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Prevalence of syphilis among pregnant woman attending antenatal care in shanen gibe hospital, oromia region, southwest Ethiopia, 2019.

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Abstract

Background: Syphilis is a sexually transmitted infection that causes infected sores, blisters or ulcers on genitals, anus (bottom) or mouth. During pregnancy may cause severe manifestations as stillbirth, early fetal death, low birth weight, preterm delivery, neonatal death, infection or disease in the newborn.

Methods: Institutional based cross sectional study design was carried out in Jimma town from March 29, 2019 to April 29, 2019. Systematic sampling technique method was used to select a total of 257 participants. Data was collected by using pre-tested and structured questionnaire by trained data collectors and then coded and entered to Epi data 3.5.1 and exported to SPSS version 25 for cleaning and analysis. Descriptive statistics like frequency table and graphs were used for data presentation.

Results: A total of 257 subjects were participated with a response rate of 100%. Ninety three present (93%) of the respondents had not history of STIs and 95% of them were had one sexual partners. About 96% of respondents were not ever use condom. All of the study subjects were tested for syphilis and only 3% of them were positive for syphilis.

Conclusion: The overall prevalence of syphilis among pregnant women was 3%. An effective health education program to target females at child bearing age and the community regarding syphilis as disease, mode of spread, and preventive measures are recommended to decrease incidence of syphilis.

Keywords: Syphilis, Pregnant mother, Shenan gibe hospital.

Abbreviation: ANC: Antenatal Care; ELISA: Enzyme Linked Immune Sorbent Assay; ENARP: Ethio Netherlands AIDS Research Project; ETB: Ethiopian Birr; RTIs: Reproductive Tract Infections; STDs: Sexually Transmitted Diseases; VDRL: Venereal Disease Research Laboratory.

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Introduction

Syphilis is a severe bacterial disease that in pregnancy may manifest as stillbirth, early fetal death, low birth weight, preterm delivery, neonatal death, or infection or disease in the newborn. Diagnosis and prevention of MTCT of syphilis is feasible, inexpensive, and cost-effective in nearly every situation evaluated. Yet, despite the tools being available for over 60 years, MTCT of syphilis persists as a public health problem.

It is unknown exactly what proportion of pregnant women globally receives adequate testing and treatment for syphilis. The World Health Organization (WHO) has begun to monitor syphilis testing and treatment coverage through the HIV universal access reporting system, but quality data are not yet available from all countries [1].

In order to assess progress in elimination of MTCT of syphilis and to guide policy and advocacy efforts, global data on the burden of syphilis in pregnancy and associated adverse outcomes are needed. Unfortunately, MTCT of syphilis cannot be easily measured globally because definitive diagnosis is difficult, even in developed countries with robust laboratory infrastructure. Thus, estimating the burden of disease must rely on modeled data. In 2007 WHO reported global estimates for congenital syphilis burden based on a review of published data from 1997 through 2003. This work estimated that annually there were 2,036,753 syphilis infections among pregnant women, of which 65% (1,23,889; Range: 7,28,547 to values 1,527,565) resulted in adverse pregnancy outcomes.

Every year, 12 million people are infected with syphilis globally [2]. Pregnant women with syphilis can transmit the infection to their fetus, causing congenital syphilis. In addition, maternal syphilis can also lead to other serious adverse outcomes of pregnancy such as stillbirth or spontaneous abortion, low birth-weight babies or serious infections that are associated with an increased risk of perinatal death. The true global burden of congenital syphilis is not known.

Although congenital syphilis is a global health priority, very little attention is being paid to address this problem by countries. Around 70% of pregnant women in South East Asia Region access antenatal services at least once [3]. There are simple, inexpensive and reliable point-of-care diagnostic tests that can be used to screen pregnant women for syphilis.

In Ethiopia the prevalence of most STDs is not known, owing to lack of laboratory facilities, under reporting, self-treatment and use of traditional healers. Nevertheless, Ethiopia is a country where STDs are highly prevent screening for syphilis at a mother and child health clinic in addis ababa showed that 15-17.6% of the mother were sero positive [4].

Although an epidemiological study regarding the prevalence of and correlates of syphilis and HIV infection among Ethiopia pregnant women is almost non-existent, one cross-sectional study conducted in 1994 at debretabor rural hospital has showed the prevalence of syphilis among 270 pregnant women attending antenatal clinic in rural hospital to 13.7% while 10.7% were found to be HIV-Positive.

The prevalence of syphilis and its complication are serious and requiring careful consideration [5]. Despite the availability of simpler serological test for syphilis, unacceptably high prevalence of infection remains in Ethiopia, because often the necessary organized data will not be available, or else the focus of the problem will be unclear. Studies on this issue are very essential to know the prevalence of syphilis. So the purpose of this study is to assess the magnitude of syphilis among pregnant mothers who attending ANC clinic.

Materials and Methods

Study setting

The study was conducted in shenan gibe hospital, oromia regional state, south west Ethiopia. shenan gibe hospital is found in Jimma town. Jimma town, which is one of the towns in the oromiya region located 352 kilo meter away from addis ababa with estimated total population of 1,20960 of which female accounts 60136 according to 2007 census. Its weather condition is woinadega and its annual average rainfall 1200 mm and it is located greater than 1400 meter altitude above sea level. In the city there are one referral hospital, one general and one private hospital, 4 governmental health centers, 55 private clinics. The study was conducted from March 29, 2019 to April 29, 2019 [6].

Study design

Institutional based cross sectional study design was carried-out.

Study subjects

This study was confined to mothers who came to ANC clinic. Those mothers who came to ANC clinic and had willingness to participate recruited. However mothers who have hearing problem and critically ill were excluded.

Sample size determination

A sample size of 257 was determined by using a single population proportion formula with the following assumptions: since there is no local data for the value of p, prevalence of 50% is taken. D is the expected margin of error (5%), Z, the standard score corresponding to a 95% confidence interval and α, the risk of rejecting the null hypothesis (0.05) and 10 % non-response rate. Since the population of mothers attending ANC in the hospital are less than ten thousand (600) the finite correction formula was used [7].

Sampling technique

The sample size was determined proportionally. To reach the study unit systematic sampling technique was used in ANC clinic. The sampling interval was determined by dividing the total number of mothers to the allocated sample size (N/n) which is three. The first mother was selected randomly.

Data collection instrument/procedures

Data was collected by using pretested, structured interview questionnaire by reviewing related literatures in English version [8]. Data was collected by trained three diploma nurses and one supervisor after being briefed on the purpose of the study and on how to fill adequate information on the questionnaire.

Data analysis

The collected data were first checked manually for completeness, missed values, unlikely responses and then coded, entered using Epi data version 3.5.1. Then cleaned and analyzed using SPSS version 25. Descriptive statistics were computed to determine frequencies and summary statistics (mean, standard deviation, and percentage) to describe the study population in relation to socio-demographic and other relevant variables. Data was presented using tables.

Data quality control

The data collection tool was translated into local language, Oromifa by experts and was translated back to English by another person to ensure consistency and accuracy. Training was given to both the data collectors and supervisors for one day on the purpose of the study, data collection tools and procedure, handling ethical issues and maintaining confidentiality and privacy. Each supervisor and principal investigator was supervised data collectors and checked all the filled questionnaires for completion, clarity and consistency on daily bases. The questionnaire was pre tested on 5% of calculated sample size out the study area before two weeks of the main data collection [9]. The validity of the tool was also approved by experts.

Operational definition

Syphilis: Syphilis is a chronic disease with a waxing and waning course, the manifestations of which have been described for centuries. It occurs worldwide, and the incidence varies significantly with geographic location. Transmission is mainly by sexual contact.

Antenatal care: Antenatal care is the care given to a woman during her pregnancy.

Congenital syphilis: Is syphilis present in utero and at the birth, occurs when the child is born with syphilis.

Ethical Consideration

Ethical clearance was obtained from the Institutional Review Board (IRB) of Jimma University. Official letter was written

from school of nursing and midwifery. Other necessary permission was gain from shenen gibe hospital administrative office. Written and verbal consent was obtained from each participant after thorough explanation of the purpose and the procedures of the study. Participation in the study was on a voluntary base [10]. All responses were kept confidential and anonymous.

Results

Socio-demographic characteristics of the respondents

Out of 257 planned women, 257 were interviewed making a response rate to be 100%. Majority 69(27%) of the respondents were between 25-29 years old, more than half 128(58%) of them had completed primary school (1-8) and around one-tenth of the participants had a college and more, almost all 244(95%) of the study participants were married while just about 5(2%) were widowed. Concerning occupation 116(45%) of the respondents were participated on their own business and majority118(73%) of the participants were come from urban old area (Table 1).

Table 1. *Distribution of respondent's background characteristics among pregnant women of Shenan Gibe Hospital, Oromia region, southwest Ethiopia, 2019.*

Variable Response category		Frequency(N=257)	Percent
Age	15-19	31	12
	20-24	57	22
	25-29	69	27
	30-34	39	15
	35-39	51	20
	40-44	10	4
Residence	Urban	188	73
	Rural	69	27
Educational status	No formal Education	39	15
	Primary school(1-8)	128	58
	Secondary education(9-12)	59	23
	College and above	31	12
Marital status	Married	244	95
	Widowed	5	2
	Divorced	8	3
Occupation	Farmer	31	12
	Private Business	116	45
	Employed	30	12
	House wife	80	31
Husband occupation	Farmer	51	20
	Private Business	146	57
	Employed	60	23
Religion	Muslim	144	56
	Orthodox	69	27
	Protestant	44	17
Ethnicity	Oromo	198	77
	Amhara	18	7
	Kefa	15	6
	Gurage	8	3
	Others*	18	7
Monthly income	Low income/ <1380	77	30
	Middle income1380-2872	108	42
	High income>2872	72	28

Note: Other*; Kefa, Silte, Dewuro, Yem

Obstetric and sexual behavior history of pregnant women

Majority 164(64%) of study subjects were give birth more than one times and more than half of previous pregnancy outcome were live birth. About 93% of the respondents had not history of STIs and 95% of them were had one sexual partners. Faithfull and dislike to use condom were the main reasons for not used contraceptives with 39% and 37% respectively [11]. All of the study subjects 100% were tested for syphilis and only 3% them were positive for syphilis (Table 2).

Table 2. *Distribution of respondent's Obstetric history and sexual behavior among pregnant women of Shenan Gibe Hospital, Oromia region, southwest Ethiopia, 2019.*

Variable Response category		Frequency(N=257)	Percent
Gravidity	primigravida	93	36
	multigravida	164	64
Outcome of previous pregnancy	Live birth	219	85
	Still birth	28	11
	Spontaneous abortion	10	4
History of STIs	Yes	18	7
	No	239	93
Number of lifetime sexual partners	Only one	244	95
	More than one	13	5

Use of contraceptives other than condom	Yes	180	70
	No	77	30
Do you ever use condom?	Yes	10	4
	No	247	96
If not , reason for not used	Partner objection	49	19
	Dislike using condom	95	37
	Ashamed to ask my partner	13	5
	Faithful to my partner	100	39
How many times you visit health facility for ANC for the current pregnancy.	0ne	72	28
	Two	67	26
	Three	90	35
	Four and above	28	11
Are you tested for syphilis during current pregnancy	Yes	250	97
	No	7	3
If yes what was the result	Positive	8	3
	Negative	249	97

General information of syphilis

Respondents had different understandings on general information about syphilis. Concerning the source of information, out of 234(91%) respondents heard about syphilis majority of them was used Health profession 180(70%) as a source of information. Majority 213(83%) of the respondents were aware that syphilis is non-communicable disease. On the other hand, about 55% respondents supported that every woman had a chances of getting syphilis (Table 3).

Table 3. *Distribution of respondent's awareness on syphilis among pregnant women of Shenan Gibe Hospital, Oromia region, southwest Ethiopia, 2019.*

Variable		**Frequency(N=257)**	**Percent**
Have you ever heard about syphilis	Yes	234	91
	No	23	9
From where have you heard			
Television		121	47
Radio		116	45
Health profession		180	70
Neighbors		5	2
News paper		8	3
Every woman has a chance of acquiring syphilis	Yes	141	55
	No	116	45
If detected early, syphilis is treatable.	Yes	231	90
	No	26	10
Syphilis is communicable disease.	Yes	213	83
	No	44	17

Discussion

Syphilis is one of the common sexually transmitted infections that are more serious and it is transmitted by sexual contact and Trans placental from Mother to child during pregnancy. This is study revealed that the overall prevalence of syphilis among the pregnant women who attend ANC at Shenan Gibe is 3%.

This is in line with study conducted in Jimma university of the specialized teaching hospital, south west Ethiopia before tenth years in which the prevalence of active and past syphilis has to infection was 5/224 (2.2%) and 12/224(5.4%), study conducted in three teaching hospitals of Addis Ababa University infected namely, Tikur Anbessa, St Paul's and Zewditu memorial those Hospital between April 1997 and September 1997 had before showed a 2.9% VDRL sero reactivity among 410 pregnant the women attending antenatal care and study undergone in South Africa and Sudan in which syphilis prevalence rate was the one 377(3%). This similarity may due to low attention given to the prevent STIs including syphilis and similar socio economically's status.

However the current study is contrary with the study conducted in Rwanda in which the incidence of positive syphilis serology was found to be 0.9%. This discrepancy may due to different in study area, socio-demographic and cultural variation and also time gap when the study was done. This is an indication for increasing STIs provenances in sub-Saharan Africa.

Concerning the awareness the current study showed that respondents had different understandings on general information about syphilis. Concerning the source of information, out of 234(91%) respondents heard about syphilis majority of them were used Health professionals 180(70%), television 121(47%) and radio 116(45%) as a source of information [12]. This is almost similar with study conducted in Sudan in which TV, radio and health personal were most common sources of their information. This similarity may due to analogous socio economic status.

Conclusion

The overall prevalence of syphilis among pregnant women who attend ANC at Shenan Gibe, oromia region, south west Ethiopia is 3%. This it indicates that syphilis had constituted a major burden of the STI.

Ethics Approval and Consent to Participant

Ethical clearance and approval letter to conduct the study was obtained from Jimma University institutional review board and a letter of cooperation was taken from the institute of health and Official letter was written from school of Nursing and Midwifery. Written and verbal consent was obtained from each participant after thorough explanation of the purpose.

Consent for Publication

Not applicable.

Availability of Data and Materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request. The finding of this research will be freely available to any scientist wishing to use them for non-commercial purposes, without breaching participant confidentiality.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

LA was involved in the conception, design, analysis, interpretation and report writing. WA involved in interpretation, analysis, manuscript and report writing. AY involved in analysis, interpretation and report writing, TT involved in analysis, interpretation and report writing. All authors read and approved the final manuscript.

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