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Prevalence and Risk Factors of HIV and Syphilis among Pregnant Women in Ado Local Government, Ekiti State, South Western Nigeria – 2017

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Background: Sexually transmitted diseases are epidemics and causes health and economic consequences in developing countries. HIV, Syphilis and other STDs are transmissible to the unborn babies and results in adverse pregnancy outcomes. This study aimed to determine the prevalence and risk factors of HIV and Syphilis among pregnant women in Ado Local Government Area, Ekiti State, Nigeria.

Methods: A cross-sectional study was conducted between February and May, 2017 among 340 pregnant women attending ANC and maternity homes. Data was collected using semi-structured interviewer administered questionnaire and blood samples from enrollees were screened for HIV and Syphilis using enzyme linked Immunosorbent assay. Descriptive, bivariate and multivariate analyses were done and level of significant set at 5%.

Results Data analysis was carried out on 337 respondents. Mean age was 29.6 years, 108 (53%) were employed, 274 (81.3%) Christian and 251 (74.5%) had lived in Ado LGA for more than 2 years. Majority, 328 (97.3%) and 204 (60%) have heard of HIV/AIDS and syphilis respectively. Eleven (3.3%), 8 (2.4%) tested positive for HIV and Syphilis respectively. Both HIV and Syphilis were found in 1(0.3%) respondent. Predictors of HIV infection includes multiple sex partners in the last one-year (AOR 13.3, 95% CI. 2.6 - 69.8), history of STI in the past 3 months (AOR5.8, 95% CI. 1.1 - 21.1), and regular partner having sexual relationship with someone else (AOR 6.4, 95% CI. 1.2 – 30.1). Predictors of syphilis infection are forced sexual intercourse in the past 1 year (AOR 29.0, 95% CI. 3.4 - 244.1) and new sexual partner in the past 6 months (AOR 10.2, 95% CI. 1.5 - 68.1).

1. Introduction

Some infections that can seriously endanger the health of a developing fetus or new-born, causes few or no symptoms in a pregnant woman. Exposure to an infection in early pregnancy is often more dangerous for the fetus, placing the baby at higher risk for miscarriage, birth defects, or other problems1. Most of these transmissible infectious pathogens such as human immunodeficiency virus (HIV), Syphilis and other sexually transmitted infections (STIs) are acquired by the mothers following sexual contacts and exposure to infected blood.

HIV has been responsible for high morbidity and mortality with women been at a greater risk of heterosexual transmission. Consequently, close to 52% of all people living with HIV are women, 64% of who live in Western and Central African regions2. HIV can cross the placenta during pregnancy, infect the baby during the birth process and unlike other STDs, can infect the baby through breast-feeding3.

Syphilis is a muco-cutaneous sexually transmitted infection caused by bacteria of the family spirochaete, species Treponema pallidum subspecies pallidum. Although the primary route of transmission is through sexual contact, it may also be transmitted from mother to fetus during pregnancy or at birth, resulting in congenital syphilis4 Congenital syphilis (CS) can be classified into early and late CS and the manifestations are influenced by factors such as gestational age, stage of maternal syphilis, maternal treatment, and immunological response of the foetus5

Two hundred and fifty-two thousand in Nigeria were newly infected with 58,000 annual positive birth6. Nigeria has the second highest number of HIV infected pregnant women globally (after South Africa) contributing 30% prevention of mother to child transmission (PMTCT) gap burden globally (13% Coverage; 2009). 80% of HIV transmission in Nigeria is heterosexual with 3% of childbearing women HIV-positive. The prevalence of HIV in Nigeria and Ekiti State is 1.4% and 0.8% respectively among general population7.

Syphilis and HIV infections continue to be a public health problem in the world, especially in developing countries8. Thirty-three million people are infected with HIV worldwide, 18 million of which are women9. It is estimated that over 1.4 million pregnant women are being affected by syphilis and HIV in the world every year8. Maternal syphilis contributes 29% of perinatal deaths, 11% of neonatal deaths, and 26% of stillbirths around the world with a high prevalence throughout sub-Saharan Africa9.

This study was carried out to determine the prevalence risk factors associated with HIV and Syphilis infections among pregnant women attending both ANC in health facilities (public and private) and TBAs/FBAs in Ado LGA, Ekiti State.

2. Materials and Methods

Study area

Ado Local Government is a one-town local Government that doubles as Local Government and State headquarter. The population of pregnant women in the LGA was put at 20,940 (Projected population for 2016).The Local Government area comprises twelve political wards and has within it three higher institutions (State University, Federal Polytechnic and Private University).

Study design

The study was a cross-sectional study conducted between April and June 2017. Pregnant women were selected from 1 tertiary hospital, 2 PHC, 2 private hospital and 4 TBA/MBA homes.

Study Population

The study was conducted among pregnant women attending ANC services for the first time in the current pregnancy at randomly selected six health facilities and four TBA/FBA homes.

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Sampling techniques

The participating health facilities and TBAs/MBAs homes were selected using multi-stage sampling technique.

Stage 1

The tertiary hospital was selected using purposive sampling because there is only one tertiary hospital in the LGA, 2 PHC, 2 private hospitals and 4 TBAs/MBAs homes were selected using simple random sampling by balloting.

Stage 2

The number of respondent per study sites were determined by allocation of sample size proportional to the average number of pregnant women that visited each study sites in the last quarter (October – December, 2016).

Stage 3

All eligible pregnant women were enrolled consecutively as they visit the facility for booking until allocated sample size was achieved.

Data collection instruments

A semi-structured interviewer administered questionnaire [adapted from National Demographic and Health Survey (NDHS), ANC sentinel survey and previous studies10, 11, 14] was used for data collection. The questionnaire consists of sections five sections (A to E). Section A contain questions on socio-demographic characteristics, section B contain questions on knowledge of HIV and Syphilis preventive measures, section C contain information on attitude on HIV and Syphilis preventive measures, section D contains questions on practice on HIV and Syphilis prevention while section E contain questions on risk factors of HIV and Syphilis.

Characteristics	Frequency	Percentage (%)
Age group (Years)		
15 – 19	8	2
20 - 24	55	16
25 – 29	104	31
30 – 34	107	32
35 - 39	48	14
40 – 44	15	5
Employment Status		
Employed	180	53
Unemployed	157	47
Level of education		
Primary	30	9
Secondary	115	34
Tertiary	192	57
Religion		
Christianity	294	87
Islam	43	13
No. of years resident in Ado LGA		
<1 year	41	12
1-2 years	45	13
≥3 years	251	75

Table 1: Socio-demographic characteristics of respondents (N = 337)

Variables	Frequency	Prevalence (%)
HIV		
Reactive	11	3.3
Non-Reactive	326	96.7
Syphilis		
Reactive	8	2.4
Non-Reactive	329	97.6
HIV and Syphilis Co-infection		
Reactive	1	0.3
Non-Reactive	336	99.7

Table 2: Prevalence of HIVand Syphilis (N = 337)

Variables	Frequency	Percentage (%)
HIV	(N = 11)	
15 – 19	2	18.2
20 – 24	2	18.2
25 – 29	3	27.2
30 – 34	1	9.1
35 – 39	2	18.2
40 – 44	1	9.1
Syphilis	(N = 8)	
20 – 24	2	25.0
25 – 29	3	37.5
30 – 34	2	25.0
35 – 39	1	12.5

Table 3: Number of respondents tested HIV and syphilis positive disaggregated by age

Table 4a: Factors associated with HIV infection

Variable	Yes N = 11 n (%)	Yes N = 11 n (%)	OR	95% CI Lower Upper		p-value
Age at first sex (years)						
<20	3 (27)	16 (5)	7.27	1.76	30.03	0.012*
≥20	8 (73)	310 (95)				
Multiple partner in the past 3 months						
Yes	0 (0)	4 (1)	0.00	0.00	35.39	1.000
No	11 (100)	322 (99)				
Multiple partner in the pasat 1 year						
Yes	8 (73)	79(24)	8.34	2.16	32.19	0.001*
No	3 (27)	247 (76)				
Number of sexual partner in lifetime						
<4	8 (73)	79(24)	8.34	2.16	32.19	0.001*
≥4	3 (27)	247 (76)				
Age of regular sexual partner (years)						
<30	3 (27)	56 (17)	0.55	0.14	2.15	0.413
≥30	8 (73)	270 (83)				
History of miscarriage in the past						
Yes	3 (27)	78 (24)	1.19	0.31	4.60	0.730
No	8 (73)	248 (76)				
Gravidity						
Primigravida	3 (27)	78 (24)	1.19	0.31	4.60	0.730
Multigravida	8 (73)	248 (76)				
Parity						
Primiparity	5 (45)	169 (52)	0.77	0.23	2.59	0.765
Multiparity	6 (55)	157 (48)				
History of STI in the past 3 months						
Yes	6 (55)	60 (18)	5.32	1.57	18.01	0.009*
No	5 (45)	266 (82)				
Give or receive money or goods in exchange for sex?						
Yes	3 (27)	16 (5)	7.27	1.76	30.03	0.012*
No	8 (73)	310 (95)				

Table 4a: Factors associated with HIV infection

Variable	Yes N = 11 n (%)	No N = 326 n (%)	OR	95% CI Lower Upper		p-value
Regular sexual partner						
Yes	9 (82)	256 (79)	1.23	0.26	5.83	1.000
No	2 (18)	70 (21)				
Living together with your partner in the past 6 months?						
Yes	5 (45)	250 (77)	0.25	0.08	0.85	0.044*
No	6 (55)	76 (23)				
Start having sex with someone new in the past 6 months?						

No	1 (9)	16 (5)	1.94	0.23	16.08	0.439
Yes	10 (91)	310 (95)				
Forced to have sex in the past 1 year?						
Yes	2 (18)	19 (6)	3.59	0.72	17.80	0.145
No	9 (82)	307 (94)				
Experiencing pain during sexual intercourse?						
Yes	3 (27)	76 (23)	1.23	0.32	4.77	0.724
No	8 (73)	250 (77)				
Experiencing itching in genital areas?						
Yes	6 (55)	68 (21)	4.55	1.35	15.37	0.022*
No	5 (45)	258 (79)				

Table 5a: Factors associated with Syphilis infection

Variable	Yes N = 8 n (%)	No N = 329 n (%)	OR	95% CI Lower Upper		p-value
Age at first sex						
<20	2 (25)	88 (27)	1.09	0.22	5.53	1.000
≥20	6 (75)	241(73)				
Multiple partner in the past 3 months						
Yes	0 (0)	4 (1)	0.00	0.00	0.00	1.000
No	8 (100)	325 (99)				
Multiple partner in the past 1 year						
Yes	4 (50)	83(25)	2.96	0.73	12.12	0.212
No	4 (50)	246 (75)				
Number of sexual partner in lifetime						
<4	2 (25)	91 (28)	0.87	0.17	4.40	1.000
≥4	6 (75)	238 (72)				
Age of regular sexual partner						
<30	1 (13)	58 (18)	1.50	0.18	12.41	1.000
≥30	7 (87)	271 (82)				
History of miscarriage in the past						
Yes	4 (50)	77 (23)	3.27	0.80	13.40	0.098
No	4 (50)	252 (77)				
Gravidity						
Primigravida	3 (38)	67 (20)	2.35	0.55	10.07	0.370
Multigravida	5 (62)	262(80)				
Parity						
Yes	5 (63)	169 (51)	1.58	0.37	6.71	0.724
No	3 (37)	160 (49)				
History of STI in the past 3 months						
Yes	6 (75)	60 (18)	13.45	2.65	68.28	0.000*
No	2 (25)	269 (82)				
Give or receive money or goods in exchange for sex?						
Yes	1 (13)	18 (5)	2.47	0.29	21.16	0.375
No	7 (87)	311 (95)				

Table 5a: Factors associated with Syphilis infection

Variable	Yes N = 11 n (%)	No N = 326 n (%)	OR	95% CI Lower Upper		p-value
Regular sexual partner?						
Yes	7 (88)	258 (78)	1.93	0.23	15.92	1.000
No	1 (12)	71 (22)				
Living together with your partner in the past 6 months?						
Yes	7 (88)	248 (75)	2.29	0.28	18.86	0.685
No	1 (12)	81 (25)				
Suspect your regular partner is having a sexual relationship with someone else?						
Yes	3 (37)	46 (14)	3.69	0.85	15.97	0.095
No	5 (63)	283 (86)				
Start having sex with someone new in the past 6 months?						
Yes	3 (37)	14 (4)	13.50	2.93	62.23	0.005*
No	5 (63)	315 (96)				
Forced to have sex in the past 1 year?						
Yes	3 (37)	18 (5)	10.37	2.29	46.84	0.003*
No	5 (63)	311 (95)				
Experiencing pain during sexual intercourse?						
Yes	6 (75)	73 (22)	1.052	2.08	53.23	0.002*
No	2 (25)	256 (78)				
Experience itching in genital areas?						
Yes	5 (63)	69 (21)	6.28	1.46	26.93	0.018*
No	3 (37)	260 (79)				

Table 6: Predictors of HIV infection

Multivariate regression Terms	95% CI			
	AOR	Lower	Upper	*P*-Value
Multiple sex partner in the past 1 year	13.53	2.63	69.77	0.001*
History of STI in the past 3 months	4.76	1.07	21.05	0.030*
Give or receive money or goods in exchange for sex?	5.50	0.98	31.03	0.053
Living together with partner in the past 6 months?	0.52	0.13	2.15	0.374
Regular partner having sexual relationship with someone else?	6.40	1.35	30.45	0.037*
Itching in genital areas	2.46	0.52	11.74	0.258

Table 7: Predictors of Syphilis infection

Multivariate regression Terms	95% CI			
	AOR	Lower	Upper	*P*-Value
History of STI in the past 3 months	3.60	0.36	35.82	0.275
New sexual partner in the past 6 months	10.23	1.54	68.14	0.021*
Forced to have sex in the past 1 year	28.97	3.44	244.07	0.002*
pain during sexual intercourse	11.38	0.96	134.45	0.543
Itching in genital areas	4.86	0.87	27.27	0.721

1. Discussion

The prevalence of HIV from the study was high (3.3%). This was similar to prevalence of 3.29% reported among pregnant women attending ANC in Ido Ekiti, Ekiti State10. However, it was far below prevalence of 7.5% reported among ANC attendees in Maiduguri11 and 5.6% reported among pregnant women attending ANC in Tanzania12. In contrary, the prevalence from the study was higher than the state prevalence of 2.9% based on the 2014 ANC sentinel survey13 and 0.8% reported by 2018 NAIIS report7. The prevalence of syphilis from the study was 2.4%.This was closer to the prevalence of 2.5% reported by Manyahi among pregnant women attending ANC in Tanzania12. However, this was higher than the prevalence of 0.16% reported among pregnant women attending ANC in Ido Ekiti10, 0.5% reported among pregnant women attending UTH, Maiduguri11 and 1.0% reported among ANC attendees in Osogbo14. This was far higher than the prevalence of 0.1% report among ANC attendees in Ekiti State13. These varied findings could also be due to other factors ranging from individual demographic characteristics (age, marital status) to socio-economic status (education, wealth), cultural practices (religion, circumcision), sexual behaviour risk factors and life styles15, 16.

The prevalence of HIV and Syphilis co-infection was 0.3%.This finding agreed with a prevalence of 0.3% reported among pregnant women attending ANC in Tanzania12. However, this was below the prevalence of 2.1% and 1.3% reported from similar studies17, 18. In contrast, this was higher than 0.1% reported among pregnant women attending ANC in Ekiti state13, 0.05% and 0.06% reported among pregnant women attending ANC in Ido Ekiti and Maiduguri10, 11. The variation in the prevalence might be due to inclusion of private hospitals and TBAs/FBAs homes as part of the study population. These observed differences are probably due to differences in social-economic activities and level of education, socio-economic status, culture practices and socio-demographic characteristics12.

In this study, multiple sex partner, history of STI in the past 3 months, giving or receiving money in exchange for sex and regular partner having sexual relationship with someone else were identified as significant risk factors for HIV among pregnant women. This agrees with previous study that multiple sex partner is a risk factor for HIV and STIs among women of child bearing age19.

In this study, having new sex partner in the last 6 months and those forced to have sex in the past one year are significant risk factors for syphilis infection among pregnant women. This was similar to previous studies which identified multiple sex partners as risk factors among pregnant women in China20. The prevalence was higher among age group 25-29 years, this was in agreement with findings reported from previous studies11.Other risk factors associated with syphilis infection identified from previous study includes multiple sex partner, educational status, travel of sex partner in the past 12 months, history of abortion and history of sexually transmitted infections20.

Conclusion: The prevalence of HIV and Syphilis was high among pregnant women in this study population. The exposure of pregnant women to some risk factors towards HIV and Syphilis underscores the need to intensify effort at providing health education to women of reproductive age on prevention of HIV and Syphilis infections and ensuring HIV/Syphilis screening as mandatory routine test for pregnant women in Ekiti State.

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