



## Correlates of Prevention of Mother to Child Transmission of HIV Among Pregnant Mothers in Port Harcourt Metropolis, Rivers State

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### Abstract

This study focused on the correlates of Prevention of Mother-To-Child Transmission of HIV services among pregnant women attending antenatal clinic in Port Harcourt metropolis, Rivers State. Four research questions and hypotheses were formulated to guide the study. Descriptive cross sectional survey design was adopted for the study. The population of the study was 5687 pregnant women. A sample size of 400 was obtained using Taro Yamane formula. Multistage sampling procedures were adopted to select the respondents in three stages. The instrument used to elicit data for the study was questionnaire titled Questionnaire on Determinants of PMTCT of HIV. Validated questionnaire was subjected to determine the internal consistency were the reliability index of 0.86 was obtain using PPMC. Data collected was analyzed using SPSS version 20.0, frequency counts and percentage and Pearson chi-square was used to determine the relationship between variables. The results of the study revealed that 189(47%) of respondents were aged 31-40years, 41years 116(29%) and 20-30years 95(24%). Majority of them earn 156(39%) only N30,000 followed by 10,000 84(21%) respectively. More than half 201(51%) had secondary level, 104(26%) had tertiary education respectively. Only 116(29%) lived 4km away from the health facility and 93(25%) lived above 7km away from the facility. The results of the study also showed that 110(34.0%) of them who earned N30,000 visited HIV unit in the antenatal clinic whilst respondents with secondary level of education 146(43.3%) used ART drugs. The result of chi-square value 43.939, df 4 and the significance value  $p=0.000$  less than significance level of 0.05 showed there was significant influence of socioeconomic status on PMTCT of HIV services. Chi-square showed a significant influence of marital status on PMTCT of HIV ( $p>0.05$ ), educational level on PMTCT of HIV ( $p>0.05$ ). Conclusively, level of education, socioeconomic status, marital status, access to the health facilities are correlates of PMTCT services. It was recommended that PMTCT services should be intensified in antenatal service; that women of childbearing age should go for HIV and medical check-up to know their HIV status.

**Keywords:** Correlates, PMTCT, HIV, Pregnant Women

### INTRODUCTION

HIV/AIDs are said to be a pandemic communicable disease that contributes to high level of maternal mortality and infant mortality in developing nations like Nigeria. Mother-To-Child Transmission of HIV infection is also known as vertical transmission of HIV which occur during pregnancy, childbirth, and breastfeeding. The National Policy on HIV/AIDS [1], estimated that 1.72 million women 15-49 years old and 278,000 children in Nigeria were living with HIV and more than 90% of the HIV infection among children occur through Mother-To-Child Transmission (MTCT). However, the frequency at which is affected by predisposing and reinforcing factors including high viral load, mode of delivery, prolonged ruptures of membranes, prematurity and breastfeeding among others. Socio-economic status was likely deterring the use of PMTCT HIV service among women. Most women who have less income status or without any reasonable job may find it difficult to visit antenatal services even to seek for medical check-up as compared with those who are working class women or mother who earned reasonable amount of money. Studies of Luba [2] revealed that socioeconomic status of women has a strong significant association regarding the knowledge of PMTCT of HIV via antenatal visit ( $P<.001$ ). The level of

socioeconomic status may influence their awareness concerning PMTCT services. Similar findings of Alemu [3] reported that pregnant women who are employed are about 5 times more likely to have adequate knowledge regarding the prevention of MTCT of HIV services as compared with the unemployed ones ( $AIR = 4.99$ ). Also, most of them that reside in urban cities are over 2 times more chances to visit ANC and PMTCT services ( $AIR = 2.45$ ). Pregnant women who are not educated about the transmission of HIV may likely come down with the health outcome because of limited awareness of mode of transmission of HIV infection therefore could not go checkup. In the light of this, evidence showed by Balogun and Adeyemi revealed that there was significant association between educational status and level of knowledge of respondents. Marital status of pregnant

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women could serve as a correlate for the use of antenatal service and PMTCT of HIV. Good proportion of married women may likely visit antenatal clinic to obtain medical check-up due to their partner's support more than the unmarried counterpart. Studies of Onalu et al [4] reported that 69.8% of married pregnant women utilize PMTCT of HIV services. Marital status is more significant effect with the uptake of PMTCT of HIV services. Evidence shows that 84.9% of married women are knowledgeable on PMTCT are aware of it [5]. Previously, study of Achigua affirmed that pregnant women who are married with husband support are 16 times most likely to utilize PMTCT services (AOR = 16.2) as compared with unmarried women or those with husband support. Pregnant women who are married may had some support from their husband or spouse especially seeking for medical service unlike the single mothers. Other correlates of PMTCT service could be access to health facility. Pregnant women who reside very to the health facility may not find it more stressful to visit the facility for medical review. It is necessary that health care facility should located where the people can have access and make effective use of it. Evidence reveals that work distance had a significant relationship with the number of ANC visits among pregnant women ( $P < .005$ ). Studies of Nwaneri [6] reported that (59.6%) of women reside in the urban areas while few (10.3%) lived close to the health facility, 33.8% stayed moderately far away, while 55.9% of women lived a long distance away from the facility. Women who visit PMTCT service for first time are less chances to use the service due to distance (AOR = 0.1,  $P = 0.048$ ). It could be obvious that women who live closer to the health facility would have chances to visit the facility because of proximity. There is increase level of infant's mortality caused by HIV/AIDS because of mother's failure to attend antenatal clinic. There is a slow reduction of HIV infection among children and women of reproductive age because of inability to access the primary health care facility due to low level of PMTCT service. The Vanguard Newspaper [7] reported that between 2010 and 2015, there are slow scale up rate of Prevention of Mother-To-Child Transmission (PMTCT) of HIV infection sits in Nigeria from 675 to 7205. Previous studies could not unravel the factors that influences the PMTCT of HIV service among mothers. Therefore, this study investigates the correlates of PMTCT of HIV service among pregnant mothers attending ANC in Port Harcourt metropolis.

### AIM AND OBJECTIVES OF THE STUDY

The aim of this study was to investigate the correlates of Prevention of Mother-To-Child Transmission of HIV services among pregnant women attending antenatal clinic in Port Harcourt metropolis.

### RESEARCH QUESTIONS

The following research questions were formulated in order to guide this study.

1. What is the influence of socioeconomic status on the prevention of MTCT of HIV services among pregnant women attending antenatal clinic in Port Harcourt metropolis, Rivers State?
2. What is the influence of marital status on the prevention of MTCT of HIV services among pregnant women attending antenatal clinic in Port Harcourt metropolis, Rivers State?
3. What is the influence of level of education on the prevention of MTCT of HIV services among pregnant women attending antenatal clinic in Port Harcourt metropolis, Rivers State?
4. What is the influence of access to health facility on the prevention of MTCT of HIV services among pregnant women attending antenatal clinic in Port Harcourt metropolis, Rivers State?

### HYPOTHESES

The following null hypothesis were tested at 0.05 level of significance

1. There is no significant difference between socioeconomic status of pregnant women and prevention of MTCT of HIV services in Port Harcourt metropolis in Rivers State.
2. There is no significant difference between marital status of pregnant women and prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.
3. There is no significant difference between level of education of pregnant women and prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.
4. There is no significant difference between access to the health facility and prevention of MTCT of HIV service among pregnant women in antenatal clinic in Port Harcourt metropolis, Rivers State.

### METHODOLOGY

Descriptive cross sectional survey design was adopted for the study. The population of this study was five thousand six hundred and eighty-seven (5,687) obtained from registered pregnant women in Obio/Akpor Local Government Area and Port Harcourt city Local Government Area of Rivers State as of the time of the study. The sample size of 400 was obtained using Taro Yamene method for a large population. Multi stage sampling procedure was adopted for selection of participants for the study which was in three stages.

- **Stage one:** Simple random sampling technique was used to select two major local government areas in Port Harcourt metropolis which are Port Harcourt city local government area and Obio/Akpor local government area of Rivers State using balloting without replacement.

- **Stage two:** Cluster sampling technique was adopted to select 12 modern primary health care centers (PMPHCC) from each selected local government area of the study
- **Stage three:** non-proportionate stratified sampling technique was employed to select 400 registered pregnant women from each selected local government area.

**INSTRUMENT FOR DATA COLLECTION**

Self-structured questionnaire was adopted to obtain data for the study. The questionnaire comprised of section A, B, and C respectively. Section A revealed information from the respondents about their socio-demographic characteristics such as age at last birth day, marital status, level of education, access to the health facility, number of parities, income status, occupation among others.

**Validation**

The instrument was presented for face, content and constructs validity to three experts public health, statistics and health education. Suggestions from three experts were used to write the final copy of the instrument.

**Reliability of the Instrument**

The reliability index was determined using Pearson Product Moment Correlation (PPMC) on 20 mothers in Ahoada town in Rivers State and the value of,  $r = 0.86$  was obtained. Hence the instrument was reliable and used for the study.

**METHOD OF DATA ANALYSIS**

Data collected was analyzed using statistical product for service solution (SPSS) version 23.0. Descriptive statistical tools such as frequency count, percentage, and inferential tools such as chi-square were employed to analyze the collected data.

**RESULTS AND DISCUSSIONS**

**Table 1** shows that greater proportion of the respondents were between the ages of 31-40 years (189) 47% followed by those of the age bracket 41 years-above (116) 29%, and 20-30 years (95) 24%. The bulk of the respondents were Married (265) 66% followed by Single (97) 24%, Separated (22) 6% and Divorce (16) 4%. Majority of the respondents practice Christianity (277) 69%, followed by Islamic (87) 22% and Tradition (36) 9%. The level of Income of the respondents were indicated in the table, with majority earns 30,000 (156) 39% followed by 10,000 (84) 21%, 20,000 (68) 17%, 50,000 (52) 13% then Above 50,000 (40) 10%. It was indicated that of the Educational level which showed that majority had secondary level (204) 51% followed by Tertiary level (104) 26%, others (50) 13% and then primary level (42) 11%. Distance to the facility is 4km (116) 29%, followed by those of above 7 km (98) 25%, 5 km (76) 19%, 7 km (74) 19%, then 2km (36) 9%.

**Table 1.** Showing sociodemographic characteristics of respondents.

Demographic	Characteristics	Frequency	Percentage
Age	20-30 years	95	25%
	31-40 years	189	47%
	41 years and above	116	29%
Marital status	Married	265	66%
	Single	97	24%
	Divorced	16	4%
	Separated	22	6%
Income	10,000	84	21%
	20,000	68	17%
	30,000	156	39%
	50,000	52	13%
	Above	40	10%
Educational background	Primary level	42	11%
	Secondary level	204	51%
	Tertiary level	104	26%
	Others	50	13%
Number of parities	0-2	132	33%
	2-4	145	36%
	5-7	97	24%
	7 and above	26	7%
Access to the health facility	2km	36	9%
	4km	116	29%
	5km	76	19%
	7km	74	19%
	Above 7km	98	25%

**Hypothesis One**

There is no significant influence between socioeconomic status (SES) of pregnant women and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State?

**Influence of socioeconomic status on the prevention of MTCT of HIV service among pregnant women**

The results of this study in **Table 2** reveals that one of the major socioeconomic factors that determine the prevention of MTCT was income status of pregnant women of which the overall (71.9%) have less than (N30,000) below the minimum wage hardly visit ANC center to obtain PMTCT of HIV service. This is true that most with low-income status find it difficult to use healthcare service as it is obvious among pregnant women regarding the Prevention of Mother-To-Child Transmission of HIV. The result of the null hypothesis via Pearson Chi Square test showed that the  $p=0.000$  was less than the significant level of 0.05 revealing

that there is a significant influence between socioeconomic status (SES) of pregnant women on the Prevention of Mother-To-Child Transmission of HIV services in Port Harcourt metropolis. The result of this study is in credence with study of Lencha [8] that social and financial support of pregnant women were significantly positive regarding the adherence of option B+ treatment. Awungafac [9] buttressed that majority (66.7%) of women fail to visit ANC to obtain Prevention of Mother-To-Child Transmission of HIV service due to financial reasons whilst 405 (98.0%) of participants accepted ANC cost of services because of their high income earning. The current findings are dissimilar with studies of Joseph et al [10] that 142(42.27%) were traders and occupation was linked with ART adherence (p=0.909). this study is in contrast with studies of Otieno that occupation has no significant association with use of Prevention of Mother-To-Child Transmission of HIV services p>0.05. However, the results of this study are in line with studies of Adugua [11] that women who believed in their husband's support were 16 times more likely to utilize Prevention of Mother-To-Child Transmission of HIV services (AOR=16.2, 95%, ci:6.58-39.67). That is financial attainment of their husbands or partners may improve their socioeconomic status thereby creating the chances of using Prevention of Mother-To-Child Transmission of HIV service especially among HIV positive mothers. Alemayehu [3] affirmed that those HIV positive mothers with good partner involvement and financial support are over 8 times more likelihood to stick to Prevention of Mother-To-Child Transmission of HIV services (AOR=8.4). It is crystal clear that low socioeconomic status of the respondents deters the prevention of Mother-To-Child Transmission of HIV service. This is because most women from poor standard living, no jobs among others may find it difficult to seek for medical check-up such as HIV testing due to the fact that they perceived that cost of service is unaffordable.

**Table 2.** Chi-square test on the significant influence between socioeconomic status (SES) of pregnant women and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

Chi-Square Test				
	Value	df	Asymptotic Significance (2-sided)	Decision
Pearson Chi-Square	43.939 <sup>a</sup>	4	.000	Rejected
Likelihood Ratio	58.432	4	.000	
Linear-by-Linear Association	6.365	1	.012	
N of Valid Cases	400			
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.00				

Moreover, the disparities that exist between the previous study and present one was due to duration of study, sample size, method of design among others.

### Hypothesis Two

There is no significant influence between marital status of pregnant women and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

### Influence of marital status on the Prevention of Mother-To-Child Transmission of HIV service in Port Harcourt metropolis

The results of this study in **Table 3** shows that 56.8% of married women visit ANC service while 58.3% visit HIV unit, whilst 62.2% of married consistently use the HIV prophylaxis and 73.9% say yes that Prevention of Mother-To-Child Transmission of HIV service involve counseling as compared with single mothers only 33.2% visited ANC and 4.9% visited HIV unit. Yes option, only 4.8% obtain ART drugs. Also, fewer 16(5.5%) divorced women and 13(4.5%) visited ANC clinic for HIV testing. Pearson Chi Square test showed that p=0.000 is less than significance level of 0.05 which depicts that marital status of pregnant women shows a statistically significant influence regarding the Prevention of Mother-To-Child Transmission of HIV services. The result of this study is in consonance with studies of that 145(37.6%) who are housewives were aware of Prevention of Mother-To-Child Transmission of HIV. Married women had the chances of seeking medical checkup and HIV testing especially during the inception of pregnancy. This result is in line with studies of Abajohir [12] that 90(39.7%) of women who are housewives knew about Prevention of Mother-To-Child Transmission of HIV and marital status shows no significant association with Prevention of Mother-To-Child Transmission of HIV/AIDS services (p=0.00). the result of this study is in credence with studies of that majority of women 133(64.8%) who are housewives were more likely to be aware of HIV/AIDS vertical transmission [13]. further buttressed that out of 92.63% of married pregnant women (92.11%) had the ideation about Prevention of Mother-To-Child Transmission of HIV prior to the current pregnant. Studies of affirmed that out of 96.5% of married women that about 84.6% were on ART drugs. Good proportion of married women who are pregnant attended ANC to determine their health status (HIV status) thereby obtain HIV prevention services as compared with the single women and others. The differences between this study and the previous finding were due to the year or duration of study, sample representation, research design, and source of data among others.

### Hypothesis Three

There is no significant influence between level of education of pregnant women and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

**Table 3.** Chi-square test showing the significant influence between marital status of pregnant women and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

Chi-Square Test				
	Value	df	Asymptotic Significance (2-sided)	Decision
Pearson Chi-Square	46.970 <sup>a</sup>	3	.000	Rejected
Likelihood Ratio	70.504	3	.000	
Linear-by-Linear Association	6.172	1	.013	
N of Valid Cases	400			
a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.60.				

**Influence of level of education on the Prevention of Mother-To-Child Transmission of HIV services in Port Harcourt metropolis**

The result of this study illustrated in **Table 4** that majority of pregnant women had attended secondary and tertiary education which accounted for 204(51%), 104(26%) respectively. Of which 125(42.8%) of women who had secondary education visit antenatal services often, and 84(28.8%) for tertiary education as compared with 33(11.3%) of primary level of education who attend antenatal service often. Good proportion of women 136(42.0%) visited HIV unit in the antenatal clinic while 146(43.5%) use HIV prophylaxis, 150(45.3%) obtain ART drugs consistently among participants with secondary level of education while 103(30.7%) use HIV prophylaxis among those who had obtain tertiary education. It is possible that pregnant women with at least secondary and above level of education were tends to visit antenatal clinic and HIV unit for Prevention of Mother-To-Child Transmission of HIV services as compared with those of them who had only primary education 33(11.3%), 42(13.0%) respectively. Chi-square test revealed that  $p=0.000$  was less than significance level of 0.05 depicting that level of education has a significant influence on the Prevention of Mother-To-Child Transmission of HIV services among pregnant women. The result of this study is in line with studies of that three quarters of women had formal education of which 57.3% had adequate knowledge of Prevention of Mother-To-Child Transmission of HIV. This study also concentrates with studies of Alemu et al [3] that pregnant women who obtain secondary education and above were over times more chances to have high level of awareness of Prevention of Mother-To-Child Transmission of HIV as compared with who had not attended formal education (AOR=4.50, 95%). Studies of Nwaneri [6] buttressed that 41.2% of pregnant women had secondary educational status over of which 37.2% enroll for antenatal services. As one advances in the

education attainment so as the standard of living increases. Studies of [12] that women with secondary education were 1 time and those with tertiary education were about 2 times more likely to know about Prevention of Mother-To-Child Transmission of HIV through the use of ANC. The result of this study is in credence with studies of that 94.4% of women can read and write of which a significant positive relationship with the level of education and the knowledge regarding Mother-To-Child Transmission prevention ( $p<0.01$ ). Affirmed that pregnant women with secondary educational status were about 4 times and tertiary education were 2.0times more likely to have good knowledge of Prevention of Mother-To-Child Transmission of HIV from attending ANC centers. This study is in consonance with studies of Malagu [14] that 7 times more chances to know about Mother-To-Child Transmission of HIV (AOR=6.85) as compared with those who had no formal education. Evidence from that among women who visited health centers, 34% had secondary and level of education had statistically significant relationship with Prevention of Mother-To-Child Transmission of HIV ( $p<0.001$ ). The result of this study is dissimilar to studies of Joseph [9] that level of education was not associated with ART drug adherence ( $p=0.054$ ). Therefore, educational factors help to build the knowledge of Prevention of Mother-To-Child Transmission of HIV and determine the use of ANC services. The differences between the previous study and the current study were due to the duration of study, sample size, source of data among others.

**Table 4.** Chi-square test showing the significance influence between level of education of pregnant women and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

Chi-Square Test				
	Value	df	Asymptotic Significance (2-sided)	Decision
Pearson Chi-Square	19.476 <sup>a</sup>	3	.000	Rejected
Likelihood Ratio	30.170	3	.000	
Linear-by-Linear Association	11.219	1	.001	
N of Valid Cases	400			
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.45				

**Hypotheses Four**

There is no significant influence between distance to the facility and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

**Influence of access to the health facility on the Prevention of Mother to Child Transmission of HIV service among pregnant women**

The results of the study in **Table 5** reveals that good number of pregnant women reside close to the health facility by 4 kilometers 116(29%), 5km 76(19%), 7km and above 98(25%) respectively. However, 91(31.2%) of participants who live at least 4km to the health facility visit the antenatal services and 91(31.2%) visit HIV unit in the antenatal clinic as compared with those who reside at least 7km and above from the facility accounted for 35(12.0%) attended antenatal services while only fewer 44(13.3%) obtain ART drugs regularly, 54(16.1%) use HIV prophylaxis regularly came from 7km distance to visit the health facility. Pearson chi square test showed that the p-value 0.000 less than significance level of 0.05 indicating that distance to the health facility significantly influence the Prevention of Mother-To-Child Transmission of HIV services. This study affirmed the World Health Organization recommendation that health facilities should not be more than 4 kilometers way from the peoples' resident to ensure easy accessibility to the antenatal services. The result of this study is in consonance with studies of Alemu [3] that women who reside in the urban area were over 2 times more likely to have good knowledge of Prevention of Mother-To-Child Transmission of HIV (AOR=2.45) as compared with their rural counterpart. Studies of Nwaneri [6] buttressed that 10.3% of pregnant women live close to the hospital, 33.8% stayed moderately far away from the facility while majority (55.9%) of women lived a long distance away from the health facility. In the light of this, women who live distance away from the facility may be reluctant in visiting the ANC service thereby couldn't obtain Prevention of Mother-To-Child Transmission of HIV services unlike those who reside closer to the health centers. This study is in concord with studies of Abajohir [12] that resident of urban is closer to the health facility were 3 times more likely to know about Mother-To-Child Transmission of HIV (AOR=4.01) as compared with people who live in the rural region. Eze (2015) agreed that about 80-90% of women in urban heard of Prevention of Mother-To-Child Transmission of HIV and infected mothers can transmit to their babies. Similar studies of affirmed that 98.4% of women who attend ANC visit once were due to distance while place of residence showed a significant effect with the uptake of utilization of Prevention of Mother-To-Child Transmission of HIV services ( $P < .05$ ). This result of the study is in credence with studies of that walk distance or access to the health facility showed a statistically significant relationship with number of ANC visits by the pregnant women ( $p < 0.5$ ). Also, Birhanu [5] revealed that urban residents were about 3times more likely to know about Mother-To-Child Transmission of HIV (AOR=2.69). That is, access to the facility affects use of ANC service which in turn alters the use of Prevention of Mother-To-Child Transmission of HIV service [16,17].

**Table 5.** Chi-square test showing the significant influence between access to the health facility and the prevention of MTCT of HIV services in Port Harcourt metropolis, Rivers State.

Chi-Square Test				
	Value	df	Asymptotic Significance (2-sided)	Decision
Pearson Chi-Square	70.251 <sup>a</sup>	4	.000	Rejected
Likelihood Ratio	78.363	4	.000	
Linear-by-Linear Association	1.214	1	.271	
N of Valid Cases	400			
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.33.				

## CONCLUSION

The study concluded that the correlates of Prevention of Mother-To-Child Transmission of HIV service among pregnant women attending ANC in Port Harcourt metropolis were on socioeconomic status, marital status, level of education, and access to health facilities. There is need to improve the standard of living of women to enable have interest in the use Prevention of Mother-To-Child Transmission of HIV service.

## RECOMMENDATIONS

In regards to this study, the following recommendation were made.

1. The government should organize social welfare scheme for the people especially pregnant women and antenatal service should be free of charge enable make effective use of PTMCT service.
2. Counselling service should be organized by social works for pregnant women especially single mothers to enable them have support in order to make use of PMTCT service.
3. Government should intensify PMTCT service into antenatal service and it should be located at the grass root level to enable the people mostly pregnant women have full access to the health facility.
4. Mass media campaign for the Prevention of Mother-To-Child Transmission of HIV service and ANC visit should be on continuous process by the government thereby to increase the level of awareness of Prevention to Mother-To-Child Transmission
5. The family members and partners should accept and support their spouse who were found HIV positive rather than to cause stigmatization. This will go a long

way to promote Prevention of Mother-To-Child Transmission of HIV service.

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