

Original Research Article

Prevention of Mother to Child Transmission (PMTCT) of Human Immune Deficiency Virus (HIV) Services (PMTCT) in Teaching Hospital (Public Hospitals); Access barriers and other determinants in Enugu State, Nigeria.

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

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ABSTRACT

Introduction

The most effective means of reducing Mother-to-Child transmission of HIV is to provide suppressive ART. 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 aim to assess factors associated with access barriers and other determinants to PMTCT services in public health facilities in Enugu, Nigeria

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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. Pre-tested 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

Higher proportion of participants were in 30-34 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 155[56.4%], Health workers talking to the clients in a degrading manner 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 ($\chi^2=9.240$, $p=0.026$).

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Conclusion

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

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

40 INTRODUCTION

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

Comment [SO14]: CAPITAL NO , What about breastfeeding but the child is born

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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 ignorance. Without
51 interventions, there is a 30-45% chance that a baby born to an HIV-infected mother will become
52 infected with virus.⁶ MTCT directly affects the achievement of Sustainable Development goals
53 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 antiretroviral
56 drugs (HAART), safer infant feeding practices and other interventions.^{8,9} Although Anti-

Comment [SO17]: Not just antiretroviral drug but Highly Active Antiretroviral Treatment HAART)

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57 Retroviral Therapy (ART) is available in most countries in Sub-Saharan Africa, data indicate
58 that less than 10% of HIV-infected pregnant women in Sub-Saharan Africa have access to
59 PMTCT services.¹⁰ Prevention of mother-to-child transmission of HIV coverage has increased
60 in recent years but remains low in sub-Sahara Africa.¹¹

61 Most infant HIV infections could be averted, but the problem is that very few of the world's
62 pregnant women are being reached by prevention of mother-to-child transmission services.¹² One
63 of the best opportunities for progress against HIV lies in preventing mothers from passing on the
64 HIV virus to their children. Most of those infected children will die before their fifth birthday.¹³

65 Advances in medical treatment has contributed to saving of many of these young lives.
66 Pregnancy provides a unique opportunity for implementing prevention strategies by preventing
67 the transmission of HIV from mother to child.¹³

68 In Nigeria PMTCT coverage was about 11% in 2011. This means that there is a big margin from
69 the National PMTCT targets which estimates; that at least 90% of pregnant women should have
70 access to quality HIV testing and counseling, 90% of all HIV positive pregnant women and HIV
71 exposed infants have access to more efficacious ARV prophylaxis, 90% of HIV positive
72 pregnant women have access to quality infant feeding counseling and 90% of all HIV exposed
73 infants have access to early infant diagnosis (EID) services all by 2015.¹⁴ Enugu state has an
74 HIV sero-prevalence of 5.1% from 2010 National HIV Sero-Prevalence Sentinel Survey.¹⁵

75 About 14% deliveries take place under skilled health care attendants with most deliveries outside
76 two of the tertiary institutions in the state, University of Nigeria Teaching Hospital(UNTH) and
77 Enugu State Teaching Hospital (ESUTH). It is, therefore, evident that the unmet need for
78 PMTCT services in Nigeria, particularly in Enugu state, is unacceptably high.³ This study aim to

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1) Private hospital
2) State own hospital etc
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79 | assess factors associated with ~~access~~ barriers access and other determinants to PMTCT services
80 | in public health facilities in Enugu, Nigeria

81
82 **MATERIALS AND METHODS**
83

84 **Study area**

85 The study was conducted in the Enugu Metropolis. Enugu is located in the Southeast geopolitical
86 zone of Nigeria. There are four (4) public tertiary health institutions which are the University of
87 Nigeria Teaching Hospital (UNTH), Federal Neuropsychiatric Hospital, National Orthopaedic
88 Hospital and Enugu State University Teaching Hospital (ESUTH). There are six district
89 hospitals, 36 cottage hospitals and 366 primary health care centres, including comprehensive
90 health Centres, health centres, and health posts. However, only 2 facilities offer comprehensive
91 PMTCT services. These public facilities studied were University of Nigeria Teaching Hospital
92 (UNTH) and Enugu state University Teaching Hospital (ESUTH).

93 **Study Design and Data Collection**

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

97 **Study population.**

98 The study consisted of HIV positive women receiving care for PMTCT during pregnancy,
99 childbirth and postnatal care. Also women who had babies in the twelve months preceding the
100 study and were still receiving care for PMTCT were included in the study. This is because
101 PMTCT services are provided to mothers until 12 months after delivery, when they are either

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Comment [SO34]: This are included criteria where are the excluded criterial

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

104 **Sample Size and sampling technique**

105 The sample size was calculated using $n = Z^2pq/d^2$ where confidence level [z] was 95%,
106 prevalence of access to PMTCT services in specialist health care facilities in Nigeria [p] was
107 11%³ and margin of error [d] was 5%. This gave 165 after adding 10% wrong response, however
108 275 respondents were studied.

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

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criterial

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116 **Data analysis**

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

122 **Ethical consideration**

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

125 consent was obtained from each participant before administering the questionnaire

126 Confidentially was ensured throughout the study and even beyond.

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UNDER PEER REVIEW

128 **RESULTS.**

129 **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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Table 1 shows the socio-demographic characteristics of respondents. Higher proportion were in the 30-34 age group 124₄-(45.1%), still married 242₄-(88.0%), attained secondary education 144₄-(52.4%), were traders 125(45.5%), were Christians 244₄-(88.7%), were provided for by their husbands 174₄-(63.3%), were Igbos 165₄-(60.0%) and had 3-4 babies 172(62.2%).

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(88.0) |
| 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) |

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

152

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

| Socio-demographic | n = 275 | | Bivariate analysis χ^2 (p value) | Multivariate analysis AOR(95%CI) |
|-----------------------|-----------------|------------------|--|-------------------------------------|
| | Poor Freq(%) | Good Freq (%) | | |
| Age | | | | |
| <25 | 8(100.0) | 0(0.0) | 11.741 (0.008) | 1 |
| 25-29 | 75(84.3) | 14(15.7) | | 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) | | |

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| | | | | |
|--------------------------|-----------|----------|---------------|--------------|
| 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) | | |

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Table 3 shows that 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 ($\chi^2=9.240$, $p=0.026$). It also shows that those aged 30-34 years were about 5.3 times (AOR 5.3, 95% CI: 0.4-6.8) while those ≥ 35 years were 5.8 times (95% CI: 0.6-7.2) more likely not to experience barriers than those aged below 25 years. Moslem were 2.1 times (AOR 2.1, 95% CI: 0.9-3.3) more likely not to experience barriers than Christians. Those whose do not depend on any one for income were about 0.6 times likely (AOR 0.6, 95% CI: 0.9-1.3) while those that depend on relatives were about 2.0 times (AOR 2.0, 95%

163 CI: 0.5-3.4) more likely to experience barriers than those catered for by their husband. Hausas
164 were 0.9 times (AOR 0.9, 95% CI: 0.1-4.4) and people from other tribes 0.8 times (AOR 0.8,
165 95% CI: 0.2-5.1) likely to experience barriers than Igbos.

166 167 168 **DISCUSSION**

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

180 Other previous studies had similar findings of distance to facilities, frequency of visits required
181 and shortage of (trained) clinic staff as barriers.¹⁶⁻¹⁸ Shortage of health workers can lead to their
182 being overwhelmed with high patient volume and contributing to long waiting-times of
183 services.¹⁶⁻¹⁸ In Zimbabwe, some identified barriers and challenges faced by participants include
184 long waiting times (46%), unreliable access to laboratory testing (35%) and high transport costs
185 (12%), perceived long queues (50%), competing life priorities, such as seeking food or shelter
186 (33%) and inadequate referral information (15%).¹⁰

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Comment [SO47]: You have other resources not well utilized I am not sure this should be a problem , All the stae need to do is to empoeere the othe health institution we call it decentralization of PMCT in your state

Comment [u48]: Noted

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No and NO

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187 Identifying attitude of Health workers as 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 denies these clients the crucial role of providing support and care to these HIV
191 positive women which is expected. This discourages many clients, affects access and ultimately
192 adherence to care. While some studies reported negative attitude of health care providers as
193 being associated with reasons for underutilization of health centres by pregnant women,^{19,20} other
194 studies identified the negative health worker attitude as common barriers to returning to
195 facilities to access PMTCT care.^{16,19-21}
196 Stigma and discrimination experienced by these pregnant women as a barrier to accessing
197 PMCTC was documented in this study and other previous 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 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 is need for more training of health workers on PMTCT services as this will help reduce
206 their negative attitude, stigma and discrimination to clients as well as improve their knowledge
207 on PMCT. This will in turn enrich the content of information they pass onto the clients accessing
208 PMTCT services. Also, the masses should be educated on HIV and the need to stop stigmatizing

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209 against people infected with HIV to reduce stigma and discrimination which is a major barrier to
210 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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228 REFERENCES

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Comment [S058]: This is a discussion not Recommendation /Concluding section

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