally, the HIV/AIDS transmission determinants among sex vary, which includes risk of chewing khat frequently, peer pressure, and not discussing about sexual issues goes to females. While males larger share goes to adults among frequent drinker, and those that have multiple sexual partners.

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