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Social Factors Influencing the Utilization of Prevention of Mother-to-Child Transmission Services among HIV-Positive Pregnant Women in Itu Local Government Area, Akwa Ibom State

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Abstract

The utilization of Prevention of Mother-to-Child Transmission (PMTCT) services remains suboptimal in many parts of Nigeria, despite national program efforts. This study examined how social factors such as awareness, accessibility, and cultural or religious beliefs influence PMTCT use among HIV-positive pregnant women attending the Primary Health Centre, West Item, Itu Local Government Area of Akwa Ibom State. A descriptive cross-sectional survey was conducted among HIV-positive pregnant women using a structured, interviewer-administered questionnaire. Data were analyzed descriptively using frequencies and percentages to explore awareness, utilization, and the influence of structural and sociocultural factors. Ninety-four completed questionnaires were analyzed. Two-thirds of respondents (66%) had heard of PMTCT, mainly through health workers (43.6%). However, detailed knowledge of mother-to-child transmission was limited, with only 40.4% correctly identifying pregnancy, delivery, or breastfeeding as possible periods of transmission. More than half of respondents (58.5%) lived far from the health facility, 62.8% reported difficulty affording transport, and 64.9% cited poor road conditions as barriers to access. Although most respondents (78.7%) reported that their churches supported PMTCT, about one in five (21.3%) agreed that discussing sexual and reproductive issues was discouraged within their culture. In conclusion, the findings suggest that PMTCT utilization in the study area is shaped by a combination of knowledge gaps, structural barriers, and sociocultural influences. Strengthening facility readiness, improving transport and service accessibility, enhancing community health education, and engaging religious and cultural leaders as partners are essential strategies for improving uptake and reducing vertical HIV transmission.

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Introduction

Women and girls continue to bear a disproportionate burden of HIV, accounting for about 44% of new infections globally. In 2023, it was estimated that women constituted approximately 59% of people living with HIV in Nigeria. Children are also severely affected, as Nigeria has the highest number of children living with HIV in West and Central Africa. Mother-to-child transmission (MTCT) of HIV continues to be a major contributor to pediatric HIV infections worldwide and represents an important public health concern in Nigeria [1-5].

The Prevention of Mother-to-Child Transmission (PMTCT) programmer provides evidence-based strategies, including HIV testing for pregnant women, antiretroviral therapy (ART) for HIV-positive mothers and their infants, safe delivery practices, and supported infant-feeding options. These measures can reduce transmission to below 5%. However, in many settings, utilization of these services remains suboptimal. In Nigeria, as of 2017, it was estimated that only about 30% of pregnant women who qualify receive the full range of PMTCT services [6-7]. Without preventive measures, transmission may occur during pregnancy, delivery, or breastfeeding, with a risk estimated between 15% and 45%. Despite national PMTCT programs, uptake and retention vary widely across and within Nigerian states.

Studies across Nigeria have identified numerous factors influencing PMTCT uptake. For instance, only 42.9% of women living with HIV in Ibadan reported using PMTCT services, despite 74.2% demonstrating good knowledge of them. Similarly, a study in Anambra South by found that utilization was influenced by maternal age, marital status, and place of residence, even though 86% of respondents were aware of the PMTCT strategy. Other studies have highlighted that awareness and knowledge of HIV, distance to health facilities, transportation challenges, and the reliability of service delivery strongly affect uptake. Socio-cultural factors such as stigma, concerns about disclosing HIV status to partners, and religious or traditional beliefs also shape attitudes towards ART adherence and infant-feeding practices. Fear of discrimination or reliance on faith-based healing may discourage consistent engagement with healthcare services, whereas supportive community and religious structures have been shown to promote better acceptance of PMTCT interventions [8-11].

Akwa Ibom State, in the South-South region of Nigeria, remains one of the states with the highest HIV prevalence. Evidence suggests that women in this region have lower awareness and utilization of PMTCT services compared with counterparts in the South-East and South-West, despite ongoing health education campaigns [5]. In a conditional cash transfer trial conducted in Akwa Ibom, approximately 60% of eligible women still did not use PMTCT services, even with financial incentives. Despite these findings, few local studies have examined how social factors such as awareness, accessibility of health facilities, and religious or cultural beliefs interact to influence the use of PMTCT services at the community level, particularly in Itu Local Government Area of Akwa Ibom State. This study therefore aimed to examine how these social factors affect PMTCT utilisation among HIV-positive pregnant women attending a primary health centre in Itu Local Government Area of Akwa Ibom State, with the objective of identifying contextual barriers and facilitators to service uptake [12-14].

Methodology

Study Design and Setting

This study employed a descriptive cross-sectional design to assess social factors influencing the utilization of Prevention of Mother-to-Child Transmission (PMTCT) services among HIV-positive pregnant women. The study was conducted at the Primary Health Centre, West Itam, located in Itu Local Government Area (LGA) of Akwa Ibom State, Nigeria. Itu is a semi-urban LGA with a mixed rural population and variable access to healthcare services. The Primary Health Centre serves as a first-level healthcare

facility for surrounding communities and provides antenatal, delivery, and HIV care services, including PMTCT.

Study Population

The study population comprised all HIV-positive pregnant women attending antenatal care (ANC) at the Primary Health Centre, West Itam, in Itu Local Government Area of Akwa Ibom State, during the study period. Eligible participants were pregnant women with a confirmed HIV-positive status documented in their ANC records, who were registered and receiving care at the facility during data collection, and who provided informed consent to participate. Those excluded were HIV-negative pregnant women attending ANC at the facility, HIV-positive women who were not pregnant at the time of the study, and women who were too ill to complete the interview or who declined participation.

Sample Size and Sampling Technique

The minimum sample size was determined using the Cochran formula (Cochran, 1977) for estimating a single population proportion:

$$n = \frac{Z^2 \times P(1-P)}{d^2}$$

where n is the minimum required sample size, Z is the standard normal deviate corresponding to a 95% confidence level (1.96), P is the estimated proportion of PMTCT utilization (42.9%) based on a previous regional report and d is the desired precision (0.10). This calculation yielded a minimum sample size of approximately 94 participants. Allowing for a 6% non-response rate, a total of 100 participants were recruited for the study [8].

A consecutive sampling technique was employed, whereby all eligible pregnant women presenting at the antenatal clinic during the data collection period were invited to participate until the desired sample size was reached. This approach ensured the inclusion of all available participants and minimized selection bias related to timing or participant characteristics.

Data Collection and Study Variables

Data were collected using a structured, interviewer-administered questionnaire developed in line with the study objectives and adapted from similar published studies to reflect the local context. The instrument was reviewed by two subject experts for content validity and pre-tested among ten HIV-positive pregnant women attending antenatal care at a nearby facility, the University of Uyo Teaching Hospital, to ensure clarity and cultural appropriateness. Necessary adjustments were made before use in the main study. The instrument was divided into five sections:

- Socio-demographic information: This included the participant's age, marital status, number of children, level of education, occupation, monthly income, and religion.
- Awareness and knowledge of PMTCT: prior awareness, sources of information, understanding of MTCT modes and timing, and knowledge of preventive measures.
- Accessibility to health facilities: distance to the facility, transport costs, road conditions, and regularity of clinic operations.
- Religious and cultural beliefs: These items assessed religious restrictions, community attitudes, and perceived stigma.
- PMTCT utilization: self-reported participation in PMTCT services such as ART adherence, ANC attendance, and infant feeding counselling.

Data collection was carried out by the principal researcher and two trained research assistants familiar with the PMTCT programmed. Participants were approached during routine antenatal visits. The purpose of the study was explained, confidentiality assured, and informed consent obtained before administration of the questionnaire. Interviews were conducted in English or in the local dialect (Ibibio), depending on participants' preference. Completed questionnaires were checked for accuracy and completeness daily.

Data Management and Analysis

All completed questionnaires were manually checked for completeness and internal consistency at the end of each data collection day. Responses that were substantially incomplete or ambiguous were excluded from the analysis. The remaining data were coded and entered into Microsoft Excel 365 for cleaning and analysis.

All study variables were categorical (e.g. age group, marital status, awareness, accessibility, and beliefs) and were summarized using frequencies and percentages. Findings are presented in frequency tables and descriptive summaries. As no inferential statistics were performed, associations between variables were not tested; rather, the results are presented as descriptive patterns and trends.

Ethical Considerations

Ethical approval for this study was obtained from the Health Research Ethics Committee of the University of Ukyo Teaching Hospital. Permission to conduct the study was also granted by the Supervisor of the Primary Health Care Services of Itu Local Government Area. Written informed consent was obtained from each participant after explaining the study objectives, procedures, and voluntary nature of participation. Confidentiality and anonymity were ensured throughout data collection and analysis. Participants were informed of their right to withdraw at any time without penalty, and no incentives were provided for participation. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Results

Response Rate

Out of the 100 questionnaires distributed, 94 were correctly completed and suitable for analysis, giving a response rate of 94%.

Socio-demographic Characteristics

Most respondents were under 35 years of age (67.0%) and married (73.4%). The majority (64.9%) had at least secondary education, and trading was the most common occupation (41.5%). The socio-demographic details of the respondents are summarized in Table 1.

Table 1: Socio-demographic characteristics of respondents (n = 94)

Variable	Category	Frequency	Percentage
Age group (years)	≤ 35	63	67
	≥ 36	31	33
Marital Status	Married	69	73.4
	Single	15	16
	Separated	5	5.3
	Divorced	3	3.2
	Widowed	2	2.1
Number of Chil-dren	0 – 2	62	66
	3 – 4	23	24.4
	> 5	9	9.6
Level of Educa-tion	None	6	6.4
	Primary	11	11.7
	Secondary	61	64.9
	Tertiary	16	17
Occupation	Civil servant	21	22.3
	Traders	39	41.5
	Unemployed	18	19.2
	Others	16	17
Monthly Income (N)	0 - 10,000	12	12.8
	10,000 - 20,000	17	18.1

	20,000 - 30,000	29	30.9
	30,000 - 40,000	12	12.8
	40,000 - 50,000	16	17
	Above 50,000	8	8.4
Religion	Christianity	72	76.6
	Muslim	10	10.6
	African Tradi-tional Religion	2	2.2
	Others	10	10.6

Awareness and Knowledge of PMTCT

Two-thirds (66.0%) of respondents had heard of PMTCT, most commonly through health workers (43.6%). Knowledge of HIV transmission was generally good for sexual and blood-related routes but lower for mother-to-child transmission. The details of respondents' knowledge and awareness related to PMTCT are summarized in Table 2.

Table 2 Awareness and knowledge of PMTCT among respondents (n = 94)

Variable	Category	Frequency	Percentage
Had heard of PMTCT	Yes	62	66
	No	32	34
Main source of information	Health worker	41	43.6
	Radio/Television	23	24.5
	Newspaper	12	12.8
	Family and Friends	8	8.5
	Books	5	5.3
	Others	5	5.3
Knowledge of HIV transmis-sion	Unprotected sex	49	52.1
	Blood transfusion	24	25.5
	Mother to child	18	19.1
	Sharing personal items and utensils	2	2.1
	Casual contact (e.g handshake)	1	1.1
Knowledge of MTCT timing	During Pregnancy	31	33
	During La-bour/Delivery	5	5.3
	During Breast-feeding	2	2.1
	Did not identify an timing/Did not know	56	59.6
Knowledge of Preventive measures	Use of ARVs	65	69.2
	Abstinence	25	26.6
	Early weaning from breastmilk	2	2.1
	Use of herbal medication	2	2.1

Note: PMTCT = Prevention of Mother-to-Child Transmission of HIV, MTCT = Mother-to-Child Transmission of HIV, ARV = Antiretroviral drugs

Accessibility to Healthcare Facility.

Table 3 summarises the access of respondents to healthcare facilities and its effect on the utilisation of Prevention of Mother-to-Child Transmission (PMTCT) services. More than half of respondents (58.5%) reported living far from the health facility, while 64.9% cited poor road networks and 62.8% identified transport costs as barriers to care.

Table 3: Accessibility to health facilities (n = 94)

Item	Response	Frequency	Percentage
What is the distance from your community to the health cen-ter?	Far	55	58.5
	Near	39	41.5
Poor road network prevents access to health facility	Yes	61	64.9
	No	33	35.1
Lack of transport fare prevents access	Yes	59	62.8
	No	35	37.2
The closest health center is always closed	Yes	58	61.7
	No	36	38.3

Religious and Cultural Beliefs

When asked about how belief systems and culture influence their health-seeking behavior, most respondents (78.7%) reported that their churches frequently teach on the importance of PMTCT. A considerable proportion (73.4%) agreed that cultural norms discourage open discussion of sexual health, while 78.8% perceived community stigmatization of people living with HIV. Other religious and cultural influences are summarized in Table 4.

Table 4: Religious and cultural beliefs influencing PMTCT utilization (n = 94)

Statement	Strongly Agree n (%)	Agree n (%)	Disagree n (%)
My religion forbids taking ART drugs.	15 (16.0)	21 (22.3)	25 (26.2)
My culture forbids open dis-cussion about sexual matters.	46 (48.9)	23 (24.5)	15 (16.0)
My culture stigmatizes people living with HIV.	21 (22.4)	53 (56.4)	13 (13.8)
My church preaches the im-portance of PMTCT.	49 (52.1)	25 (26.6)	12 (12.8)
It is taboo to discuss sex and HIV in my community.	20 (21.3)	57 (60.6)	6 (6.4)

Note: ART = Antiretroviral therapy; Note: PMTCT = Prevention of Mother-to-Child Transmission of HIV

Discussion

This study examined how the complex interplay of socio-demographic, economic, structural and socio-cultural factors influence the utilization of Prevention of Mother-to-Child Transmission (PMTCT) services among HIV-positive pregnant women in Itu Council Area of Akwa Ibom State. The findings show that, despite moderate levels of awareness, utilisation of PMTCT services continues to be constrained by limited knowledge of transmission, poor accessibility to health facilities, and existing cultural and religious influences.

Most respondents were young, married women below 35 years of age, which is consistent with previous research indicating that women in their reproductive years are more likely to access antenatal care (ANC) and participate in PMTCT interventions [15]. Marriage often provides greater family, social and financial support which has previously been linked to better health-seeking behaviour and adherence to health interventions (ibid). Whereas, single, divorced, or widowed women may be more vulnerable to stigma and social isolation, which can deter participation in PMTCT programmers.

This study found that, while many HIV-positive pregnant women in Itu Local Government Area had moderate awareness of PMTCT, substantial information gaps remained. Although two-thirds of respondents had heard of PMTCT, detailed knowledge of mother-to-child transmission (MTCT) was limited. Only 40% correctly identified pregnancy, delivery, or breastfeeding as periods of possible transmission. This finding aligns with research from Nigeria and other African countries showing that, although general HIV awareness is high, specific understanding of PMTCT routes and interventions is inconsistent, particularly in semi-urban and rural populations [5]. Similarly reported notable deficiencies in MTCT and PMTCT knowledge among birth attendants in Akwa Ibom State, suggesting that misinformation persists even among maternal health providers [16-18].

In this study, health workers were the most common source of PMTCT information, followed by the mass media, a pattern consistent with findings from across sub-Saharan Africa. Knowledge uptake has been shown to correlate with educational attainment, income, and media exposure, which may explain the uneven understanding observed. Although most respondents recognised that HIV can be transmitted from mother to child, fewer could correctly identify the specific periods of transmission, namely pregnancy, delivery, and breastfeeding. Comparable knowledge gaps have been reported in studies from Ethiopia and Nigeria, where many women were aware of mother-to-child transmission but lacked knowledge of the preventive measures available [17]. Since accurate understanding influences timely antenatal attendance, adherence to antiretroviral therapy, and safe infant-feeding practices, these deficiencies in knowledge may undermine the effectiveness of PMTCT interventions.

Limited accessibility to healthcare facilities was identified by respondents as a major barrier to the utilisation of PMTCT services. Many women reported challenges such as irregular facility operations, poor road conditions, high transportation costs, and long distances to health centres. Similar barriers have been documented in other parts of Nigeria and sub-Saharan Africa, where geographic and infrastructural constraints have been linked to reduced maternal healthcare utilisation. In Enugu State, also identified long waiting times, facility distance, and unfavourable staff attitudes as obstacles to PMTCT uptake, while reported that inadequate transport systems and prolonged travel times discouraged women from continuing PMTCT care in South Africa. Reports from this study that facilities were sometimes closed suggest underlying issues with staffing and inconsistent service delivery, which have been similarly noted in previous Nigerian studies. Collectively, these structural barriers highlight that adequate awareness alone may be insufficient to ensure PMTCT utilization unless supported by reliable health services and accessible infrastructure [19-21].

Religious and cultural beliefs appeared to influence the utilization of PMTCT services among respondents. Although most participants did not believe that antiretroviral therapy (ART) was prohibited by their faith, a notable proportion expressed reservations rooted in religious or cultural perspectives, reflecting the enduring influence of faith-based interpretations of illness and healing. With Christianity being the predominant religion among respondents, churches and faith-based organizations have the potential to play important roles in promoting PMTCT awareness and

reducing stigma. Previous studies in Nigeria have shown that religious leaders significantly shape community attitudes toward HIV, stigma, breastfeeding practices, and health-seeking behavior [18]. This aligns with findings by [11], who reported that cultural and religious beliefs can either facilitate or hinder PMTCT uptake depending on prevailing norms and teachings. In some Nigerian religious settings, preference for faith healing over medical intervention has been linked to lower ART adherence. Encouragingly, several respondents in this study reported that their churches actively supported PMTCT, supporting the view of that faith-based institutions can serve as valuable partners in outreach, advocacy, and male-partner engagement [22-23].

Although male involvement was not directly measured in this study, the persistence of stigma and taboos surrounding discussions of sexual and reproductive health may contribute to its continued low level. This conclusion is supported by evidence from southeastern Nigeria which indicates that male participation in PMTCT remains limited due to social barriers, inadequate awareness, and the distance to health facilities [24].

A key strength of this study is its focus on a semi-urban population in Akwa Ibom State, which provides locally relevant evidence on persistent gaps in PMTCT utilization. In addition, the use of an interviewer-administered questionnaire facilitated data completeness and supported contextual understanding by the respondents. However, the study is limited by its descriptive design and relatively small sample size, which reduce the ability to test hypotheses, establish causal relationships, or generalize the findings beyond populations in similar settings. The reliance on self-reported data may also have introduced recall and social-desirability bias [25].

Conclusion

This study highlights the influence of social factors such as awareness, accessibility, and cultural or religious beliefs on the utilization of PMTCT services among HIV-positive pregnant women in Itu Local Government Area of Akwa Ibom State. Although awareness of PMTCT was moderate, persistent misconceptions and incomplete knowledge emphasize the need for continued and context-specific health education. Structural barriers, including poor road conditions, high transport costs, long distances to health facilities, and irregular service delivery, further limit consistent engagement with PMTCT care. Cultural and religious beliefs also affect health-seeking behavior, with some respondents interpreting antiretroviral therapy and infant-feeding recommendations within the context of community norms and expectations. Nonetheless, the supportive role of faith-based organizations observed in this study suggests opportunities for partnership in promoting adherence and reducing stigma [26-28].

Improving PMTCT outcomes in similar settings requires coordinated attention to both sociocultural and systemic determinants of care. Continuous community education by health workers, community educators, and faith-based leaders can help dispel misconceptions and strengthen adherence to treatment guidelines. Expanding the health workforce, ensuring regular clinic operations, and improving transport access are also important for enhancing service reliability. We also recommend engaging religious institutions and community leaders as strategic partners, as this may promote culturally sensitive, community-based interventions that reduce stigma, encourage male involvement, and increase PMTCT uptake. In addition, future research should examine these factors using mixed-method or longitudinal designs to better understand behavioral influences over time and to guide the development of specific strategies for improving PMTCT outcomes [29-31].

Conflict of Interest: The authors declare that there are no conflicts of interest regarding the publication of this study.

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