



MOTHER-TO-CHILD HIV TRANSMISSION: A SURVEY OF PARAMETERS IMPACTING THE ELIMINATION AMONG INFECTED MOTHERS AT THE UNIVERSITY OF CALABAR TEACHING HOSPITAL IN CROSS RIVER STATE

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ABSTRACT

The purpose of this study was to investigate the parameters impacting the eradication of mother-to-child HIV transmission among infected women at the University of Calabar Teaching Hospital in Calabar, Cross River State. The study goals and research questions were utilized to examine HIV-infected mothers' knowledge, factors impacting the practice of elimination and adherence to the practice of preventing HIV transmission from mother to child in UCTH. In the research study with a sample size of 122 and an incidental sampling approach, a descriptive design was employed to describe events and occurrences. Data was gathered using a standardized questionnaire, analyzed using frequencies and simple percentages, and presented in tables. Following that, the data analysis findings were compared to the review literature. Eighty percent (65.6 percent) of respondents were well-versed on the prevention of HIV transmission from mother to child. The findings also indicated that 50(41.0 percent) of respondents answered yes to question 18, while 72(59.0 percent) of respondents said no. For question 19, 22(18 percent) of respondents said yes, while 100(82 percent) said no. Furthermore, 12 (9.8 percent) of respondents replied yes to question 20, while 110 (90.2 percent) said no. It was suggested, among other things, that seminars and ongoing education be held at regular intervals to refresh pregnant women's understanding and practice of HIV prevention from mother to child.

Keywords: Factors, Mother to Child Transmission, HIV, infected mothers, UCTH

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INTRODUCTION

In Nigeria, mother-to-child transmission of Human Immunodeficiency Virus accounts for 30%, particularly in university teaching hospitals where patients seem despondent and malnourished with

a slew of complaints. This has been a serious public health concern in Nigeria. Mother-to-child transmission, also known as vertical transmission, is the transfer of HIV from an HIV-infected woman to her child during pregnancy, childbirth, or post-



naturally via nursing (Kourtis & Bulterys, 2010). According to (Welunmor, Echezona, Ezeand, & Gbenga, 2014), the prevalence of HIV among women of childbearing age (15-49 years) is 5.6 percent. As a result, understanding regarding HIV prevention from mother to child has not grown because 16.9 percent of pregnant women in Nigeria who attend an antenatal clinic test positive for HIV/AIDS. Madeddu, Spanu, Solinas, Babudani, and Mannazzu (2015) identify genetic determinants as influencing HIV MTCT, which are concerned with both innate and adaptive immunological parameters. Immune variables, which include both humoral and cellular responses, and obstetric factors, which include premature birth, extended membrane rupture, and the use of invasive treatments.

HIV infection in pregnant women increases the risk of HIV infection in newborns as well as maternal morbidity and death (UNAIDS, 2012). Despite the establishment of a global strategy to eliminate MTCT of HIV infection throughout the years, there is still a rise in HIV transmission to small infants via their mothers because parents and adults do not take preventative measures properly. People are still having sex without using condoms because they want to enjoy sex, and moms who are already infected may want to nurse their kids because they are afraid their spouse will not know what is going on with them if the true scenario is not already known to their husband. The risk of MTCT can be minimized by measures such as improving community education about HIV MTCT and PMTCT programs. This information may be obtained by many media such as television, radio, billboards, handbills, and so on. Prenatal clinics can also provide information. Education and risk education are effective means of preventing HIV/AIDS transmission. However, information alone cannot protect against HIV/AIDS infection; knowledge must be utilized correctly for the greatest effects.

Nigeria endorsed the global plan for the elimination of MTCT of HIV infection, which aims to reduce pediatric HIV by 90% and the MTCT rate to less than 5% (Federal Ministry of Health, 2015), recognizing that this pandemic is a major problem that primarily affects pregnant women with HIV and that the country has not fully implemented the

ways or methods of eliminating MTCT of HIV infection, as a result, the researchers have done this study to ascertain the parameters affecting the practice of MTCT of HIV infection eradication among women attending the ante-natal clinic at the University of Calabar Teaching Hospital in Calabar, Cross River State.

METHODOLOGY

A descriptive design was chosen because it best addresses the study's questions and objectives. The study was conducted at the University of Calabar Teaching Hospital in Calabar. Calabar Municipality is home to the University of Calabar Teaching Hospital (UCTH). Calabar Municipality is located in Cross River State's south-east corner, flanked on the north by the Great Qua River, on the south by Calabar South Local Government Area, and on the east and west by Akpabuyo and Odukpani. The University of Calabar Teaching Hospital was founded in 1978 to provide tertiary healthcare to Nigerians. In the South-South, it began at Moore Road Calabar and has now relocated to a permanent location at the University of Calabar. Under community medicine, it provides a wide range of services including medical, surgical, specialist treatment, and even preventative care. It has a variety of wards, outpatient clinics, and speciality units/wards (University of Calabar Teaching Hospital, 2017). The study's population consists of pregnant women who attend the prenatal clinic at the University of Calabar Teaching Hospital. This reflects the study's sample. The Taro Yamane algorithm was used to obtain 122 respondents for the study. The researcher adopted the most convenient sample approach for giving the questionnaire. A well-structured questionnaire will be used to collect data. To validate the instrument, the researcher provided a produced questionnaire to the study supervisor, who assessed, vetted, and modified the items in order to achieve face validity. The instrument's reliability was assessed utilizing the test-retest procedure. In this case, the researcher administered the questionnaire to the same test responders twice. The acquired data was examined with percentages and frequencies, and the hypothesis was evaluated with the chi-square statistic.

Test Re-Test of Knowledge, Factors and Compliance of EMTCT of HIV among Pregnant Mothers’ In UCTH, Calabar.

Variable	No of items	Testing	Mean	Standard deviation	r _{cal}
Knowledge of EMTCT	6	1 st	6.81	3.44	0.8114
		2 nd	5.91	2.98	
Factors Influencing EMTCT	3	1 st	5.73	4.21	0.8783
		2 nd	4.12	3.64	
Compliance of EMTCT	6	1 st	4.62	2.75	0.9500
		2 nd	3.55	2.59	

Ethical Consideration

The researcher acquired a letter of introduction from the Cross River state boards of ethics committee and submitted it to the Deputy Director of Nursing Services, Teaching Hospital, and Calabar, who approved the study. The research subject was explained, and directions on how to

complete the questionnaire were provided. To protect anonymity and privacy, the researcher reminded the participants that all information must be used solely for academic purposes. Respondents' assent was obtained by providing them with sufficient information to allow them to voice their feelings.

DATA ANALYSIS AND PRESENTATION

Demographic Data of Respondents

S/N	RESPONDENT DEMOGRAPHIC DATA	FREQUENCY(F = 122)	PERCENTAGE 100%
1.	MARITAL STATUS		
	Single	30	24.6%
	Married	80	65.6%
	Divorced	12	9.8%
2.	RELIGION OF RESPONDENT		
	Christianity	110	90.2%
	Islam	12	9.8%
	Traditional African Religion	0	0%
3.	EDUCATIONAL STATUS		
	B. Sc./B.A	110	90.2%
	Masters	12	9.8%
	Ph.D	0	0%
4.	AGE		
	25 – 30	110	90.2%
	31 – 35	10	8.2%
	36 – 40	2	1.6%
	41 – 45	0	0%
	46 and above	0	0%
5.	NUMBER OF CHILDREN		
	1 – 5	80	65.6%



	6 – 10	40	32.8
	11 – 15	2	1.6
	16 – 20	0	0

Table 2 above shows respondent demographic data presented using frequency and percentage the table shows that 30 (24.6%) of the respondents were single, 80(65.6%) respondent were married and 12(9.8%) were divorced. It also shows that 110(90.2%) of the respondents were Christians, 12(9.8%) of the respondents were Muslim and none of the respondents belong to the traditional African religion. Education qualification showed that 110(90.2%) of respondents had either B.Sc. or B.A, 12(9.8%) of the respondents had Master’s degree, none of the respondents had a Ph.D

degree. The age range of 46 and above had the lowest frequency of 0(0%), 36 – 40 had a frequency of 2(1.6%) 41- 45 had a frequency of 0(0%) and 31 – 35 had a frequency of 10(8.2%) while 25 – 30 had a frequency of 110(90.2%) of the respondents. The table shows that 80(65.6%) respondents had children under the range of 1 – 5, 40(32.8%) had children under the range of 6 - 10, 2(1.6%) had children hundred the range of 11 – 15, none of the respondents had children between the range of 16 – 20.

RESEARCH QUESTIONS

Table 3: Knowledge of HIV transmission

S/N	ITEMS	YES	NO	TOTAL
1	Have you heard about HIV?	80(65.6%)	42(34.4%)	122(100%)
2	HIV is caused by virus?	110(90.2)	12(9.8)	122 (100%)
3	HIV can be transmitted through sexual intercourse?	122 (100%)	0(0%)	122 (122%)
4	HIV can be transmitted through blood transfusion?	92 (75.4)	30(24.6)	122 (100%)
5	HIV can be transmitted from an infected mother to her unborn child during breastfeeding?	42(34.4%)	80(65.6%)	122(100%)
6	HIV can be transmitted through sharing of infected needles?	30(24.6)	92(75.4)	122(100%)

From table 4.2: Question 6, Have you heard about HIV? 80(65.6%) of the respondents answered yes while 42(34.4%) of the respondents answered No. From question 7, HIV is caused by virus? 110(90.2) of the respondents answered Yes while 12(9.8%) of the respondents answered No. From question 8, HIV can be transmitted through sexual intercourse? All 122 (100%) respondents, said yes. From Question 9, HIV can be transmitted through

blood transfusion? 92(75.4%) respondents said yes while 30(24.6%) respondents said no. From Question 10, HIV can be transmitted from an infected mother to her unborn child during breastfeeding? 42(34.4%) said yes while 80(65.6%) respondents said no. From the table, question 11, 30(24.6%) respondents said yes that HIV can be transmitted through sharing of infected needles while 92(75.4%) respondents said no.

Table 4: Factors Influencing Elimination of Mother to Child Transmission of Hiv

	ITEMS	YES	NO	TOTAL
1	Genetics is a factor that influences EMTCT of HIV?	50(41.0%)	72(59.0%)	122(100%)
2	Immune system of the mother aids EMTCT?	110(90.2%)	12(9.8%)	122 (100%)
3	Host (male/female) factors influences EMTCT?	30(24.6%)	92 (75.4%)	122 (100%)

From table 4, 50(41.0%) respondents said yes to question 12 while 72(59.0%) respondents said no. 110(90.2%) respondents answered yes to question 13, while 12(9.8) answered No.

30(24.65%) respondents said Yes to question 14, while 92 (75.4%) said No.



Table 4.4: Compliance of Practice of Elimination of Mtct of Hiv Among Pregnant Women.

S/N	ITEMS	YES	NO	TOTAL
1	Has a pregnant woman, do you know your HIV status?	42(34.4%)	80(65.6%)	122(100%)
2	If yes, have you registered for EMTCT services in UCTH?	30(24.6%)	92 (75.4%)	122 (100%)
3	Do you go for HIV counseling with your husband?	12(9.8%)	110(90.2%)	122 (100%)
4	Do you attend antenatal clinic?	50(41.0%)	72(59.0%)	122(100%)
5	Do you take the antiretroviral drugs given to you at the antenatal clinic?	22(18%)	100(82%)	122(100%)
6	Do you adhere to the use of mixed feeding and formula meals?	12(9.8%)	110(90.2%)	122 (100%)

Table 4. shows that: 42(34.4%) respondents said yes to question 15 while 80(65.6%) respondents said no. Also, 30(24.6%) respondents said yes that they have registered for PMTCT service in UCTH while 92(75.4%) respondents said no, to Question 16.

Item 17 revealed that minority of the respondents 12(9.8%) said yes while majority of the respondent

110(90.2%) said no. Also, 50(41.0%) of the respondents said yes to question 18 while 72 (59.0%) of the respondents said no. with regards to question 19, 22(18%) of the respondents said yes while 100(82%) of the respondents said no. more so, 12(9.8%) respondents said yes to question 20 while 110(90.2%) respondents said no.

HYPOTHESIS

Knowledge	Practice			
	Those who practice	Those who did not	Total	X ²
Those who have knowledge	29 (30.5)	34 (31.5)	63	0.84*
Those who do not have knowledge	32 (28.5)	27 (29.5)	59	

*P<.05, df=1, critical X² = 3.84

Result of analysis as presented in table 5 indicates that a calculated X value of 0.84 was obtained at .05 level of significance and 1 degree of freedom. This value when compared to the critical X² value of 3.84 was found to be lower. On the basis of this observation, the null hypothesis is retained, meaning that there is there is no significant influence between knowledge of elimination of mother-to-child transmission of HIV and practice to elimination to MTCT of HIV among pregnant women at the University of Calabar Teaching Hospital, Calabar, Cross River State.

DISCUSSION OF FINDINGS

This study examined the proportion of mothers who were aware of PMTCT. Furthermore, this study discovered PMTCT elimination variables. The

proportion of moms with extensive expertise was low. These findings have a significant influence on public health in terms of preventing and controlling HIV transmission, particularly in low-income areas where HIV overwhelms an already constrained health system. The study findings should alarm public health officials since mothers' full awareness of PMTCT remains inadequate. Furthermore, because this was an early study, researchers should look at different methods that might potentially improve mothers' awareness of PMTCT. The findings revealed that the majority of 79 respondents (64.8 percent) had knowledge on mother-to-child HIV/AIDS prevention, while 43 respondents (35.2 percent) had poor knowledge. This was obtained from the fact that the majority of mothers had heard and learned about the



transmission from medias, health campaigns, and other informative sources, while mothers with poor knowledge were unable or confiscated to med. furthermore, the results revealed the highest mean score of the table to be 2.0 out of 3.0, this was obtained from HIV can be transmitted through sexual intercourse while the lowest mean score 1.24 was obtained from HIV can be transmitted through sharing of infected needles. According to Ndikom and Onibokun's 2007 study on nurse/midwives' knowledge and behavior in the prevention of HIV transmission from mother to child, the majority (91 percent) of the respondents were aware that HIV may be transmitted vertically during labor. The majority (67 percent) were also aware of what HIV actually meant. 89 percent of respondents said the virus belonged to the retrovirus family and showed a preference for CD4 receptors (78.7 percent). Some may see these developments in PMTCT as a sign that the war against mother-to-child transmission has been won or soon will be, unfortunately, that is not the case. According to a study, sustained optimal adherence is crucial to reduce viral reproduction, improve immunological and clinical outcomes, lower the risk of developing ARV drug resistance, and reduce the risk of transmitting infections from mother to child. An estimated 90% of new incident infections in children under 15 are still caused by mother-to-child transmission, likely due to undiagnosed incident infections during pregnancy or breastfeeding (WHO, 2013). Noncompliance can result in an increase in viral load, immune system dysfunction, HIV/AIDS progression, and the emergence of pharmacological resistance to ART treatment (Family Health International, 2007). Luris et al. (2006) found that a non-adherent patient has a 3.8 times higher risk of dying than an adherent patient who takes medicine religiously, underscoring the significance of compliance. Result of analysis indicates that a calculated X value of 0.84 was obtained at .05 level of significance and 1 degree of freedom. This value when compared to the critical X^2 value of 3.84 was found to be lower. On the basis of this observation, the null hypothesis is retained, meaning that there is there is no significant influence between knowledge of elimination of mother-to-child transmission of HIV and practice to elimination to MTCT of HIV among pregnant women at the University of Calabar Teaching Hospital, Calabar, Cross River State.

CONCLUSION

Based on the results, it was concluded that mothers had awareness of the variables impacting the cessation of mother-to-child HIV transmission and had looked into the genetic/host variables, which suggests that when these variables are low, the victim is more likely to contract it. Additionally, adhering to the practice of eliminating MTCT of HIV among pregnant women aids in prevention. Many of the fundamental problems that have an impact on how EMTCT results are applied are not necessarily given to them. Nevertheless, it was suggested that periodic seminars and ongoing education be held to keep pregnant women's knowledge and behavior about the prevention of mother-to-child HIV transmission up to date. For the purpose of doing MTCT, the hospital administration should offer accepted guidelines and practices from renowned international organizations like WHO and UNAIDS. Deliveries for moms who are HIV positive should be handled by skilled and qualified midwives who specialize in MTCT.

REFERENCES

- Boulet, S. (2009). Natural killer cell receptors and decreased susceptibility to HIV infection. Doctor of Philosophy, McGill University.
- Chukwuemeka, I. K., Fatima, M. I., Ovavi, Z. K., & Olukayode, O. (2014). The Impact of a HIV prevention of mother to child transmission programme in a Nigerian early infant diagnosis centre. *Niger Med J.* 55 (3): 204 – 208. Doi: 10.4103/0300-1652.132039.
- Federal Ministry of Health of Nigeria (FMOH) (2008). National HIV/Syphilis.
- Louvain De Souza, T., De Souza Campos Fernandes R, C., Medina-Acosta, E. (2012). HIV – 2 control in battlegrounds: important host genetic variations for HIV- mother-to-child transmission and progression to clinical pediatric AIDS. *Future virology*; 659 – 678.
- Mackelprang, R. D., John-Stewart, G., Carrington, M. Richardson, B., Rowland-Jones, S. Gao X, Mbori-Ngacha, D., Mabuka, J., Lohman-Payne, B., Farquhar, C. (2008). Maternal HLA homozyfosity and mother-child HLA concordance increase the



risk of vertical transmission of HIV – 1. *J infect. Dis* 197: 1156 – 1161.

Olowookere, S. A., Fatiregun, A. A., Adewole, I. F. (2012). Knowledge and attitudes regarding HIV/AIDS and antiretroviral therapy among patients at a Nigerian treatment clinic. *Journal of Infection in Developing Countries*. 6(11): 809 – 819. Doi: 10.3855/jidc.2086.

Paximadis, M., Schramm, D. B., Gray, G. E., Sherma, G., Covadia, A., Kuhn, L., Tiemessen, C. T. (2013). Influence of intragenic CCL3 Halotypes and CCL3L copy number in HIV – 1 infection in a Sub-Saharan African population. *Genes Immun*; 14: 42 – 51.

Reda, A. A. and Biadgilign, S. (2012). Determinants of Adherence to Antiretroviral Therapy among HIV – infected Patients in Africa. *AIDS Research and Treatment*. Doi 10.1155/2012/57456.

Refilwe R., & Sello, L. V. (2017): Knowledge and Awareness of MTCT and PMTCT Post-Natal Follow-up Services Among HIV Infected Mothers in the Mankweng Region, South Africa. doi: 10.2174/1874613601711010036; PMID: 28839513

Shostakovich-Koretskaya, L., Catano, G., Chykarenko, Z. A., HE, W., Gornalusse, G., Mummidi, S., Sanchezm, R., Dolan, M. J., Ahuja, S. S., Clark, P. R., Kulkarni, H., Ahuja, S. K. (2009). Combinatorial content of CCL3L and CCL4L gene copy number influence HIV-AIDS susceptibility in Ukrainian children. *AIDS*; 23: 679 – 688.

Teasdale, C. A., Marais, B. J., Abrams, E. J. (2011). HIV: Prevention of mother-to-child transmission. *BMJ Clin Evid*.

UNAIDS. (2009). AIDS epidemic update. Genera: UNAIDS.

UNAIDS. (2016). On the fast-track to an AIDS free generation.

WHO. (2012). Effectiveness of sterile needle and syringe programing in reducing HIV/AIDs among pregnant women. Evidence paper for Action Technical Papers.

WHO. (2013). Data on the size of the HIV/AIDs epidemic: number of adults women and children living with HIV by country. Accessed at <http://apps.who.int/gho/data/node.main.621> (Retrieved 20th November, 2018).

World Health Organization (WHO). (2016). Mother to Child transmission of HIV.

World Health Organization (WHO). (2016). Who validates countries elimination of mother to child transmission of HIV.

Zimmerman, P. A., Buckler-White, A., Alkhatib, G., Spalding, T. Kubofcik, J. Comadiere, C., Weissman, D., Cohen, O., Rubbert, A., Lam G, Vaccarezza, M., Kennedy, P. E., Ku-Maraswami, V., Giorgi, J. V., Detels, R, Hunter, J, Chopek, M., Berger, E. A., Fauci, A. S., Nutman, T. B., Murphy, P. M. (2007). Inherited reisistance to HIV-1 conferred by an inactivating mutation in CC chemokine receptor 5: studies in populations with contrasting clinical phenotypes, defined racial background, and quantified risk. *Mol Med*; 3: 23 – 36.

Ndikom, C. M., & Onibokun, A. (2007). Knowledge and behaviour of nurse/midwives in the prevention of vertical transmission of HIV in Owerri, Imo State, Nigeria: a cross-sectional study. *BMC nursing*, 6, 9. <https://doi.org/10.1186/1472-6955-6-9>

