

# Prevalence of Sexually Transmitted Infections and Associated Factors among Pregnancy Women Antenatal care Attending at Private Health Facilities in Assela Town, South East Ethiopia

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## ABSTRACT

**Objective:** Nationally, the investigation of survey related to STIs indicated that fewer than one in three women and men (32% for each) who had STI symptoms sought advice or treatment from a clinic, hospital, private doctor, or other health professional. Therefore, this study is aimed to assess the prevalence and associated factors of sexually transmitted infections among antenatal care attended at health facility.

**Methods:** Facility based cross-sectional study design was employed in Asella town private health facilities among 140 by using systematic random sampling technique at study period is 2021. Data was collected from registration book of pregnancy women attended antenatal care services for last six months from January 2021 to 25 June 2021. The collected data was entered into Epi Info version 7 software and next was exported to the Statistical Package for Social Science (SPSS) IBM version 21 for analysis. Bivariable and multivariable analyses was used to compute the association between dependent and independent variables at 95% Confidence interval with P-value less than 0.05 in the model with adjusted odd ratio.

**Result:** The prevalence's of STIs among clinically suspected pregnant women attended antenatal care were Syphilis (4.9%), Neisseria gonorrhoeae (3.8%), trichomonas vaginalis (5.2%), Chlamydia trachomatis (1.8%), chancroid 4.6%, HBV (1.3%) and HIV/AIDS (1.6%). Low educational status, having two & above sex partners, having history of abortion and having history of using alcohol/drugs were significantly associated with STIs ( $P < 0.01$ ).

**Conclusion:** Socio-demographic and obstetric factors were found to be associated with STIs among pregnant women in the study area. Strengthening the existing screening and treatment of pregnant women in the first antenatal visit for STIs and enhances the need for regular health education for pregnant women at antenatal clinic to inform them about their health, avoidance of the risk of STIs on their pregnancy were recommended.

**Key-words:** Sexually transmitted infections, Associated factors, ANC, Ethiopia

**ABBREVIATIONS:** ANC: Antenatal Care; AOR: Adjusted Odds Ratio; CI: Confidence Interval; COR: Crude Odds Ratio; HIV: Human Immunodeficiency Virus; STD: Sexual Transmission Disease; STI: Sexually Transmitted Infections; WHO: World Health Organization.

## INTRODUCTION

Sexually transmitted infections is defined as an infections caused by organisms that are passed through sexual activity with an infected partner and this infection the result from an overgrowth of organisms normally present in the vagina. Most of the time the infection introduced into the reproductive tract by a medical procedure such as menstrual regulation, induced abortion, IUD insertion, or childbirth [1,2].

There are more than 30 pathogens are transmissible through sexual intercourse-oral, anal, or vaginal. Most of them are sexually transmitted bacteria such as Neisseria gonorrhoea (causes gonorrhoea), Chlamydia trachomatis (chlamydial infections), Treponema pallidum (causes syphilis) and Hemophilic ducreyi (causes chancroid). In addition; the main sexually transmitted viruses and parasitic organisms are named as Human immunodeficiency virus (causes AIDS), Herpes simplex virus (causes genital herpes), Human papilloma virus (causes genital warts), Hepatitis B virus,

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Cytomegalovirus and trichomonas vaginalis (causes vaginal trichomonas's) [3,4].

Over 340 million curable, and many more incurable, STIs occur each year. Especially in developing countries, STIs and their complications rank in the top five disease categories for which adults seek health care. In women 15-49 years old, the STIs excluding HIV are second only to maternal factors as causes of disease, death and healthy life lost. In Ethiopia is also a self-reported prevalence of STIs was 2 % in women & 1.5 % in men.

Furthermore, STIs as public health problems is because STIs can lead to the development of serious complications like: cervical cancer, pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy and infertility in women, sub-fertility in men and blindness and lung damage in newborn and specifically syphilis can result in congenital syphilis for the baby and fatal cardiac, neurological and other complications in adults. They are also potential complications and their interaction with HIV/AIDS. In addition, both of HIV and STIs share the same risk factors [4].

Nationally, the investigation of survey related to STIs indicated that fewer than one in three women and men (32% for each) who had an STI or STI symptoms sought advice or treatment from a clinic, hospital, private doctor, or other health professional. One percent of women and 3% of men sought advice or treatment from a shop or pharmacy. However, 67% of women and 66% men did not seek any advice or treatment [5].

In a very critical to strengthen STI prevention and control program not only to improve quality of life and to overcome the complications caused by these infections, but also to prevent the spread of HIV infection are essential measure. Therefore, this study is aimed to explain the prevalence STIs and associated factors were addressed to strength diagnose and treat STIs at an early stage. It was also informed services providers to create appropriated strategies for intervention prevention and controlling measurements [6].

## METHODS

### Study Design and Setting

Facility based cross-sectional study design was employed at private health facility in the Asella town July 2021. Asella town is the capital city of Arsi Zone and 175km distance of Addis Ababa in the direction of southeast. It has around 120,000 with male 49.7% and female 50.3% of population and around 4,044 of reproductive age women of expected pregnancy in a year. The town has two public health centers, one teaching & referral hospital, two private primary hospitals, fourteen medium clinics and two nongovernment clinics.

### Source Population

All pregnant women regard-less of gestational age who were registered for attending routine ANC at private health facility during study period.

### Study Population

Systematic selected pregnant women who were registered for attending routine ANC at private health facility for last six months from one January 2021 to 25 June 2021.

### Inclusive and Exclusion Criteria

Pregnant women who have been diagnosed or treated for syphilis or gonorrhoea previously those registered completely was included in the study whereas, who were visited for labor or delivery, postnatal

care and for any others services as well as uncompleted registered on the registration book was excluded from the stud

### Sample size Determination and Procedure

The sample size was determined by using the prevalence of syphilis among pregnant women who attended ANC clinic and exposed to STIs (HIV-HBV, Syphilis) 9.5% in Addis Ababa [7] at confidence level, 95%, 5% margin of error.

$$P=9.5\% (0.095) \text{ and } 1-p = (0.905)$$

d=Margin of error 5% with 95% confidence level.

$$Z \alpha/2 = 1.96 \text{ (level of significance)}$$

$$n = Z^2 \alpha/2 * p(1-p) = 1.96^2 * 0.095(1-0.095) = 133$$

$$w^2 = 0.05^2$$

Finally, by considering 10% rate of uncompleted registered, the maximum sample size was 147

Study subjects were selected randomly from the ANC registration book had laboratory testing and all cases found during the study period were included. Systematic random sampling technique was used at 4<sup>th</sup> interval number indicate proportionally allocated sample size gets its target was picked and interviewed.

### Data Collection Tools and Procedures

All pregnant antenatal attendants were registered in registration was source of data collection by considering inclusion and exclusion criteria. Data was collected on socio-demographic and predisposing factors by using a pretested structured questionnaire by trained data collectors and supervisors. The adapted questionnaire from related studies was prepared in the English language. During data collection a serological test for STIs indicated positive and/or gram staining for identifies gram-negative in the registration book was detected.

### Data Quality Assurance

Data was collected by trained data collectors and pre-testing of the instrument was done before the actual data collection. The questionnaire was pre-tested at 5% pregnant women who attended ANC at private health facility in Adama Town with similar population. Necessary modifications and correction was done based on the results of the pre-test.

### Data Processing and Analysis

First data was checked for completeness and consistencies by checking each variable for missing. Then, the data was coded and entered into Epi Info version 7 software and next was exported to the Statistical Package for Social Science (SPSS) IBM version 21 for analysis. Descriptive statistics (mean  $\pm$  standard deviation, frequencies, and proportions) was used to summarize the socio demographic characteristics of the study participants. Bivariable and multivariable analyses was used to compute the association between dependent and independent variables. All variables with p-value < 0.05 in the bivariable analysis were taken to the multivariable model. From multivariable analysis, variables with an odds ratio of p-value < 0.05% and 95% confidence interval (CI) was taken as risk factors for STIs. Overall data quality and safety was ensured at all stages of data collection, entry, and analysis.

## RESULTS

A total of 140 pregnant women who were attending ANC services at private health facilities were involved in this study with success

response rate was 95.2%. The age of the pregnant women attending ANC recruited in the study ranged from 20 to 45 years where the mean age was 26.29 years (SD + 4.1). The socio-demographic characteristics showed that the majority of the study participants were married (80.7%), housewife (52.2%), and orthodox in religion (57.2%). More than half were living in urban settings (67%) and have secondary and above educational status were (53.7%) (Table 1)

### Obstetric and Behavioral Factors Information

The majority of the study participants, 63.5%, were multi-gravid and 65.5% had two or more sexual partners in the past year, 11.1% had a history of stillbirth, 15.8% had a history of neonatal death, 39.2% had a history of abortion, and only 6.9% reported condom use (Table 2).

### Sexually Transmitted Infections Tested Information with Infected Result

From the total of 140 pregnant women suspected for sexually transmitted infections were tested and confirmed of infected were

investigated from attended facilities. Those who were tested for STIs 4.9% infected for Syphilis, 3.8% for Neisseria. gonorrhoeae, 5.2% for trichomonas vaginalis, 1.8% for Chlamydia trachomatis, 4.6% for chancroid and 1.6% were infected for HIV/AIDS( Table 3)

### Factors Associated With the Confirmed Sexually Transmitted Infections (Stis)

In the assessment of the risk factors for sexually transmitted infection, both bivariate and multivariate logistic regression analyses were done. That current age, Gravidity, educational status, having more than one sexual partner, history of abortion, history of stillbirth, and use of alcohol/drug were the candidate variables for multivariate logistic regression analysis. Finally, in the multivariate logistic regression analysis, variables such as, educational, having more than one sexual partner, history of abortion and used alcohol/drug were independently associated with sexually transmitted infections at  $P < 0.01$ .

**Table 1:** Socio-demographic characteristics of pregnancy women Antenatal care attending at private health facilities in Assela Town, South east Ethiopia 2021(n= 140).

Variables	Frequency	Percent (%)
<b>Current age category</b>		
<25	25	17.8
25-34	80	57.1
>=35	35	25
<b>Religion</b>		
Orthodox	80	57.2
Muslim	34	24.3
Protestant	15	10.7
Catholic	8	5.7
Others	3	2.1
<b>Ethnicity</b>		
Amhara	43	30.7
Oromo	52	37.1
Wolata	6	4.3
Gurage	15	10.7
Others	4	2.2
<b>Marital status</b>		
Single	12	8.6
Married	113	80.7
Divorced	11	7.9
Widowed	4	2.8
<b>Occupation</b>		
Privately employed	14	10.0
Government Worker	22	15.7
Students	11	7.1
Housewives	73	52.2
Daily laborer	18	12.6
Others	2	1.4
<b>Residency</b>		
Rural	46	33
Urban	94	67
<b>Educational status</b>		
Primary and below	65	46.3
Secondary and above	75	53.7

**Table 2:** Obstetric and behavioral factors information of sexually transmitted infections among pregnancy women Antenatal care attending at private health facilities in Assela Town, South east Ethiopia 2021(n= 140).

Variables	Frequency	Percent(%)
Gravidity		
Primigravid	51	36.5%
Multigravid	89	63.5%
Number of sex partner past year		
One	48	34.5%
Two and above	92	65.5%
History of stillbirth		
Yes	16	11.1%
No	124	88.9%
History of neonatal death		
Yes	22	15.8%
No	118	84.2%
History of abortion		
Yes	55	39.2%
No	85	60.8%
Condom use		
Yes	10	6.9%
No	130	93.1%
Use of alcohol/drug		
Yes	36	25.9%
No	104	74.1%
Partner use alcohol/drug		
Yes	77	55.2%
No	63	44.8%

**Table 3:** Sexually transmitted infections tested information with infected result of pregnancy women Antenatal care attending at private health facilities in Assela Town, South east Ethiopia 2021(n= 140).

Sexually transmitted infections (STIs)	Tested		Infected confirmation	
	Yes(%)	No(%)	Positive(%)	Negative(%)
Syphilis	137(97.8%)	3(2.2%)	7(4.9%)	130(95.1%)
Neisseria. gonorrhoeae	135(96%)	5(4%)	5(3.8%)	132(96.2%)
Trichomonas vaginalis	137(97.8%)	3(2.2%)	7(5.2%)	130(94.8%)
Chlamydia trachomatis	137(97.8%)	3(2.2%)	3(1.8%)	134(98.2%)
Chancroid	135(96%)	5(4%)	6(4.6%)	129(95.4%)
HBV	139(99)	1(1%)	2(1.3%)	137(98.7%)
HIV/AIDS	140(100)	0	3(1.6%)	137(98.4%)

## DISCUSSION

This study provides the prevalence and associated risk factors for STIs (syphilis, Neisseria. gonorrhoeae, trichomonas vaginalis, chlamydia trachomatis, chancroid, HBV and HIV/AIDS) among pregnancy women Antenatal care attending at private health facilities in Assela Town. In the present study, the cause of most prevalent sexually transmitted infection was Syphilis (4.9%) which is higher than the study conducted in northern Tanzania (0.9%) while 5.0% for T vaginalis was similar as compared to our study (5.2%) [8, 9-11] and lower than study reported from the center of Nepal among study population 591 participated was showed that the overall prevalence of any STIs was 8.6% [12,13].

In the present study, the low prevalent STI etiology was found to be HIV/AIDS (1.6%) which is lower where as compared with the study again reported from northern Tanzania (9.6%). Nationally

about 16% of the STI patients were co-infected with HIV (8.1% male and 21%female) and HIV prevalence is higher on STI patients with lower abdominal pain (41%) and genital ulcer (24.5%) [6,8] and this implies that pregnant women participants reported that a decline in prevalence of these STIs computed with this study.

Those pregnant women with lower educational status (primary and below) had four times higher odds of STIs than pregnant women with secondary and above educational status. This association has similarity with study reports from different part of Ethiopia [14-17]. This might be explained as women with low educational levels might not have adequate knowledge about the transmission and prevention mechanisms of STIs and where to go for screen and treatment.

Like hood the odds of STIs are five times higher among pregnant women who reported having two or more sexual partners in the

Table 3: Model summary for the result.

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.794 <sup>a</sup>	.681	.551	.17862

a. Predictors: (Constant), IL & GI  
b. Dependent Variable: IH

Source: Research data, 2021

past years than those who had only one partner. This finding is also in line with studies conducted in nationally in different site [14,15]. The possible reason might be explained as having many sexual partners increase vulnerability for STIs due to unsafe sexual practices.

The study revealed that those pregnant women who had history of abortion were around five times more likely to be infected with sexually transmitted infections (STIs) compared as had no case of abortion. The result is agreement with study conducted in the Ethiopia [17]. This also might be explain the fact that the adverse out-come occurred previously may be a result of undetected and untreated STIs, or that the infection was reacquired in the current pregnancy and sometimes it might be due to the use of contaminated equipment with STI patients during the abortion procedure.

In our findings, the odds of STIs are above three times higher among pregnant women who reported having history of using of alcohol/drug than those who had no history of cases. The finding is similar with studies were postulated from industrial countries [10, 11, 13]. This justify that might be due to alcohol consumption, having an instating effect that may make engaged in risky sexual behaviors that leads to high opportunity to exposure of STIs.

## LIMITATIONS

Limitation of this study is an institutional-based study and includes only pregnant women who attend ANC at private facilities, which might not represent the general population of pregnant women attended others health facilities.

## CONCLUSION

Socio-demographic and obstetric factors were found to be associated with STIs among pregnant women in the study area. Lower educational status, having history of using alcohol/drugs, previous history of abortion, and having two or more sexual partners in the past year were significantly associated with STIs among pregnant women in the study area. There is a need for initiation of screening and treatment for STIs by prioritizing pregnant women with the risk characteristics identified in the study. In addition, regular health education for pregnant women at antenatal clinic to inform them about their health, avoidance of risky behaviors, and the risk of STIs on their pregnancy to be addressed were recommended.

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## AUTHOR' CONTRIBUTION

GW contributed significantly in conceptualization, investigation, project administration, methodology, formal analysis, analysis,

writing original draft and critically revising the manuscript for important intellectual content. The author contributed to the preparation of the manuscript, reviewing and approving the final manuscript.

## DECLARATION OF CONFLICTING INTERESTS

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## ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval and clearance to commence the study was obtained from the Arsi University College of Health science institutional review board. In addition, letters of support and permission was also obtained from the concerned bodies of private health facility prior to the data collection. The confidentiality of individual recorded data was kept by coding patient information and the privacy was insured.

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