

Knowledge and practice of HIV testing for PMTCT among antenatal clinic attendees

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ABSTRACT

Background: Mother-to-child transmission (MTCT), is the main route of paediatric human immunodeficiency virus (HIV) infection. While paediatric HIV has been virtually eliminated in most developed countries with structured interventions, many developing countries still record high transmission rates. Maternal knowledge on MTCT is a corner stone for effective implementation of the World Health Organization (WHO) recommendation of the four-pronged approach to reduce mother-to-child transmission of HIV.

Aims and Objectives: The study was carried out to assess the knowledge of prevention of mother-to-child transmission (PMTCT) of HIV among our pregnant women as well as their attitude and practice of HIV counselling and testing.

Methodology: The study population included pregnant women attending antenatal clinic at the State Specialist Hospital, Akure, Ondo State. It was an institutional based descriptive cross-sectional study conducted over a period of one month (May 2018). Systematic random sampling technique was used to select 400 pregnant women. Data was obtained using structured pre-tested questionnaire, and analysed using SPSS Windows 20.

Results: The study showed that majority were between 30-39 years, were educated, and married. Among the respondents, 389 (97.3%) have heard about HIV while 11 (2.8%) have not heard about HIV. Overall 85.3% of the respondents had a good knowledge of HIV and its mode of transmission. Among the women, 83% were aware of mother-to-child-transmission of HIV with the information mostly obtained from health workers. Only 252 (63.2%) had been tested for HIV in this pregnancy while 148 (36.8%) were not yet tested with many of them blaming this on lack of counsellors. On multivariable analysis, younger women were more knowledgeable about HIV and MTCT, those who were public servants and had partners educated to tertiary level were more likely to practice PMTCT.

Conclusion: The knowledge of HIV and PMTCT was high among the women. However, not all the women were tested for HIV in the index pregnancy as a result of lack of counsellors. Adequate counsellors are essential for effective PMTCT programme.

Key words: Antenatal clinic; knowledge; HIV testing; prevention of mother-to-child transmission; practice; pregnant women.

Introduction

Human Immunodeficiency Virus (HIV) continues to be a major global public health issue affecting all age groups. Since the start of the epidemic, an estimated 78 million people have become infected with HIV and 35 million people have died of AIDS-related illnesses.^[1]

Of all people living with HIV globally, 9% of them live in Nigeria.^[2] Heterosexual intercourse is the major route

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for HIV transmission in Nigeria accounting for over 80% of the infections.^[3] Other modes of transmission include Mother-to-child transmission, intravenous drug use and blood transfusion.^[3]

Human Immunodeficiency Virus (HIV) can be transmitted from an HIV-positive woman to her child during pregnancy, childbirth and breastfeeding. Globally, mother-to-child transmission (MTCT) accounts for over 90% of new HIV infections among children.^[2] However, prevention of mother-to-child transmission of HIV (PMTCT) programmes provide antiretroviral treatment to HIV-positive pregnant women with the aim of reducing the risk to their infants. Without treatment, the likelihood of HIV passing from mother-to-child is 15% to 45%.^[4] However, antiretroviral treatment and other effective PMTCT interventions can reduce this risk to below 2%.^[4]

Lack of knowledge about HIV testing and counselling increases ignorance and promotes stereotypes about HIV/AIDS. Women who acquire better knowledge on mother to child transmission are more likely to take the test. A study conducted in South West Nigeria reported a high acceptance rate of HIV testing among pregnant women who were knowledgeable about the HIV disease.^[5] Knowledge of HIV status allows pregnant women access to prevention of mother-to-child transmission (PMTCT) services which are designed to reduce the risk of HIV transmission from a HIV-positive mother to her child.^[2]

Maternal knowledge on mother to child transmission is a corner stone for effective implementation of prevention of mother to child transmission of HIV. The aim of this study was to assess the knowledge of prevention of mother-to-child transmission of HIV among our pregnant women as well as their attitude and practice of HIV counselling and testing.

Materials and Method

Study design

It was an institutional based descriptive cross-sectional study among pregnant women attending antenatal clinic at the State Specialist Hospital, Akure.

Study setting

The hospital is a secondary health centre located in the heart of the town serving a population of about one million people and directly under the Ondo State Hospital Management Board. The centre is involved in HIV screening and provision of prevention of mother-to-child -transmission services. The antenatal clinic

is run twice in a week where an average of 200 pregnant women are seen in a week.

Study population

This included only pregnant women attending the antenatal clinics of the State Specialist Hospital, Akure within a specific period of one month (1st-31st May 2018).

Inclusion criteria

- Pregnant women who were between the ages of 15 and 49 years
- Pregnant women attending antenatal clinic at the facility
- Pregnant women who gave consent to participate in the study.

Exclusion criteria

Pregnant women who were severely sick and those who did not give consent to participate were excluded.

Sampling technique

A systematic sampling technique was used to select pregnant women who would participate. Using the antenatal log book where a total of 800 pregnant women were estimated to be seen at the antenatal clinic for one month. The sampling fraction/interval was calculated by dividing the total population of the pregnant women (800) per month by the sample size (400) giving an interval of 2, every second woman was therefore interviewed.

Sample size determination

The sample size was calculated using the following formula:
 $N = z^2pq/d^2$ Where

z = Standard normal deviate set at 1.96

p = prevalence of PMTCT knowledge and practice was taking as 50%.

d = A confidence level of 95% was used with a tolerance margin set at 5%.

$N = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 384$, this was approximated to 400.

Study procedure

Data was collected using interviewer administered questionnaire which consisted of mainly close-ended questions but also had some open-ended questions addressing the respondents socio-demographic characteristics (age, marital status, tribe, religion, occupation, educational status); educational level and the occupation of the partners and their HIV testing status; knowledge of HIV/MTCT (aetiology of HIV/AIDS, modes of transmission of HIV, sources of their information about HIV/AIDS, knowledge on mother-to-child-transmission of HIV, modes of prevention of HIV to babies, attitude and practice

of HIV counselling and testing (if they accept to be tested for HIV, if they have been tested, if they received PMTCT services, partners HIV status and their reasons for accepting screening).

Measures

Knowledge about PMTCT was measured by the participants' responses to the six knowledge related questions on HIV/MTCT, correct responses were given a value of "1" and incorrect responses given "0." The sum and mean were computed. A respondent who scored equal to or above the median was considered as having good knowledge or otherwise they were labelled as having poor knowledge.

Data management

Data obtained was analysed using SPSS Windows 20. For the descriptive aspects of the analysis, frequency distributions were generated for all categorical variables. Means and standard deviations were determined for quantitative variables. The Chi-squared test was applied for the comparison of proportions. Binary logistic regression was performed to identify socio-demographic factors independently associated with dependent variable. Strength of association was measured using odds ratio, and 95% confidence intervals, *P* value <0.05 was considered statistically significant.

Ethical consideration

Ethical approval was obtained from the State Specialist Hospital Akure Ethics Committee. Written informed consent was obtained from each study participant after reading the consent form which contained information about what the study was all about. The purpose of the study and the rights of the participant to withdraw at any time was discussed prior to the interview. The questionnaire did not bear any name of the participant and confidentiality of the information obtained was ensured throughout the interview.

Results

Socio-demographic characteristics of the respondents

Half of the respondents were between the ages of 30-39 years, with a mean age of 32 years \pm 4.8 standard deviation. Majority of the women were married 384 (96%), they were mostly Yorubas 363 (90.8%) and most of them practiced Christianity as a religion 364 (91.0%). Most of the women 308 (77.1%), and their partners 317 (79.2%) had tertiary education but the women were mostly traders 163 (40.8%). This is as shown in Table 1.

Knowledge of HIV and MTCT of HIV among the respondents

Majority of the respondents 389 (97.3%) have heard about HIV and knew about its transmission. Overall 85.3% of the

Table 1: The socio-demographic characteristics of the respondents

Characteristics	Frequency	Percentage
Age		
20-29	184	46.0
30-39	200	50.0
40-49	16	4.0
Marital status		
Single	16	4.0
Married	384	96.0
Religion		
Christianity	364	91.0
Islamic	32	8.0
Traditional	4	1.0
Tribe		
Yoruba	363	90.8
Igbo	33	8.2
Hausa	4	1.0
Level of education		
Primary	9	2.3
SSCE	83	20.6
Tertiary	308	77.1
Occupation		
Applicant	80	20.1
Civil servant	44	11.0
Trader/business	163	40.8
Teacher	70	17.5
Public servant	43	10.6
Level of education of		
Husband		
Primary	22	5.5
SSCE	61	15.3
Tertiary	317	79.2
Husband's		
Occupation		
Applicant	43	10.8
Civil servant	82	20.4
Trader/business	95	23.8
Teacher	98	24.5
Public servant	82	20.5

respondents had a good knowledge of HIV and its mode of transmission. While 219 (66.0%) knew that getting tested during pregnancy can help prevent mother-to-child transmission of HIV, 66 (19.9%) had no such knowledge. The respondent's main source of information was from health workers 142 (36.5%). This is shown in Table 2.

Attitude and Practice of HIV testing among the respondents and their partners

Among the respondents, only 252 (63.2%) had been tested for HIV in the index pregnancy despite the fact that 327 (81.7%) claim to be willing to accept testing. The main reason why some were not tested being lack of counsellors. Though 348 (87%) of the respondents claimed their partners would agree for them to test for HIV in the index pregnancy however only 274 (68.4%) of the respondents' partners had been tested for HIV. This is shown in Table 3.

Table 2: Knowledge of HIV and MTCT among the respondents

Variables	Status	Frequency n (%)
Have you heard about HIV	Yes	389 (97.3)
	No	11 (2.8)
HIV can be transmitted from mother to child	Yes	332 (83.0)
	No	46 (11.5)
	Don't know	22 (5.5)
*How can HIV be transmitted	Through sexual intercourse	332 (85.3)
	By sharing needle	297 (76.3)
	From infected mother to unborn child	303 (77.9)
	Through blood transfusion	291 (85.3)
	Don't know	23 (5.9)
*When can mother to child transmission of HIV occur	During pregnancy	236 (59.0)
	During delivery	84 (25.3)
	During breast feeding	69 (20.8)
	I don't know	66 (19.9)
*How can you prevent PMTCT of HIV	By getting tested during pregnancy	219 (66)
	By taking antiretroviral drug	79 (23.8)
	By avoiding breastfeeding if positive	36 (10.8)
	I don't know	66 (19.9)
*Main source of information	Television	94 (24.2)
	Radio	65 (16.7)
	friends	97 (24.9)
	health workers	142 (36.5)

*Multiple responses obtained

Table 3: Attitude and Practice of HIV testing among the respondents and their partners

Factors	Status	Frequency (%)
Respondents testing	Yes	252 (63.2)
	No	148 (36.8)
Reasons for not testing if No	No HIV stripes	13 (8.7)
	Lack of counsellors	55 (37.2)
	Lack of knowledge about HIV	30 (20.3)
	Lack of interest	26 (17.6)
	Fear of knowing your status	14 (9.5)
	Not psychologically prepared	10 (6.7)
Respondents accepting to test	Yes	327 (81.7)
	No	73 (18.3)
Will you disclose your status to your partner	Yes	245 (61.3)
	No	82 (20.5)
	Don't know	73 (18.3)
Will you advice other women to be tested	Yes	327 (81.7)
	No	73 (18.3)
If yes, what are your reasons	To know their status	259 (64.7)
	To prevent baby from HIV	68 (17.0)
	No reason	73 (18.3)
Husband attitude to testing in pregnancy	Agreed I should be tested	348 (87.0)
	I don't know	52 (13.0)
Respondents partner tested	Yes	274 (68.4)
	No	126 (31.6)
Reasons for partner not tested	Lack of time	22 (17.5)
	Partner not willing to be tested	13 (10.3)
	Lack of partner awareness about HIV and PMTCT	28 (22.2)
	Fear of stigmatization and discrimination	63 (50.0)

As shown in Table 4, the younger women were found to be 59% more knowledgeable than older women {OR = 0.415, 95%CI: 0.14-1.16, $P = 0.006$ }. Also, the respondents

partners who had tertiary education were 3.8 times more knowledgeable than those who had secondary and primary education {OR = 3.836, 95% CI: 1.462-10.064, $P = 0.015$ }. These were statistically significant at $P < 0.05$.

Also Table 5 showed that respondents who had tertiary education were 3.2 times likely to practice HIV testing {OR = 3.2, 95%CI 2.8-14.3, $P = 0.000$ }, women who were public servants were 6.7 times likely to practice HIV testing. Also respondents' partners who had tertiary education and who were business men were more likely to encourage their wives to practice HIV testing. These were all statistically significant at $P < 0.05$.

Discussion

Human immunodeficiency virus (HIV) infection remains a global public health issue and a major cause of morbidity and mortality which cuts across all age groups. Prevention of mother-to-child transmission service offered to pregnant women is a valuable programme that can reduce transmission of HIV to babies and ensure healthier future generations.

In this study the socio-demographic characteristics of the respondents showed that majority of the women were between 30 and 39 years, they were married (96%), and educated up to the tertiary level (77.1%). This socio-demographic profile suggests that they could easily have access to information about HIV, and will also be at an advantage to understand what is discussed during counselling. It is therefore not surprising that the level of HIV awareness reported was as high as 97.3%. This is similar to a study carried out at the South Eastern part of Nigeria in 2005, where 99% level of HIV awareness was reported.^[6]

About 83% of the women have heard about mother-to-child-transmission of HIV which is also not surprising considering their level of education. This is in keeping with a similar study in Ibadan South West Nigeria where 86% of the pregnant women were aware of MTCT of HIV.^[7] The media and health education from health workers were identified by the women as the major sources of their information about HIV and MTCT which further showed the importance they hold during PMTCT intervention programmes. This finding is in keeping with a similar study in the South Eastern part of Nigeria among similar group of women.^[8]

This study showed that only 63.2% of the women have been tested in this pregnancy while 36.8% have not received HIV testing. This is lower than a similar study conducted among

Table 4: Association between socio-demographic characteristics and knowledge of PMTCT

Factors	Knowledge of PMTCT				
	Yes	No	OR	95% CI	P
Age of respondents					
20-29	120	64	0.415	0.14-1.16	0.006*
30-39	100	100	0.778	0.27-2.17	
40-49	7	9			
Religion					
Christianity	204	160	1.0	1.0	0.201
Islamic	19	13	1.0	1.0	
Traditional	4	0			
Respondent level of education					
Primary	4	5	1.021	0.63-1.66	0.750
SSCE	47	36	1.667	0.44-6.33	
Tertiary	176	132			
Occupation					
Applicant	48	32	1.244	0.58-2.69	0.353
Civil servant	22	22	1.867	0.79-4.42	
Trader/business	95	68	1.336	0.66-2.69	
Teacher	34	36	1.976	0.90-4.32	
Public servant	28	15			
Level of education of husband					
Primary	6	16	1.142	0.657-1.985	0.015*
SSCE	34	27	3.836	1.462-10.064	
Tertiary	187	130			
Occupation of husband					
Applicant	27	16	0.487	0.229-1.038	0.062
Civil servant	45	37	0.676	0.365-1.251	
Trader/business	53	42	0.652	0.360-1.180	
Teacher	65	33	0.417	0.228-0.764	
Public servant	37	45			

*Statistically Significant variables at $P < 0.05$, OR, Odds ratio; CI, Confidence Interval

antenatal clinic attendees in Cameroun where 85.7% of the women have already being tested.^[9] This is not encouraging and is not in keeping with WHO recommendation of screening of all pregnant women.^[4] Most of the women attributing their not been tested to lack of counsellors which further shows that adequate counselling is essential for the implementation of effective PMTCT services. Majority of the women if properly counselled are willing to test, disclose their status and even advice other women to get tested.

Partner/husband involvement is also essential for effective implementation of PMTCT services as they may provide support for their women if they test positive, and therefore help reduce infection to their infants. The findings from this study show that most partners agreed their wives should be tested and about 68.4% of them had already been tested for HIV. This is in keeping with the 60% reported by Deressa *et al.*^[10] in Ethiopia but higher than the 28% reported in another Ethiopian research on male involvement in PMTCT.^[11] This is not surprising considering the fact that most of the respondents' partners had tertiary education and could easily have access to information on PMTCT and HIV. Research has also highlighted the beneficial impact of male involvement

Table 5: Association between socio-demographic characteristics and Practice of HIV testing

Factors	Practice of HIV testing				
	Yes	No	OR	95%CI	P
Age of respondents					
20-29	22	162	0	0	0.212
30-39	17	183	0	0	
40-49	0	16			
Religion					
Christianity	36	328	0	0	0.800
Islamic	3	29	0	0	
Traditional	0	4			
Respondent level of education					
Primary	0	9	0.207	0.10-0.41	0.000*
SSCE	20	63	3.2	2.8-14.3	
Tertiary	19	289			
Occupation					
Applicant	9	71	2.391	0.88-6.43	0.003*
Civil servant	0	44	2.602	1.09-6.19	
Trader/business	17	146	6.768	1.74-26.25	
Teacher	3	67			
Public servant	10	33			
Level of education of husband					
Primary	0	22	1.31	0.064-0.265	0.000*
SSCE	20	41			
Tertiary	19	298			
Occupation of husband					
Applicant	3	40	3.750	1.04-13.54	0.000*
Civil servant	2	80	11.250	2.51-50.28	
Trader/business	13	82	1.774	0.81-3.88	
Teacher	3	95	8.906	2.52-31.48	
Public servant	18	64			

*Statistically significant variables at $P < 0.05$, OR, Odds ratio; CI, Confidence Interval

in programmes to prevent the mother-to-child transmission of HIV in reducing new infections among infants.^[12]

In this study the younger women were more knowledgeable than the older women, this may be due to the fact that the younger women could have easier access to information and may be more inquisitive and interact better than the older women. The respondent's partners who had tertiary education were more knowledgeable in this study. This finding was also noted to increase the likelihood of the partners to encourage their wives to practice HIV testing. This is in keeping with other studies where partners educated beyond the elementary level were 3.3 times more likely to practice HIV testing than those with elementary level of education.^[13,14] This study also showed that women who were government employed and whose partners were businessmen were more likely to practice HIV testing. This could be as a result of the compulsory medical screening of staff when they are newly employed.

Conclusion

The level of awareness of HIV and MTCT of HIV is quite high among our women. However this level of awareness did not

translate into higher attitude and practice of HIV testing among the women. Women who did not test for HIV blaming this on lack of counsellors to further convince them on the importance. It is therefore important to ensure adequate counsellors at our health facilities.

Limitation

This study is not without a limitation because it is facility based and only represent the proportion of women who visited the facility. Further study on a larger scale may be conducted to assess the PMTCT programme in the state.

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Conflicts of interest

There are no conflicts of interest.

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