

Knowledge, attitude, beliefs and perception of HIV-positive women towards PMTCT program services in NAUTH Nnewi, Nigeria

Original Article

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ABSTRACT

Background: Though transmission of Human Immune-deficiency Virus (HIV) in Nigeria occurs primarily through heterosexual contact, vertical transmission of the infection remains a major concern because of the attendant health consequences for the child. The success of a Prevention-of-Mother-to-Child-Transmission (PMTCT) programme in reducing sero-conversion among exposed-infants is determined by many factors, including anti-retroviral drugs (ARVs), infant feeding practices, use of well-baby care, counselling and support to mother-newborn pair. Little is known about the effects of PMTCT interventions in Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi, and this study was aimed at assessing the knowledge of PMTCT program / services and HIV risk-perception among HIV-positive women in this center.

Methodology: The study design was descriptive cross-sectional. A total of 288 consenting HIV-positive mothers of recruited children was selected using the systematic sampling technique. Data were collected using a pre-tested structured interviewer-administered questionnaire and analysed by means of the SPSS software.

Results: The mean age of the respondents was 30.5±4.86years. Knowledge about HIV transmission was good (97 to 99%), while risk perception about HIV was 100%. Mothers who reported their treatment in the clinic as "very good" were more likely to declare PMTCT as "good" than mothers who were less well treated in the programme (p <0.01).

Conclusion: The programme has resulted in high scores in mothers' knowledge and perception of various aspects and dimensions of HIV infection and PMTCT.

Recommendations: Health education/counselling component of the PMTCT programme should be reinforced in order to strengthen it.

Keywords: Effects, human immune-deficiency virus, mothers, vertical transmission.

INTRODUCTION

Acquired immuno-deficiency syndrome (AIDS) is a disease condition resulting from the infection of the human body by a retrovirus called the human immune-deficiency virus (HIV).¹ On entry into the

body, the virus invades and destroys the Cluster Differentiation (CD4) cells in which it replicates.² It has been proven that Highly Active Anti-retroviral Therapy (HAART), when promptly and adequately provided and taken, reduces HIV morbidity and mortality.³

The HIV prevalence rate is higher in urban Nigeria (5.4%) than the rural areas (3.4%).⁴ Transmission of HIV in Nigeria occurs primarily through heterosexual route which accounts for 80% of all HIV infections while mother-to-child-transmission (MTCT) accounts for 10% of HIV infections.^{5,6} The current National HIV prevalence is 4.6% while that of Anambra State is 5.6%.⁷ The MTCT of HIV, otherwise known as vertical transmission, is a major concern because of the attendant consequences of morbidity and mortality of these infections.⁸

Post-test counselling for women includes information on disclosure, partner notification and testing, the benefits of PMTCT intervention, ARV for PMTCT and for maternal health, nutrition, delivery, infant feeding, the need for follow up and adherence to ARVs.⁶ Counselling services are an important component of HIV/AIDS control programme which aims at creating awareness and promoting changes in reducing high risk behaviour against HIV/AIDS.

Counselling services have been demonstrated to be effective in increasing knowledge and changes in attitude and behaviour among women who access PMTCT services.⁹ In a study by Rahbar T, *et al* in India, it was shown that the knowledge of women in PMTCT programme about HIV/AIDS was significantly different in pre-test (mean score = 15.3) and post-test (mean score = 35.6) ($p < 0.0001$), and that condom use significantly increased from 1.2% in pre-test to 58.6% after post-test counseling ($p < 0.0001$).¹⁰ Another study in Delhi by Singh S, *et al*, showed that 45% of participants knew that AIDS was not transmitted by mosquito bite while majority believed that one could get HIV/AIDS by having sex with prostitutes.¹¹

The overall purpose of the assessment is to generate information for future programming in order to build on the programme's

successes and remedy its failures since the understanding of the effectiveness of PMTCT programmes is crucial for sustenance and scale-up. Prior to this assessment, very little was known about the effect of PMTCT interventions in NAUTH, Nnewi, Anambra State, Nigeria.

General Objective

To assess the knowledge of PMTCT program / services and HIV risk perception among HIV-positive women in NAUTH Nnewi.

Specific Objectives

1. To determine the knowledge of routes of transmission of HIV among the subjects.
2. To determine the level of perception of HIV transmission among women.
3. To determine the attitudes and beliefs of women towards the services in the PMTCT program.

METHODOLOGY

The study site was Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, a tertiary health institution owned by the Federal Government of Nigeria. It is located in a commercial nerve centre of the State. The catchment areas span all through Anambra State and her neighbouring States – Imo, Abia, Delta, Enugu, Ebonyi and Kogi States.

Anti-retroviral (ARV) services were commenced in NAUTH Nnewi in February 2002 as part of Federal Government of Nigeria's HIV/AIDS Response Programme. Babies exposed to HIV were brought to the Paediatric HIV Clinic at age 6 weeks as part of follow-up and for collection of Dried Blood Spot (DBS) for early infant diagnosis (EID) using Polymerase Chain Reaction (PCR).

The study population consisted of HIV-positive women who received services within the PMTCT programme and also, mother-

child pairs that attended Paediatric Follow-up and Adult ARV Clinics of NAUTH.

The sample size for the study population was determined using the formula for studying proportions with population greater than 10,000 as shown below:

$$n = Z^2pq / d^2$$

where n = desired sample size

$$Z = \text{constant} = 1.96$$

p = 75% of transmission rate of previous study

$$q = 1 - p = 1 - 0.75 = 0.25$$

d = precision using confidence limit of 95% accuracy with 5% margin of error = 0.05.¹²

Therefore, $n = 1.962 \times (0.75 \times 0.25) / 0.0025 = 288$.

The design was a cross-sectional descriptive study, utilizing data obtained through the study instrument which was a structured questionnaire containing core concepts including demographics, knowledge of HIV/AIDS transmission, perceived HIV-related stigma, perceived quality of care received from providers and social support.¹³ Pre-testing of the questionnaire was done at the NAUTH Paediatric HIV clinic and participants in this pilot study were excluded from the main study.¹⁴ Two Research Assistants (RAs) were trained by the Principal Investigator (PI) to administer the questionnaire on the eligible mother-child pair attending the Paediatric Follow-up Clinic. Data collection took place over a period of 4 weeks.

The sampling frame for the questionnaire administration was the daily list of exposed babies who were brought to the Paediatric Follow-up Clinic. The questionnaires were administered by the RAs to the consenting mothers of the recruited children until the required sample size of 288 was achieved. All mother-child pairs who did not pass through the PMTCT programme were excluded from

the study. Data was collated, coded, entered into and analyzed using the SPSS software programme. The values were calculated using *chi-squared* method for comparison of variables. Regression analyses were also carried out. A *p-value* of less than 0.05 was considered significant.

Approval for this study was obtained from the NAUTH Ethical Review Board (ERB) while informed consent was obtained from individual participants.

RESULTS

The mean age of all the respondents was 30.5±4.86 years even as over 72% of them were aged between 25 and 34 years (see table 1). Two hundred and fifty-seven (89.2%) respondents were married while 10.8% were single, divorced or widowed. About 10.1% had less than secondary education even as 4.2% had no formal education. One hundred and fifty-four (53.5%) were of Anglican Christian denomination while 3% were Muslim. Traders accounted for 55.2% of the participants, 13.9% were civil servants while 18.4% were unemployed. Eighty-three (29.2%) were primiparous while 20 (6.9%) were grand multiparous while median parity was 2.

Table 1: Socio-demographic characteristics of all the respondents

Socio-demographic characteristics		N=288	%
Age (in years)	20-24	30	10.4
	25-29	97	33.7
	30-34	111	38.5
	35-39	32	11.2
	40-44	17	5.9
	45-49	1	0.3
Marital status	Single	4	1.4
	Married	257	89.2
	Divorced	18	6.3
	Widowed	9	3.1
Educational status	No formal education	12	4.2
	Primary	17	5.9
	JSS	68	23.6
	SSS	152	52.8
	Tertiary	39	13.5
Religion	Catholic	154	53.5
	Anglican	62	21.5
	Pentecostal	69	24.0
	Muslim	3	1.0
Occupation*	Trading	159	55.2
	Civil service	40	13.9
	Artisan	22	7.6
	Teaching	8	2.8
	Student	6	2.1
	Unemployed	53	18.4
Parity	1	84	29.2
	2-4	184	63.9
	≥5	20	6.9

Knowledge of routes of transmission included 79.2% for oral sex, 83.3% for anal sex, 89.3% unprotected sex and 97.9% breast milk (Table 2). Almost all the mothers (99%) know that HIV can be transmitted from mother to child while 16% did not believe it could be prevented by not breastfeeding the child. About 54.2% believed that transmission could be prevented by mother not hugging or kissing the child, though, 99.3% of the participants agreed that PMTCT of HIV can be achieved through use of ARV.

Table 2: Knowledge of route of transmission, PMTCT programs and condom use

Route of transmission	Yes (%)	No (%)	Do not know (%)	Total (N=288)
By oral sex	228(79.2)	38 (13.2)	22(7.6)	288(100)
By MTCT	285(99.0)	2(0.7)	1(0.3)	288(100)
By mosquito bite	18(6.2)	247(85.8)	23(8)	288 (100)
Sex without condom	257(89.3)	30(10.4)	1(0.3)	288 (100)
Breast milk	282(97.9)	5(1.8)	1(0.3)	288 (100)
Hand shaking	1(0.3)	286(99.4)	1(0.3)	288 (100)
Saliva	59(20.5)	214(74.3)	15(5.2)	288 (100)
Anal sex	240(83.3)	19(6.6)	29(10.1)	288 (100)
Through utensils	32(11.1)	252 (87.5)	4(1.4)	288 (100)
PMTCT programme				
PMTCT by ARTs	286(99.3)	2(0.7)		288 (100)
PMTCT by Breast milk	58(20.1)	230 (79.9)		288 (100)
PMTCT by not breast feeding	242(84)	46 (16)		288 (100)
PMTCT by infant formula	286(99.3)	2 (0.7)		288 (100)
PMTCT by kiss & hug baby	132(45.6)	156 (54.2)		288 (100)
PMTCT by give baby ART b4 discharge	284(98.7)	4 (1.3)		288 (100)
Condom use by pregnant women				
No need for condom before sex for HIV positive women	21 (7.3)	267 (92.7)		288 (100)

Although all of the respondents perceived risk of HIV transmission in multiple sexual partnerships and unprotected sex (Table 3), 94% did not perceive risk of HIV transmission in homosexual and bisexual men. This contrasts with their agreement (79.5%) of HIV transmission in this group of people (Table 4). It is also noted that (21.9%) did not believe condom can prevent HIV transmission.

Table 3: Perception of HIV risk among participants

Risk of HIV	Yes (%)	No (%)	No (%)
HIV risk in multiple partners	288 (100)		288 (100)
HIV risk in homosexual and bisexual men	19 (6.6)	269 (93.4)	288 (100)
HIV risk in consistent condom use	18 (6.2)	270 (93.8)	288 (100)
HIV risk in prostitutes	279 (96.9)	9 (3.1)	288 (100)
HIV risk in IDUs	285 (99)	3 (1.0)	288 (100)
HIV risk in unprotected sex	288 (100)		288 (100)
HIV risk in babies of HIV positive mothers	287 (99.7)	1 (0.1)	288 (100)

Table 4: Degree of perception concerning HIV transmission among participants

HIV transmission	Degree of perception					Total (%)
	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Not sure (%)	
In Nigeria HIV transmitted by homosexual & bisexual men	143 (49.7)	86 (29.9)	16 (5.6)	13 (4.5)	30 (10.4)	288 (100)
ART can prevent mother to child transmission	189 (65.6)	98 (34.0)	1 (0.4)			288 (100)
Unprotected sex can lead to HIV	198 (68.8)	89 (30.9)			1 (0.3)	288 (100)
I don't believe condoms can prevent HIV	46 (16)	17 (5.9)	55 (19.1)	143 (49.7)	27 (9.4)	288 (100)
HIV transmitted through breast milk	199 (69.1)	88 (30.6)	1 (0.3)			288 (100)
Abstinence prevents HIV spread	203 (70.5)	76 (26.4)	6 (2.1)	3 (1)		288 (100)

Mothers who reported their treatment in the clinic as "very good" were more likely to declare PMTCT as "good" than mothers who were less well treated in the PMTCT programme ($p < 0.01$) (Table 5). Also mothers who reported as "very good" the way they

were treated at the facility were more likely to feel that their HIV status were kept "confidential" than those who felt less well treated ($p < 0.001$) (Table 6).

Table 5: Relationship between women's comments on PMTCT program and how they are treated at the clinic

How women are treated at the clinic	Comments about PMTCT		Total
	None	Good	
Good Fair	27	117	144
Very good	3	141	144
Total	30	258	288

$\chi^2=22.5, p<0.01$

Table 6: Relationship between how women are treated at the hospital and their feeling about their HIV status being kept confidential in the facility

How women are treated at the hospital	Felt HIV status kept confidential in the facility		Total
	No (%)	Yes (%)	
Fair/Good	29 (90.6)	106 (42.7)	135
Very good	3 (9.4)	142 (57.3)	145
Total	32	248	280

$\chi^2= 35.3, p<0.001$

DISCUSSION

Human immune-deficiency virus (HIV) and acquired immuno-deficiency syndrome (AIDS) have continued to pose great risks to the health of the Nigerian populace. The Nigerian government, aware that about 90% of HIV infection in children is due to mother-to-child transmission (MTCT), had instituted programmes to reduce the transmission of HIV since 2003.⁶ Prevention of mother-to-child transmission (PMTCT) of HIV is one such programmes meant to prevent MTCT of HIV. The programme involves a number of interventions designed to positively influence the outcome of pregnancies and the health of HIV-positive mothers and their exposed infants.

A number of studies have been carried out elsewhere in the past to assess the effects of PMTCT interventions on the health of HIV-positive mothers and their exposed babies, but none has been carried out here. There was, therefore, the need for an effective mechanism of periodic assessment of the PMTCT programme in order to sustain its successes and strengthen its weak areas to ensure good quality care and continued utilization by clients.

The mean age of the participants in this study, 30.5 ± 4.86 years, and median parity of 2 (range 1-8; mean 2.42 ± 1.38) are similar to that from a study in Jamaica with mean age 28(15-41) years and median parity 2(0-9).¹⁵

Knowledge of routes of transmission of HIV was quite high including 79.2% for oral sex, 89.3% for unprotected sex, 83.3% for anal sex, 97.8% breast milk and 99% MTCT. This contrasts with separate studies in Ibadan and New Delhi which found that 45.5% and 53.5% respectively, of women identified MTCT as the major mode of transmission.^{16,10} A good number of the women (85.8%) was aware that HIV was not transmitted by mosquito bite as against 45% found in another study in New Delhi.¹¹ However, 20.8% and 16.7% of the women lacked the knowledge of oral and anal sex respectively, as routes of transmission. This agrees with the finding in the UNGASS Nigeria 2010 Country Progress Report which stated that there is limited knowledge of the drivers of the HIV epidemic.¹⁷

Though most of the women (97.3% and 99%) know that HIV can be transmitted through breast milk and MTCT respectively, 16% still did not believe that MTCT could be prevented by not breastfeeding their babies. It is noteworthy that more than half of the mothers believe that MTCT could be prevented by their not hugging or kissing their infants, and this perception could result in stigmatization and discrimination against

their infants and could contribute to infant morbidity and mortality.

Despite the fact that 79.5% of the mothers agreed that HIV was transmitted by homosexual and bisexual men, 93.4% did not perceive HIV risk in that same group of people who were classified as most at risk population (MARPs). This attitude among the women could portend increased risk of exposure to infection from these MARPs with HIV prevalence of 13.5%.¹⁸

In conclusion, therefore, this study shows that PMTCT programme in NAUTH has resulted in high scores in mothers' knowledge and perception of various aspects and dimensions of HIV and PMTCT. It has however revealed knowledge gaps among the mothers and these should be taken care of.

Recommendations

1. Regular assessment of the PMTCT programme for sustenance and possible re-programming.
2. Health education/counseling should be sustained.
3. Family planning education and services should be improved on and made more accessible.
4. PMTCT services should be made more user-friendly.

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