

Accessing barriers and determinants of Prevention of Mother to Child Transmission (PMTCT) of Human Immune Deficiency Virus (HIV) Services at Public Teaching Hospitals in Enugu State, Nigeria

ABSTRACT

Introduction

The most effective means of reducing Mother-to-Child transmission of HIV is to provide suppressive HAART. Prevention of Mother to Child Transmission (PMTCT) directly affects the achievement of Sustainable Development goals just. The unmet need for PMTCT services in Nigeria, particularly in Enugu state, is unacceptably high. This study aimed to assess factors associated with access barriers and determinants to PMTCT services in public health facilities in Enugu, Nigeria

Materials and methods

The study design was a facility-based analytical cross-sectional study. HIV positive nursing mothers who were accessing PMTCT services were studied. Questionnaire was used. Chi-square test and Binary logistic regression was done to for determinants of experience of any access barrier. Level of significance was determined at a p-value of ≤ 0.05

Results

A total of 2275 participants were reported on. A higher proportion of participants were in 30-34 years age group 124 (45.1%), attained secondary education 144(52.4%) and provided for by their husbands 174(63.3%) The major barriers identified were; long waiting time at the facility 184(66.9%), distance of facility 161(58.5%), PMTCT being far away from other units/departments 155(56.4%), Health workers talking to the clients with no respect 151(54.9%), Stigma and discrimination from friends/neighbours 163(59.3%) and from health workers 123(44.7%) as well as being too busy with household chores 130(47.3%). There were statistically significant association between experience of barriers with age in categories ($\chi^2=11.741$, $p =0.008$), religion ($\chi^2=5.381$, $p =0.020$), source of income ($\chi^2= 8.817$, $p=0.032$) and ethnicity ($\chi^2=9.240$, $p=0.026$).

Conclusion

31 Over ninety percent of respondents experienced a form of barrier. The major barriers include;
32 long waiting time, distance to facility, location of PMTCT units, Health workers attitude, Stigma
33 and discrimination from health workers as well as being too busy with household chores. There
34 was no identified predictor of access barrier.

35

36 **Keywords:** Access, Barriers, Public tertiary facilities, PMTCT

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39 INTRODUCTION

40 Human Immune-Deficiency virus (HIV) is a worldwide pandemic.¹ Mother-to-child transmission
41 (MTCT) is when an HIV-infected woman passes the virus to her baby either during pregnancy,
42 childbirth and breastfeeding. Mother-to-child transmission or vertical transmission of HIV
43 remains the major means by which children under the age of 15 years are infected with HIV.^{2,3}
44 However the most effective means of reducing mother-to-child transmission is to provide
45 suppressive Highly Active Antiretroviral Treatment (HAART) to the mother in order to reduce
46 the risk of vertical transmission, sustain health status of the mothers therefore prolonging their
47 life while the child is growing up.^{4,5}

48 In most parts of the world, HIV infection is increasing faster among women than men and the
49 trend is more apparent in Sub-Saharan Africa where women comprise 58% of existing HIV
50 infections.⁶ This can be attributed to poverty, poor health services as well as lack of knowledge.
51 Without interventions, there is a 30-45% chance that a baby born to an HIV-infected mother will
52 become infected with virus.⁶ MTCT directly affects the achievement of Sustainable Development
53 goals just as it impacted negatively on these three MDGs [MDG 4,5 and 6].⁷

54 The strategy of preventing the transmission of HIV from HIV positive mothers to their infants
55 during pregnancy, labour, delivery and breastfeeding can be achieved by the use of Highly

56 **Active Antiretroviral Treatment**, safer infant feeding practices and other interventions.^{8,9}

57 Although **HAART** is available in most countries in Sub-Saharan Africa, data indicate that less

58 than 10% of HIV-infected pregnant women in Sub-Saharan Africa have access to PMTCT

59 services.¹⁰ Prevention of mother-to-child transmission of HIV coverage has increased in recent

60 years but remains low in **Sub-Sahara Africa**.¹¹

61 Most infant **related** HIV infections could be averted, but the problem is that very few of the

62 world's pregnant women are being reached by prevention of mother-to-child transmission

63 services.¹² Most of those infected children will die before their fifth birthday.¹³ **However**

64 advances in medical treatment has contributed to saving of many of these young lives. Pregnancy

65 provides a unique opportunity for implementing prevention strategies by **reducing** the

66 transmission of HIV from mother to child.¹³

67 In Nigeria PMTCT coverage was about 11% in 2011.¹⁴ This means that there is a big margin

68 from the National PMTCT targets which estimates: that at least 90% of pregnant women should

69 have access to quality HIV testing and counseling; 90% of all HIV positive pregnant women and

70 HIV exposed infants have access to more efficacious ARV prophylaxis; 90% of HIV positive

71 pregnant women have access to quality infant feeding counseling; 90% of all HIV exposed

72 infants have access to early infant diagnosis (EID) services all by 2015.¹⁴ Enugu state has an

73 HIV sero-prevalence of 5.1% from 2010 National HIV Sero-Prevalence Sentinel Survey.¹⁵

74 **About 14% deliveries take place under skilled health care attendants in the state. Most deliveries**

75 **occur outside the tertiary institutions in the state, University of Nigeria Teaching**

76 **Hospital(UNTH) and Enugu State Teaching Hospital (ESUTH) and other facilities that offer**

77 **PMTCT**. It is, therefore, evident that the unmet need for PMTCT services in Nigeria, particularly

78 in Enugu state, is unacceptably high.³ This study aim to assess factors associated with barrier
79 access and determinants to PMTCT services in teaching hospitals in Enugu, Nigeria

80 81 MATERIALS AND METHODS

82 83 Study area

84 The study was conducted in the Enugu Metropolis. Enugu is located in the Southeast geopolitical
85 zone of Nigeria. There are four public tertiary health institutions which are the University of
86 Nigeria Teaching Hospital (UNTH), Federal Neuropsychiatric Hospital, National Orthopaedic
87 Hospital and the Enugu State University Teaching Hospital (ESUTH). There are six district
88 hospitals, 36 cottage hospitals and 366 primary health care centres, including comprehensive
89 health Centres, health centres, and health posts. However, only 2 teaching hospitals that offer
90 comprehensive PMTCT services. These public facilities included in this study were University
91 of Nigeria Teaching Hospital (UNTH) and Enugu state University Teaching Hospital (ESUTH).

92 Study Design and Data Collection

93 An analytical cross-sectional study was conducted. Pre-tested, interviewer administered, semi-
94 structured questionnaires were used to collect information on demographic and access barriers to
95 PMTCT. Data was collected between February and July 2015 by four trained field workers.

96 Study population.

97 The study consisted of HIV positive women receiving care for PMTCT during pregnancy,
98 childbirth and postnatal care. Also women who had babies in the twelve months preceding the
99 study and were still receiving care for PMTCT who gave consent were included in the study.

100 This is because PMTCT services are provided to mothers until 12 months after delivery, when

101 they are either transferred to adult ART clinic if they do not become pregnant in the period or
102 remain in the PMTCT clinic if they become pregnant.

103 **Sample Size and sampling technique**

104 The sample size was calculated using $n = Z^2pq/d^2$ where confidence level [z] was 95%,
105 prevalence of access to PMTCT services in specialist health care facilities in Nigeria [p] was
106 11%³ and margin of error [d] was 5%. This gave 165 after adding 10% wrong response, however
107 275 respondents were studied.

108 The records of patients who had received PMTCT services in the past twelve months PMTCT
109 services in each of the selected centres were obtained to get the sampling frame. From the
110 hospital records of the patients for PMTCT services that were seen and noted from January to
111 December the previous year [268 for UNTH and 210 for ESUTH], proportionately 154 for
112 UNTH and 121 for ESUTH were studied to make up 275 clients. Patients that satisfied the
113 inclusion criteria were recruited consecutively at the facilities using pre-determined proportions
114 till the stated number of respondents were **completed**.

115 **Data analysis**

116 Data was collected and analyzed using IBM Statistical Packages for Social Sciences (SPSS)
117 **V**ersion 20. Results were summarized using percentages and presented in tables. Chi-square test
118 was used for association between sociodemographic variables and experience of any access
119 barrier. Logistic regression was done for determinants of experience of any access barrier. Level
120 of significance was determined at a p-value of ≤ 0 .

121 **Ethical consideration**

122 Ethical **approval** was obtained from the Health Research Ethics Committee of UNTH, Ituku-
123 Ozalla. Permission was obtained from heads of the various health facilities and written informed

124 consent was obtained from each participant before administering the questionnaire

125 Confidentially was ensured throughout the study and even beyond.

126

UNDER PEER REVIEW

127 **RESULTS.**128 **Table 1: Socio-demographic characteristics of respondents**

Variables	Frequency (n =275)	Percent
Age		
<25	8	2.9
25-29	89	32.4
30-34	124	45.1
≥35	54	19.6
Mean ± SD	31.02 ± 3.80	
Marital Status		
Single	9	3.3
Married till date	242	88.0
Others	24	8.7
Educational level		
No formal education	10	3.6
Primary	50	18.2
Secondary	144	52.4
Tertiary	71	25.8
Employment status		
Unemployed	67	24.4
Trader	125	45.5
Artisan	33	12.0
Civil / public servant	46	16.7
Farmer	2	0.7
Religion		
Christian	244	88.7
Moslem	31	11.3
Source of income		
Husband	174	63.3
Self	61	22.2
Husband and self	36	13.1
Relatives	4	1.5
Ethnicity		
Igbo	165	60.0
Hausa	25	9.1
Yoruba	25	9.1
Others	60	21.8
Parity		
1-2	62	22.5
3-4	172	62.5
≥5	41	4.9

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130 Table 1 shows the socio-demographic characteristics of respondents. A majority of respondents
 131 were in the 30-34 years age group 124 (45.1%), still married 242(88.0%), attained secondary
 132 education 144(52.4%), were traders 125(45.5%), were Christians 244(88.7%), were provided for
 133 by their husbands 174(63.3%), were Igbos 165(60.0%) and had 3-4 babies 172(62.2%).

134
 135 **Table 2: Barriers influencing access to PMTCT services.**
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Variables	n = 275	
	Yes n(%)	No n(%)
Logistic factors		
Lack of transportation	137(49.8)	138(50.2)
Distance to health facility	161(58.5)	114(41.5)
Location of clinic	28(10.2)	247(89.8)
Cost of registration	17(6.2)	258(93.8)
Long waiting time in the hospital	184(66.9)	91(33.1)
Institutional/facility factors		
PMTCT center very far away from other units	155(56.4)	120(43.6)
Separate from other hospitals	15(5.5)	260(94.5)
Different clinic from where other patients are seen but same hospital	141(51.3)	134(48.7)
Health Workers factors		
HWs talk carelessly of our positive result	30(10.9)	245(89.1)
HWs treat us different from other women	77(28.0)	198(72.0)
HWs are unfriendly	109(39.6)	166(60.4)
HWs pass comments about us	81(29.5)	194(70.5)
HWs speak to us in degrading manner	151(54.9)	124(45.1)
HWs ignore HIV patients when they call on them in labour	104(37.8)	171(62.2)
Stigma And Discrimination factors		
Attitude of health workers	123(44.7)	152(55.3)
Stigmatization by health workers	28(10.2)	247(89.8)
Stigmatization by friends and neighbours	163(59.3)	112(40.7)
Treatment by your family members as Cost of registration they know you are HIV positive	39(14.2)	236(85.8)
Treatment by your community to people living with HIV/AIDS	33(12.0)	242(80.0)
Personal reasons		
Too busy with house hold chores	130(47.3)	145(52.7)

Did not understand was referred to PMTCT center	31(11.3)	244(88.7)
Lost referral letter	29(10.5)	246(89.5)
Fear of side effects of drugs	17(6.2)	258(93.8)
Overall experience of any barrier	251(91.3)	24(8.7)

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141 Table 2 The major barriers due to logistic factors were; long waiting time at the facility
142 184[66.9%], distance of facility 161[58.5%] and lack of transportation 137[49.8%], Institutional
143 factors included; PMTCT being far away from other units 155[56.4%] and PMTCT clinic
144 different from other clinics within the same hospital 141[51.3%], Health workers factors were;
145 talking to the clients in a degrading manner 151[54.9%] and 109[39.6%] complained they were
146 treated in unfriendly manner. Stigma and discrimination were; from friends/neighbours
147 163[59.3%] and from health workers 123[44.7%]. Some personal reasons that constituted
148 obstacles were; being too busy with household chores 130[47.3%], did not understand their
149 referral to PMTCT clinic 31[11.3%], losing referral letter 29[10.5%] and 17[6.2%] feared side
150 effects of ART drugs. Generally 251(91.3%) experienced at least a form of barrier.

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152 **Table 3: Relationship between socio-demographic characteristics and experience of**
153 **barriers**

Socio-demographic	n = 275		Bivariate analysis χ^2 (p value)	Multivariate analysis AOR(95%CI)
	Poor	Good		
	Freq(%)	Freq (%)		
Age				
<25	8(100.0)	0(0.0)		1
25-29	75(84.3)	14(15.7)	11.741 (0.008)	1.1(0.9-1.3)
30-34	103(83.1)	21(16.9)		5.3(0.4-6.8)
≥ 35	54(100.0)	0(0.0)		5.8(0.8-7.2)
Marital Status				
Single	8(88.9)	1(11.1)	1.785 (0.410)	NA
Married till date	209(86.4)	33(13.6)		
Others	23(95.8)	1(4.2)		

Educational level				
No formal education	7(70.0)	3(30.0)	3.166 (0.367)	NA
Primary	44(88.0)	6(12.0)		
Secondary	128(88.9)	16(11.1)		
Tertiary	61(85.9)	10(14.1)		
Employment status				
Unemployed	57(85.1)	10(14.9)		
Trader	110(88.8)	15(12.0)	2.491 (0.778)	NA
Artisan	27(81.8)	8(18.2)		
Civil / public servant	42(91.3)	4(8.7)		
Farmer	2(100.0)	0(0.0)		
Religion				
Christian	217(88.9)	27(11.1)	5.381 (0.020)	1
Moslem	23(74.2)	8(25.8)		2.1(0.9-3.3)
Source of income				
Husband	149(85.6)	25(14.4)		1
Self	58(95.1)	3(4.9)	8.817 (0.032)	0.6(0.9-1.3)
Husband and self	31(86.1)	5(13.9)		1.9(0.7-7.6)
Relatives	2(50.0)	2(50.0)		2.0(0.5-3.4)
Ethnicity				
Igbo	152(92.1)	13(7.9)		1
Hausa	20(80.0)	5(20.0)		0.9(0.1-4.4)
Yoruba	19(76.0)	6(24.0)	9.240 (0.026)	1.1(0.9-1.3)
Others	49(81.7)	11(18.3)		0.8(0.2-5.1)
Parity				
1-2	55(88.7)	7(11.3)		
3-4	147(85.5)	25(14.5)	1.702 (0.427)	NA
≥5	38(92.7)	3(7.3)		

154 Table 3 shows that there were statistically significant associations between experience of barriers
155 with age in categories ($\chi^2=11.741$, $p=0.008$), religion ($\chi^2=5.381$, $p=0.020$), source of income
156 ($\chi^2=8.817$, $p=0.032$) and ethnicity ($\chi^2=9.240$, $p=0.026$). It also showed that those aged 30-34
157 years were about 5.3 times (AOR 5.3, 95% CI: 0.4-6.8) while those ≥ 35 years were 5.8 times
158 (95% CI: 0.6-7.2) more likely not to experience barriers than those aged below 25 years.
159 Moslem were 2.1 times (AOR 2.1, 95% CI: 0.9-3.3) more likely not to experience barriers than
160 Christians. Those who do not depend on any one for income were about 0.6 times likely (AOR

161 0.6, 95% CI: 0.9-1.3) while those that depended on relatives were about 2.0 times (AOR 2.0,
162 95% CI: 0.5-3.4) more likely to experience barriers than those catered for by their husband.
163 Further Hausas were 0.9 times (AOR 0.9, 95% CI: 0.1-4.4) and people from other tribes 0.8
164 times (AOR 0.8, 95% CI: 0.2-5.1) likely to experience barriers than Igbos.

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167 DISCUSSION

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169 Some of the major factors that the respondents reported affecting their uptake of PMTCT in the
170 study included: long waiting time, distance to facility, location of PMTCT units, health workers
171 attitude, stigma and discrimination from friends/neighbours and health workers as well as being
172 too busy with household chores. The long waiting may be due to lots of documentation done for
173 the patient with lots of forms filled as directed from donor agencies. Also shortage of health staff
174 may be contributory to the delays experienced. Distance to facility as a barrier is expected as a
175 major public facility studied is located over 20km from the city. This makes people accessing the
176 facility whether from Enugu metropolis and other catchment areas to spend much time on transit;
177 which is enough reason to discourage some clients from accessing care. The implication is that if
178 not well addressed can negatively affect PMTCT services uptake.

179 Similar findings to this study were noted in the literature. More specifically, distance to facilities,
180 frequency of visits required and shortage of (trained) clinic staff were reported to be barriers to
181 accessing PMTCT.¹⁶⁻¹⁸ Shortage of health workers may lead to high patient volume and
182 contributing to long waiting-times of services.¹⁶⁻¹⁸ In a study in Zimbabwe, some identified
183 barriers and challenges faced by participants in accessing PMTCT services include; long waiting
184 times (46%), unreliable access to laboratory testing (35%) and high transport costs (12%),

185 perceived long queues (50%), competing life priorities, such as seeking food or shelter (33%)
186 and inadequate referral information (15%).¹⁰

187 Identifying attitude of health workers as a major barrier from this study is very discouraging and
188 unhealthy. HIV-positive women require emotional and moral support from health workers
189 because they usually experience discrimination in other places. The negative attitude of these
190 health workers could deny these clients the crucial role of providing support and care to these
191 HIV positive women which is expected. This in turn may discourage many clients, affects access
192 to PMTCT services and ultimately adherence to care. While some studies reported negative
193 attitude of health care providers as being associated with reasons for underutilization of health
194 centres by pregnant women,^{19,20} other studies identified the negative health worker attitude as
195 common barriers to returning to facilities to access PMTCT care.^{16,19-21}

196 Stigma and discrimination experienced by these pregnant women as a barrier to accessing
197 PMTCT was also documented in this study and other studies. Some of the respondents in a
198 similar study indicated that even though people living with HIV/AIDS were accepted and
199 supported in their community, the challenge of rejection and fear of being avoided was still
200 widespread in the community.²² The International Centre for Research on Women in their study
201 in Botswana and Zambia also found that HIV/AIDS-related stigma and discrimination create
202 circumstances that fuel the spread of HIV.²³ The gravity of stigma is so much that many patients
203 prefer to bear the cost of transportation to access services in facilities far away from their
204 residences than put themselves at risk of being recognized and news about their status spread.
205 There highlights the need for more training of health workers on PMTCT services as this will
206 help reduce their negative attitude, stigma and discrimination to clients as well as improve their
207 knowledge on PMCT. This in turn may enrich the content of information they pass onto the

208 clients accessing PMTCT services. Also, the masses should be educated on HIV and the need to
209 stop stigmatizing against people infected with HIV to reduce stigma and discrimination which is
210 a major barrier to the fight against HIV

211 Some personal reasons for not accessing health care included being too busy with house hold
212 chores. This is disappointing. It shows that they do not appreciate their condition or the
213 commitments made by government and other funding bodies to protect their unborn babies. This
214 even though is a form as opportunity cost should not be much of a barrier as documented in this
215 study. Similarly other personal reasons from this study and other studies include forgetting to
216 attend clinics and to take drugs as well as difficulties in administering infant prophylaxis due to
217 adverse side effects as constraining factors affecting PMTCT access.^{15,16,23}

218 **CONCLUSION**

219 Some of the major barriers affecting uptake of PMTCT included; long waiting time, distance to
220 facility, Health workers attitude, Stigma and discrimination as well as being too busy with
221 household chores. Age, religion, source of income and ethnicity influenced barriers to PMTCT
222 care. No predictor of access barrier was identified. There is need for more training of health
223 workers especially and education of masses on the need to change their attitude towards people
224 accessing PMTCT.

225 **CONFLICT OF INTEREST**

226 All authors declare no conflict of interest.

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