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Original Article

Prevalence of Sexually Transmitted Diseases and Associated Factors Among Prisoners in Gondar town, North West Ethiopia. Institution Based cross sectional study

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ABSTRACT

Background: Globally, an estimated 9 million people are in prison per year. Prison inmates are a particularly vulnerable population who are under pressure for sexual and other demands. Evidence would suggest that sexual transmitted infections acquired during prison stay. **Objectives:** This study was conducted to assess prevalence of sexual transmitted diseases and associated factors among Prisoners in Gondar town, North West Ethiopia. **Methods:** Institution based cross sectional study was conducted among prisoners in Gondar town from April to May/2012. A total sample of 448 prisoners selected by systematic random sampling method was included in the study. Data was collected by interviewer administered technique. Bivariate and multivariate logistic regressions were performed to identify the presence and strength of association. Odds Ratios with 95% confidence interval were computed to determine the level of significance. **Result:** The over prevalence of STI among prisoners was found 13.7%. In this study, history sexual transmitted infection before detention (AOR= 5.8; 95% CI 3- 12), previous imprisonment (AOR= 3.5; 95% CI 1.5- 8.0), lack of access to reproductive health information (AOR= 2.6; 95% CI 1.3- 5.0), and history of multiple sexual partners (AOR= 3.0; 95% CI 1.9- 8.4) were significantly association with sexual transmitted infection. **Conclusion:** The prevalence of STIs among prisoners was found to be high. Hence, sexual health programs in prisons should include sexual transmitted infections screening and treatment programs and health education about sexually transmitted infection risk reduction.

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MATERIALS AND METHODS

Globally, almost 57 million Disability-Adjusted Life Years (DALYs) are lost to sexually transmitted infections (STIs) [1, 2].

Sexually transmitted infections (STIs) are one of the major global acute illnesses with its complications, as well as long term disability and death, with severe medical and psychological consequences for millions of peoples. Three hundred forty million new cases of syphilis, gonorrhoea, Chlamydia and trichomoniasis have occurred throughout the world. Additionally, the peak incidence of sexually transmitted diseases (STDs) is seen in 15-29 year age groups [3-6].

STIs occur in many settings and prison is one of those. Prison is a factor leading to deterioration of health and well being, and it forms high risk settings because of: unprotected sexual relations, rapes, high turnover of populations [7-11].

Globally, an estimated 9 million people are in prison per year [12]. Prisoners are vulnerable group of population often to the sexual and other demands. And this population is constantly changing so they are not permanently sealed off from the community [13]. Additionally, most of them return to the community by contracting disease inside prison. Therefore, the poor health status of this population impacts society, through contact with staff, family and others in the community and increases the risk of re-offending [14-23]. Therefore, this study was designed to give insight into SRH needs of youth in prison with emphasis on STI and associated factors and generates relevant information that could help policy makers to design appropriate reproductive health programs for this disadvantaged segment of the population.

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METHODS

Study design and setting An Institution based cross sectional quantitative study was conducted from April to May/2012. The study was conducted among youth prisoners in Gondar town. Gondar town is located 748 kilometers away from the capital city of Ethiopia, Addis Ababa. According to statistics obtained from Gondar prison center office a total of about 2,300 prisoners were enrolled in prison center from these youth prisoners accounted for about 59% [24].

Sample size and sampling procedure

Source populations were all youths who are imprisoning in Gondar town, prison center with-in the age group 15 to 29 years. The study participants were a sample of prisoners drawn from Gondar town prison center. All youth prisoners who are detained for two month or more were included in the study. Sample size was using single population proportion formula (with 4% margin of error, 95% confidence level and 50% proportion); and it was found to be 452 (including 10% non response rate). The study subjects were selected every third by the systematic sampling technique from the list of prisoners' registered.

Data collection methods and instrument

Data were collected by structured pre-tested questionnaire which was adapted from different studies [12, 18, 19, and 21]. Training was given to facilitators. Male interviewers for male respondents and female interviewers for female respondents were assigned. The quality of data assured through careful design, translation and retranslation of the questionnaire and pretested of the questionnaire, selection and proper training of the interviewers and supervisors, close supervision of data collectors, checking for completeness and consistency and computer data cleaning and edition.

Data entry and analysis

The data was coded and entered in to EPI info version 6.04 statistical software and then exported to SPSS windows version 20 for further analysis.

Bivariate logistic regression were used to check variables having association with the dependent variable, then those variables found to have p-value of ≤ 0.2 were fitted to multivariate logistic regression for controlling the effects of confounders. The variables will be entered to the multivariate model using the forward Stepwise (Likelihood Ratio) method. Odds Ratios with 95% CI were computed and variables having p - value ≤ 0.05 in the multiple logistic regression models were considered as significantly associated with the dependent variable.

Ethical clearance was obtained from the institutional review board (IRB) of University of Gondar. Besides to this, permission from Gondar city prison Centre administration office was secured. All the study participants were informed the objective of the study, and written consent was obtained before conducted the data collection. They were also informed about their right of not participating in the study or withdrawing at any time. Privacy and confidentiality of the information was assured and collected anonymously.

Result

Socio-demographic characteristics of the respondents

A total of 448 youth inmates included in the study with a response rate of 99.1%. Majority of study subjects were male 421 (94%). The 218 (48.7%) were in the age group 20-24 years. The mean age of the study participant was 22.4 ± 3.6 years, with More than half (55.8%) of the respondents were married and the predominant ethnic group was Amhara 433 (96.7%) (Table1).

Table-1: Socio-demographic characteristics of prisoners in Gondar town, Prison centre, April 2012 (n=448).

Variable	Number (%)
Sex	
Male	421(94%)
Female	27(6%)
Age	
15 -19	94(21%)
20-24	218(48.7%)
25-29	136(30.3%)
Religion	
Orthodox Christians	430(96%)
Muslims	10(2.2%)
Other	8(1.8%)
Ethnicity	
Amhara	433(96.7%)
Tigrie	14(3.1%)
Other	1(0.2%)
Educational Status	
Illiterate	141(31.5%)
Grade 1-6	165 (36.8%)
Grade 7-12	142(31.7%)
Marital status	
Unmarried	250(55.8%)
Married	160(35.7%)
Divorced	38(8.5)

Prevalence of sexually transmitted infections (self-reported)

Among 343 sexually active respondents, 47(13.7%) reported symptoms of STIs in prison. Of those who are sexually active, about 240(70%) had their first sexual intercourse in the age group 15-19 and 118(52.8%) respondents had multiple sexual partners. Out of 448 survey respondents 13(2.9%) reported victim of sexual violence during their stay in prison (Table 2).

Variable	Number (%)
Reproductive health information (n=448)	
No	113 (25.2)
Yes	335 (74.8)
Had Sex (n=448)	
No	105 (23.4)
Yes	343 (76.6)
Age at first sexual intercourse (n=343)	
10-14 years	19 (5.5)
15-19 years	240 (70)
>20years	84 (24.5)
Multiple sexual partner, before imprisonment (n=343)	
No	181(52.8)
Yes	162 (47.2)
Consistent condom use, before imprisonment (n=230)	
Yes	62 (26.96)
No	168 (73.04)
STI, before imprisonment (n=343)	
Yes	72 (21%)
No	271 (79%)
Sexual orientation, before imprisonment (n=343)	
Heterosexual	343 (100%)
Consensual sex in Prison (n=343)	
Yes	11(3.2%)
No	332 (96.8)
Sexual orientation, in prison (n=343)	
Heterosexual	332 (96.8)
Homosexual	11(3.2)
STI in prison (n=343)	
	(3.2)
Yes	47 (13.7)
No	296 (86.3)
Sexual victimization	
Yes	13(2.9)
No	335(97)

Factor associated with sexually transmitted infection

In logistic regression analysis, STI in prison was significantly associated with history of STI before detention (AOR= 5.8; 95% CI 3- 12), previous imprisonment (AOR= 3.5; 95% CI 1.5- 8.0), lack of access to reproductive health information (AOR= 2.6; 95% CI 1.3- 5.0), and history of multiple sexual partners (AOR= 3.0; 95% CI 1.9- 8.4). (Table 3).

Factors	STI in prison		Total	Crude OR (95% CI)	Adjusted OR (95% CI)	p- value
	Yes	No				
Age in years						
15-19	9(22%)	32(78%)	41	1.4(0.72, 2.8)	2(0.71, 5.7)	0.2
20-24	19(10.9%)	155(89.1%)	174	0.62(.26, 1.5)	0.7(0.34, 1.4)	0.2
25-29	19(14.8%)	109(85.2%)	128	1	1	
Educational Status						
Illiteracy	14(13.9%)	87(86.1%)	101	1.5(0.6, 3.5)	1.3(0.39, 4.5)	0.2
1-6 grade	22(17.1%)	107(82.9%)	129	1.9(0.88,4.1)	1.2(.44,3.6)	0.2
≥7 grade	11(8.8%)	2(90.3%)	113	1	1	
Marital status						
Single	23(14.5%)	136(85.5%)	159	1	1	
Married	16(11%)	130(89%)	146	0.7 (0.37, 1.4)	1.0(0.35, 2.9)	0.1
Divorced	8(21%)	30(78.9%)	38	1.6 (0.64, 3.9)	2.1(0.56,7.4)	0.3
Previous Imprisonment						
Yes	12(32.4%)	25(67.6%)	37	3.72(1.72, 8)*	3.5(1.5,8.) **	0.005
No	35(11.4%)	271(88.6%)	306	1	1	
Period of confinement in						
1-10 months	30(11.9%)	222(88.1%)	252	1	1	
11-20 month	10(18.5%)	44(81.5%)	54	1.68(.77, 3.7)	1.3(0.44, 3.7)	0.65
≥ 20 months	7(18.9%)	30(81.1%)	37	1.72(0.7, 4.1)	1.9(0.64, .5.5)	0.25
Access of RH information						
Yes	9(8%)	104(92%)	113	1	1	
No	38(16.5)*	192(83.5%)	230	2.4(1.06,4.9)*	2.6(1.3,5)**	0.013
History multiple sexual Partner						
Yes	40(22.1%)	141(77.9%)	181	3.9(1.87,8)*	3 (1.9,8.4) **	0.003
No	7(4.3%)	155(95.7%)	162	1	1	
STI, before imprisonment						
Yes	27(37.5%)	45(62.5%)	72	7.8(3.9,14) *	5.8(3,12)**	<0.001
No	20(7.4)	251(92.6%)	271	1	1	

** Statistically significant association.

Discussion

In this study, the prevalence of STI among youth prisoners was 13.7%. This was comparatively less than the prevalence in USA (16.9%) and Mozambique (41%) [8, 19]. On the contrary it was greater than the prevalence which was observed in studies reported in Pakistan (8.4%), USA (10.1%), UK (13.2%) and Malawi (4.2%) respectively [16, 7, 9, 20]. This prevalence difference might be due to the social, cultural and economic context in which the prisoners live, knowledge difference between the prisoners about how to protect themselves from STIs, different prison environment, different attitudes of the prison community for having sexual attraction with similar gender, and national laws towards homosexuality.

The occurrence of STI in prison among inmates significantly associated with occurrence of STI among this population prior to their detention (AOR) = 5.8 95%CI: 3, 11). Those who had history of STI before their detention were 5.8 times more likely to had STI in prison than their counter part. Those who had history of previous imprisonment were 3.5 times more likely to had STI as compared to prisoners who reported no history detention in the past, (AOR)= 3.5 95%CI: 1.5, 8.0). Those who had the history of multiple sexual partner in the past, had 3 times higher STI as compared to prisoners who reported no multiple sexual partners in the past, (AOR)=3.0 95%CI: 1.9, 8.4). This might be due to the risk taking behaviors among youths and the presence of history of high risk behaviors among inmates before their detention and high prevalence of STI in Prison. Similar finding was reported in a studies conducted in Africa, USA and Pakistan [17, 21-23].

Prisoners who had not access sexual health information were 2.6 times more likely to had STI than their counter parts, (AOR)= 2.6 95%CI: 1.3, 5). Consistent to this finding was reported in a studies conducted in Pakistan [16].

The prevalence of sexual victimization in this study is 2.9%. This finding was significantly lower than the findings in Atlantic state of USA 10.3%, other states of USA 8.5% and WHO report 20% of inmates being reported sexually victimized [10, 19, 20]. The variation in these findings might be particularly due to situational policies difference between countries such as strict or weak rule of laws within the institutions or countries, and other factors such as Gender inequality, cultural norms towards sexual violence, and behaviors of the individuals involved.

Limitations of the study

Social desirability bias due to highly sensitive questions related to sexuality. There was a possibility of recall bias during measuring some of the sexual behaviors.

Conclusion

This study is indicated the prevalence of reported symptoms of STIs is considerable. Previous history of STI before detention, access of reproductive health informations, previous imprisonment and history of multiple sexual partners were predictors of STI in prisoners. Sexual health programs in prisons which include STIs screening, and treatment programs and education about STI risk reduction is recommended.

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