



Knowledge of HIV/AIDS Transmission and Partner Notification Rate among Antenatal Care Attendees in a Tertiary Hospital in Southeast Nigeria

N. C. Eze^{1*}, B. I. Ituma¹ and E. N. Ossai¹

¹Department of Community Medicine, Federal Teaching Hospital Abakaliki, Nigeria.

Authors' contributions

This work was carried out in collaboration between all authors. Author NCE designed the study, wrote the protocol and interpreted the data. Author NCE anchored the field study, gathered the initial data and performed preliminary data analysis. All authors managed the literature searches and produced the initial draft. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJMAH/2017/29949

Editor(s):

(1) Maria Manuel Azevedo, Department of Microbiology, Faculty of Medicine, University of Porto, Porto, Portugal.

Reviewers:

- (1) Umakanth Siromani, Christian Medical College, Velhore, Tamilnadu, India.
(2) Rina Girard Kaminsky, Institute for Infectious Diseases and Parasitology Antonio Vidal, Tegucigalpa, Honduras.
(3) Jolanta Flieger, Medical University, Lublin, Poland.

Complete Peer review History: <http://www.sciencedomain.org/review-history/17454>

Original Research Article

Received 6th October 2016
Accepted 28th November 2016
Published 7th January 2017

ABSTRACT

Aims: To assess knowledge of HIV/AIDS transmission and determine the level of partner notification among HIV positive antenatal care attendees in Federal Teaching Hospital Abakaliki, Nigeria.

Study Design: A health facility based cross-sectional descriptive study.

Place and Duration of Study: Federal Teaching Hospital Abakaliki, Nigeria between January and April 2014.

Methodology: A total of 400 women attending antenatal care at Federal Teaching Hospital were selected using a systematic sampling technique. The clients were interviewed using a pre tested interviewer administered questionnaire. Good knowledge of HIV transmission was assessed by the proportion of clients who correctly answered 50% of the knowledge questions. Data analysis was done using SPSS statistical software version 20. Chi squared test of statistical significance was used in the analysis and level of significance was determined by a p value of less than 0.05.

*Corresponding author: E-mail: ezenelson24@gmail.com;

Results: The mean age of respondents was 28±9.0 years. Majority were married (97%) and had formal education. All the respondents were aware of HIV and 84% had good knowledge of HIV transmission. Knowledge was significantly associated with marital status, educational attainment and employment status of respondents. Sero-prevalence rate among respondents was 1.8%. Partner notification among sero-positive antenatal care attendees was 42.9%.
Conclusion: Knowledge of HIV/AIDS transmission was high among respondents, however partner notification rate among HIV positive respondents was 42.9%. This rate is low and need to be improved upon by awareness creation and encouragement of male involvement in antenatal care.

Keywords: Knowledge; HIV/AIDS; partner notification; antenatal care; tertiary hospital; Southeast Nigeria.

1. INTRODUCTION

HIV/AIDS pandemic has become a major and serious health problem all over the world, [1] and has killed over 25 million people globally [2]. HIV/AIDS epidemic predominantly affects female (57%) than males (43%) [2]. The epidemic in Nigeria has since extended beyond the high risk groups to the general population. The antenatal HIV rates are less variable by age group although young adults appear most affected [3]. This is therefore the need to assess the knowledge of HIV/AIDS transmission among people and in cases where couples are involved to determine the rate of notification of partners.

Although the traditional HIV programs focus on individuals rather than on couples or families, a shift in approach is required in order to reach partners of HIV-positive individuals. One challenge in Africa is disclosure of HIV status, as rates of disclosure to sexual partners are generally low [4]. Partner notification is when the index HIV positive patient either tells their sexual partners that they may have been exposed to HIV or a health care provider approaches the sexual partners of the patients and tells them that they may have been exposed to HIV [5]. This disclosure of HIV status to sexual partner is an important prevention goal introduced by the World Health Organization (WHO) and Centre for Disease Control and Prevention (CDC) [6].

There are three strategies in partner notification which include provider referral, patient referral and conditional referral. In provider referral the partner's contact information is solicited from the patient and partner notified anonymously by a health service personnel. Provider referral has been shown to increase the rate of partners presenting for care in some settings and also the more costly and resource intensive of the three strategies. Patient (source) referral on the hand

is a natural starting point for partner notification program but may not be feasible for all index persons and partners. It involves patients notifying their partners of their positive diagnosis without direct involvement of the health care provider or personnel. This is difficult because of embarrassment or fear of violence and/or other negative reactions from partners [5]. Conditional (contract) referral are situations where the patients in agreement with the health care provider are supposed to inform their partners within a given time frame otherwise the health care provider will do so but without revealing the patients' identity [7].

Partner notification has profound advantages as it is associated with less anxiety and increased social support among many women, it can be an important entry point for HIV-infected women to begin discussing the use of contraception with their partners in order to avoid or reduce unwanted pregnancies. It plays a key role in women's uptake of prevention of mother-to-child transmission of HIV (PMTCT) services and their participation in treatment, care and support programmes [6].

In a study in South Africa, 19% of the women attending antenatal care (ANC) tested positive and 83% told their partners that they have taken the test [8] while in Zaria, 73.4% of the respondents shared results with their husbands [9]. Partner notification may thus depend on appropriate counseling and to a large extent increases the chances of providing correct treatment for the patient and partner. It promotes safer sex and has the greatest impact for people with more than one partner [9]. Some factors have been found to influence partner notification. In Mozambique domestic violence is a negative factor influencing partner notification [10]. The study was designed to assess knowledge of HIV transmission and determine partner notification

rate among HIV positive antenatal care attendees at Federal Teaching Hospital Abakaliki, Nigeria.

2. MATERIALS AND METHODS

2.1 Study Area

This study was carried out at the ANC clinic of Federal Teaching Hospital Abakaliki, Ebonyi State, Nigeria. The hospital is a tertiary health centre and research institution. Abakaliki is located in the administrative capital of Ebonyi state in Southeast Nigeria. The facility which serves as the teaching hospital for the College of Health Sciences of Ebonyi State University Abakaliki has a total of 604 beds. It offers specialist services in all specialties of Medicine and also serves as a center for the training of specialist Doctors. About 50 women attend antenatal care in the facility on each working day and approximately 4000 women book annually with an average of 1,500 deliveries per annum [11].

2.2 Study Design

This was a health facility based descriptive cross-sectional study.

2.3 Study Instrument

A pretested semi structured questionnaire which was developed by the researchers was used for the study. This was administered to the women using the local language, Igbo by trained research assistants. Information was obtained on socio-demographic characteristics of the clients, their knowledge on HIV/AIDS transmission and for those who tested positive for HIV/AIDS whether they notified their spouses of the test result.

2.4 Study Population/Selection Criteria

The study population consisted of pregnant women attending antenatal care in Federal Teaching Hospital Abakaliki who consented to and had voluntary counseling and testing for HIV/AIDS during booking for antenatal care.

2.5 Sample Size Determination

The minimum sample size for the study was determined by the formula used for single proportions [12]. A total of 400 respondents

were recruited for the study based on a type 1 error (α) of 0.05, a tolerable margin of error of 0.05 and a prevalence of 0.5% representing the proportion of women attending antenatal care who had good knowledge of HIV/AIDS from a study in Nigeria [12].

2.6 Sampling Technique

A systematic sampling technique using facility register was used to select the clients as they present in the antenatal care clinic on each day of data collection. The last six months attendance to the antenatal clinic was used to determine the sampling frame. An average of 1014 clients present in the antenatal clinic on a monthly basis. The period of data collection for the study was one month, hence a sampling frame of 1014 was used. Sampling interval was determined by dividing the sampling frame of 1014 by the sample size of 400, hence a sampling interval of 3 was used. So every third client was recruited for the study, based on the order of registration of clients on each day of the study. The index patient was selected by simple random sampling method through balloting and to ensure that a patient was not selected twice, there was a register for all clients that had been included in the study and this was cross checked by the research assistants before a new client was included.

2.7 Data Analysis

Data analysis was done using Statistical Package for Social Sciences (SPSS) statistical software version 20. Frequencies and cross tabulation were generated. Chi square test of statistical significance was used in the analyses and level of significance was determined by a p value of less than 0.05. Clients' good knowledge of HIV/AIDS transmission was assessed by the proportion of the women who correctly answered 6 or more of the eleven variables that were used to elicit knowledge of HIV/AIDS transmission.

2.8 Ethical Consideration

Ethical approval for the study was obtained from the Health Research and Ethics Committee of the Federal Teaching Hospital Abakaliki. The respondents were required to sign on a written informed consent form before the interview. Also, their level of participation and the nature of the study were clearly explained to them. The participants were informed that participation in the study was voluntary and all information

obtained during the study will be treated anonymously.

3. RESULTS

Table 1 shows the socio-demographic characteristics of the respondents. The mean age of respondents was 28±9.0 years. Majority were married (98%) and 54.8% of respondents had secondary education. Majority of the clients, (64.3%) registered for antenatal care during the second trimester while a very minor proportion of 8% booked in the first trimester.

Table 1. Socio-demographic characteristics of respondents

Variable	Frequency (n =400)	Percent (%)
Age years		
Mean (±SD)	28±9.0	
Age group (years)		
<24 years	75	18.7
25 – 29 years	204	51.0
30 – 34 years	85	21.3
≥35 years	36	9.0
Ethnicity		
Igbo	387	96.7
Others*	13	3.3
Religion		
Christianity	391	97.7
Others**	9	2.3
Marital status		
Married	388	97.0
Never married	8	2.0
Separated	4	1.0
Educational attainment		
No formal education	10	2.5
Primary education	36	9.0
Secondary education	219	54.8
Tertiary education	135	33.7
Employment status		
Housewife/unemployed	67	16.8
Salaried employment	100	25.0
Self employment	233	58.2
Booking gestational age (weeks)		
≤ 13	32	8.0
14 – 27	257	64.3
28 – 40	111	27.7

*Hausa, Yorub ** Islam, Traditional religion

Table 2 shows that all the respondents correctly identified sexual intercourse as a possible route

of transmission. Majority of the respondents, 96.8%, 93.8% and 90.8% correctly identified transfusion with HIV infected blood, sharing sharp objects with infected person and use of unsterilized equipment for surgery as routes of transmission of HIV/AIDS respectively. Also, majority of the respondents (89.5%) were aware that HIV/AIDS could be transmitted from mother to child. A higher proportion of respondents, (84.0%) had good knowledge of HIV/AIDS transmission.

Table 2. Respondents' Knowledge of HIV/AIDS transmission (Can HIV/AIDS be transmitted through the following means?)

Variable	Frequency n=400	Percent (%)
Having sex with HIV infected person	400	100
Transfusion with infected blood	387	96.8
Sharing sharp objects with HIV infected person	375	93.8
Use of unsterilized equipment for surgery	363	90.8
From Mother-to- Child	358	89.5
Kissing HIV infected person	299	74.8
Sharing eating utensil with infected person	187	46.8
Sharing toilet with infected person	125	31.5
Hugging HIV infected person	123	30.8
Mosquito/Bed bug bite	74	23.5
Witch craft/Charm	41	10.3
Good knowledge of HIV/AIDS transmission	336	84.0

Table 3 shows factors associated with good knowledge of HIV/AIDS transmission. A significantly higher proportion of respondents who were married, (85.3%) had good knowledge of HIV/AIDS transmission when compared to those who were single, 41.7% (p<0.001). A higher proportion of the respondents who had secondary education and above had good knowledge of HIV/AIDS transmission when compared with those who had primary education and less (60.9%) and the difference in proportions was found to be statistically significant (p<0.001).

Table 4 shows person who sero-negative respondents discussed their test results. Majority (73.6%) of respondents discussed their sero status with their husbands and 28.1% with their mother while 4.7% and 1.6% were for relatives and others respectively.

Table 3. Factors associated with good knowledge of HIV/AIDS transmission

Variable	Knowledge of HIV transmission n=400		χ^2	p-value
	Good knowledge N(%)	Poor knowledge N(%)		
Age				
<30years	233 (83.5)	46 (16.5)	0.163	0.686
≥30 years	103 (85.1)	18 (14.9)		
Marital status				
Single***	5 (41.7)	7 (56.3)	16.496	<0.001
Married	331 (85.3)	57 (14.7)		
Educational level				
Primary education and less	28 (60.9)	18 (39.1)	20.691	<0.001
Secondary education and more	308 (87.0)	46 (13.0)		
Employment status				
Housewife/unemployed	65 (97.0)	2 (3.0)	16.315	<0.001
Salaried employment	89 (89.0)	11 (11.0)		
Self employment	182 (78.1)	51 (21.9)		

Table 5 shows person who sero-positive respondents discussed their test results with. Seven antenatal attendees were sero-positive of which three discussed test results with husbands giving partner notification rate of 42.9%. Five sero-positive respondents' spouses honored counseling and testing invitation and were counseled and tested (71.4% test rate). Out of this, 3 were sero-positive (60%) giving a sero discordant rate of 4%. Sixty six point seven percent (66.7%) of the sero-positive respondents said that the reason for notifying her spouse is that he may be the source of infection while 33.3% gave reasons as trusting him for support. Three (75%) did not discuss result with spouse because of fear of problem in the family while 1 (25%) feared as may be accused as source of infection. One (50%) of respondent's spouse refused been tested because he was not sure of himself and 1 (50%) busy with work.

Table 4. Persons who sero negative respondents discussed their HIV test results with

Person respondents discussed test result with	Frequency N= 393	Percent (%)
Husband	285	73.6
Mother	81	28.1
Relatives	21	4.7
Others (friends/associates)	6	1.6

4. DISCUSSION

About half of the respondents (51%) were in the age range of 25-29 years with mean age of

28±9.0 years. This is similar to mean age (27±5.3 years) of antenatal attendees reported in Abuja, Nigeria [6].

Table 5. Persons who sero-positive respondents discussed their HIV test results with

Person respondents discussed test result with	Frequency N =7	Percent (%)
Husband	3	42.9
Mother	3	42.9
Relatives	1	14.2

Majority of respondents (97%) were married and 97.7% were Christians similar to that reported by Tilahun of Ethiopia where 95.8% were married and 87.6% were Christian [13]. This may be due to the fact that the study was done in a Christian dominated area. [13] as in Ethiopia. About 54.8% and 33.7% of the respondents had secondary and tertiary education respectively out of which only 27% were in salaried employment. This is similar to studies in Nairobi, Kenya that reported 51% respondents with secondary education or more and only 26% were employed [14].

Out of 400 respondents, 96.8% identified transmission with infected blood, 93.8% identified sharing infected sharp objects, 90.8% identified use of unsterilized equipment, 89.5% knew mother-to-child transmission while 74.8% identified kissing HIV infected person as ways of HIV/AIDS transmission. This study found good knowledge of HIV/AIDS transmission among

respondents (84%) and this is similar to a study in Nnewi among ANC attendees where good knowledge of HIV/AIDS was 99% [15] and in two health facilities in Lagos where the level of good knowledge of HIV/AIDS among pregnant women was 100% [16]. This high level of good knowledge may be as a result of the high level of HIV/AIDS awareness campaign carried out by the government in collaboration with various non-governmental organizations in Ebonyi State. Being married and employed, having secondary and tertiary level of education were the factors that affected good knowledge of HIV/AIDS transmission. The single individuals do not seem to have good knowledge of HIV/AIDS transmission and this may imply higher transmission rate among the unmarried class. Same may apply to the married respondents with poor knowledge of HIV/AIDS transmission. This study found 42.9% partner notification rate among sero-positive ANC attendees. This rate is lower than the study in Abuja [6] and Zaria [9] where 89% and 73.4% notified their partners of HIV test and results respectively. This difference in notification rate may be due to the fact that women in big cities are more knowledgeable on ways or methods of disclosure of sero-status than women in small cities and sub-urban. The uptake of HIV testing among sero-positive spouses was much higher in this study (71.4%) than that in Zaria where only 12% of the respondents' spouses expressed willingness to do HIV test [9]. This may be due to the level of knowledge of HIV/AIDS in Southeast Nigeria compared to that in Northern Nigeria and perhaps due to the culture of polygamous marriage practiced in the Northern Nigeria too. Reasons given by respondents for not notifying their partners were fear of family problem and that the spouse may be accused as source of infection. A comparative study in South Africa found that HIV positive women who did not discuss testing results with their partners were three times more likely to believe that partners are violent towards HIV positive women [8] and this corroborates finding from this study where 75% of the sero-positive respondents refused notifying their partners because of fear of family problem. This study found that respondents who had trust in their spouses for psychological support willingly notified husbands of their test results. Partner notification as an important prevention goal stated by World Health Organization (WHO) and Centre for Disease Control and Prevention (CDC) [6] has many advantages: It is associated with less anxiety and increased social support among many women

[6]. It can be an important entry point for HIV infected women to begin discussing use of contraceptives with their partners in order to avoid (reduce) unwanted pregnancies [6]. It also plays a key role in women's uptake of PMTCT services [6]. Disclosure of HIV status greatly influenced infant feeding options of HIV infected mothers as reported in an earlier study if the partner was aware of the HIV status of the spouse and involved in the decision whether to breastfeed or formula feed [6] as this would help reduce vertical transmission of HIV.

5. CONCLUSION

The study found good knowledge of HIV/AIDS transmission among respondents (84%). Partner notification rate among respondents was 42.9%. Reasons found to influence partner notification were fear of problem in the family and lack of trust and support from spouses. The lack of involvement of male partners in HIV/AIDS programme is a major setback in prevention of HIV/AIDS and MTCT of HIV. There may be need to inform the women during VCT on the need to notify their partners of test results and the best way will be the involvement of male in ANC and if possible for the men to be tested also. It is hoped that through partner notification and male involvement in HIV/AIDS prevention programmes, potential areas of "family disharmony" can be resolved and HIV transmission grossly prevented or reduced. Sero discordant rate of 4% was found in this study.

6. RECOMMENDATION

Couple counseling will enhance partner notification and encourage male involvement in HIV/AIDS programme. This will help to increase social support from spouses, decision on breast feeding options and reduce anxiety among women and ultimately improve partner notification.

7. LIMITATION OF THE STUDY

This study was an institutional based one therefore its findings may not accurately reflect the true picture in the general population.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Killings LO. The first postmodern pandemic 25 years of HIV. *J. Intern Med* 2008; 263(3):218-48.
2. Federal Ministry of Health: Introduction to magnitude of the problem of HIV/AIDS and MTCT; Prevention of Mother-To- Child Transmission of HIV (PMTCT). Nigeria Curriculum; National Guideline Abuja. 2007;1-8.
3. FMOH, HIV Sentinel sero-prevalence survey in Nigeria. Technical Report, AIDS/STI Control Programme, FMOH. 2010;6-8.
4. Makombe SD, Hochgesang M, Jahn A. *Bulletin of World Health Organization*. 2008;86(4):302-309.
5. Mathew C, Coetzee N, Zwarestin M, Lombard C. Systematic review of strategies for partner notification for sexually transmitted diseases including HIV/AIDS. *Int. J. STD/AIDS*. 2002;13(5): 285-300.
6. Mohammed A, Shehu AU, Aliyu AA, Zoaka AI. Infant feeding options, practices and determinants of feeding practices among HIV sero-positive Mothers in Abuja, Nigeria. *Nigerian Medical Journal*. 2010; 51(1):14-17.
7. Hogben M, McNally T, McPheeters M, Hutchinson AB, Task Force C. The effectiveness of HIV partner counseling and referral services in increasing identification of HIV-positive individuals - a systematic review. *Am J Prev Med*. 2007; 33:S89-S100.
8. Etiebet MA, Fansma D, Forsyth B, Coetzee N, Hussey G. Integrating prevention of mother-to-child transmission of HIV into Antenatal care: Learning from experience of women in South Africa. *AIDS Care*. 2004;1691:37-46.
9. Adelaiye RS. Factors influencing the uptake of voluntary counseling and testing of HIV in antenatal clinic in Ahmadu Bello University Teaching Hospital Zaria. A Master in Public Health Thesis. 2005;36-38.
10. Pablo MC, Stephen G, Floriano F. Antenatal syphilis screening in Mozambique. 2005;12-5.
11. Onoh RC, Umeora OJ, Agwu UM, Ezegwui HU, EzeonuPO, Onyebuchi AK. Pattern and determinants of antenatal booking at Abakaliki. *South East Nigeria. Ann Med Health Science Res*. 2012;2:169-75.
12. Araoye MO. Subjects selection. *Research Methodology with Statistics for Health and Social Sciences*. 2nd edition. Ilorin: Nathadex Publishers. 2004;115-129.
13. Tilahun W. Utilization of PMTCT services among pregnant women in Western Amhara region Addis Ababa, Ethiopia. 2008;35-41.
14. Family Health International. The new guidelines for prevention of mother-to-child transmission (PMTCT) and infant feeding in the context of HIV. 2010;7-10.
15. Igwegbe AO, Ilika AL. Knowledge and perception of HIV/AIDS and mother-to-child transmission among antenatal mothers at Nnamdi Azikiwe University Hospital Nnewi. *J. Chin Pract* 2005;8(2): 97-101.
16. Agbogbovbvia T. An assessment of the awareness, attitude and anticipated practice regarding HIV/AIDS in women attending ANC in Lagos. *Medline*. 2002;11: 9-11.

© 2017 Eze et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/17454>