ISSN: 2457-0400

Impact Factor: 7.675

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

www.wjahr.com

Volume: 10, Issue: 7

Page N. 207-214

Year: 2026

Original Article

Coden USA: WJAMA3

FACTORS INFLUENCING THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV SERVICE UTILIZATION AMONG ANTENATAL WOMEN IN NNAMDI AZIKIWE UNIVERSITY TEACHING HOSPITAL, NNEWI

Chika Chioma H. Odira[1]*, Chidimma Blessing Ogbodo[1], Victory Chijindu Odira[1]

Department of Nursing Science, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

Article Received: 29 May 2026 **Article Revised:** 18 June 2026 **Article Published:** 01 July 2026

***Corresponding Author: Chika Chioma H. Odira**

Department of Nursing Science, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

DOI: https://doi.org/10.5281/zenodo.21027082

How to cite this Article: Chika Chioma H. Odira[1]*, Chidimma Blessing Ogbodo[1], Victory Chijindu Odira[1]. (2026) Factors Influencing The Prevention Of Mother-To-Child Transmission Of Hiv Service Utilization Among Antenatal Women In Nnamdi Azikiwe University Teaching Hospital, Nnewi. World Journal of Advance Healthcare Research, 10(7), 207–214.

ABSTRACT

Background: Mother-to-child transmission of HIV remains a significant cause of pediatric HIV infections in Nigeria despite the availability of prevention of mother-to-child transmission (PMTCT) interventions. This study assessed factors influencing PMTCT service utilization among antenatal women receiving care at Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi. **Methods:** A descriptive cross-sectional design was used among pregnant women attending antenatal clinic at NAUTH, selected using a systematic sampling technique. Data were collected using a structured, interviewer-administered questionnaire on socio-demographic characteristics, knowledge of PMTCT, and utilization of PMTCT services, and were analyzed using descriptive statistics and chi-square tests at a 0.05 level of significance. **Results:** The study showed that most respondents were aged 21–40 years, were married, and had at least a secondary education. Cross-tabulation indicated significant associations between educational status, age, marital status, number of children, and antiretroviral drug uptake for PMTCT ($p < 0.05$), with women who had higher education and who were married more likely to utilize PMTCT services. Despite general awareness of HIV and PMTCT services, ARV uptake was suboptimal, as a considerable proportion of women across all educational categories reported not taking antiretroviral drugs in pregnancy. **Conclusion:** PMTCT service utilization among antenatal women at NAUTH, Nnewi, is influenced by socio-demographic factors, particularly education, age, marital status, and parity, and remains below optimal levels. Strengthening targeted health education, male partner involvement, and strategies that address socio-demographic barriers could improve ARV uptake and contribute to the elimination of mother-to-child transmission of HIV in this setting.

INTRODUCTION

Mother-to-child transmission (MTCT) of HIV, also known as vertical transmission, remains the most common route of HIV infection in children globally. Without intervention, MTCT rates range between 15% and 45%, but with evidence-based Prevention of Mother-to-Child Transmission (PMTCT) services, the risk can be reduced to less than 2% (Nwolisa, Bashir, Dedeke, Oziegbe, & Nwaneri, 2025).

Despite significant progress in PMTCT scale-up, Nigeria continues to bear a disproportionate burden of new pediatric HIV infections, contributing substantially to the global burden (Onalu, Agwu, Okoye, & Agha, 2021). As of 2023, approximately 210,000 children (0–19 years) were living with HIV in Nigeria, and 15,000 children (0–14 years) died from AIDS-related illnesses (PedIAIDS, 2024).

Nigeria's HIV prevalence among adults aged 15–49 years is 1.4%, with women having nearly four times the prevalence of men in the same age group. This gender disparity is most pronounced among females aged 20–24 years—the peak childbearing age (Nwolisa et al., 2025). According to PedIAIDS (2024), 63.6% of pregnant women still leave antenatal care (ANC) clinics without knowing their HIV status, and only 3 out of every 10 pregnant women living with HIV were receiving lifelong

antiretroviral therapy (ART) as of 2023. The pooled MTCT rate in Nigeria remains at 2.7%, significantly higher than the global average achieved through effective PMTCT programs (Nwolisa et al., 2025).

Effective utilization of PMTCT services is critical to significantly reducing vertical HIV transmission. PMTCT services include HIV counseling and testing, ART for pregnant women living with HIV, safe delivery practices, and appropriate infant feeding counseling (Egwuaba & Sunday, 2025). However, despite the availability of these interventions, utilization remains suboptimal in many Nigerian settings. A study in Jos South local government area, Plateau State, found that only 60% of women who tested HIV-positive had optimal utilization of PMTCT services (Dawet, Noel, & Daboer, 2024). Similarly, in Anambra South Senatorial Zone, poor access and utilization of PMTCT services were identified as key obstacles to eliminating mother-to-child transmission (Onalu et al, 2021).

Socio-demographic characteristics significantly influence PMTCT service uptake among antenatal women, with recent evidence showing that age, level of education, and marital status are strongly associated with PMTCT service utilization (Nzelu et al., 2024). Women with higher educational levels are significantly more likely to test for HIV during pregnancy, with those having secondary education showing an adjusted odds ratio (AOR) of 3.75 (95% CI: 1.93–7.28) and those with higher education showing an AOR of 11.23 (95% CI: 4.40–28.68) compared to women with no education (Nzelu et al., 2024), while women living in urban areas were more likely to test for HIV (AOR = 1.60; 95% CI: 1.03–2.47) than those in rural areas (Nzelu et al., 2024).

Marital status also plays a crucial role, as married women had significantly higher uptake of HIV counseling and testing (74.2%) compared to single women (50.0%) or those cohabiting (55.2%) ($p = 0.003$) (Adewoyin et al., 2019), and religion and occupation further influence health-seeking behaviors, with professional and skilled workers showing higher testing rates (Adewoyin et al., 2019). Knowledge about PMTCT is a fundamental determinant of service utilization, though studies show that knowledge levels among pregnant women are often inadequate despite high service uptake, as evidenced by findings in Ethiopia where 72.2% of antenatal care attendees had good knowledge of PMTCT but only 62% demonstrated good practice (Yeshaneh, Abebe, Tafese & Workineh, 2023) and in Nigeria's Ibadan where while more than 80% of women knew about ART and non-breastfeeding as PMTCT methods, only 18.4% were aware of exclusive breastfeeding as an option for HIV-positive mothers and 52.2% would not comply if asked not to breastfeed (Adewoyin et al., 2019). In Abakaliki, knowledge of PMTCT was assessed among 400 ANC attendees, revealing gaps in understanding transmission routes and prevention strategies (Eze & Aliyu, 2017). Similarly, in a teaching hospital in Abuja, although the desire to protect the baby was the greatest motivation (98.1%) for accepting PMTCT services, knowledge levels were generally low (Otorkpa & Yalma, 2021), underscoring the need for intensified health education on PMTCT (Adewoyin et al., 2019).

Individual factors including beliefs, attitudes, and cultural practices significantly influence PMTCT service utilization, with a recent study in Awka, South-East Nigeria, identifying fear of stigma and social rejection (74%) as the primary socio-cultural barrier to ART adherence among HIV-positive pregnant women (Egwuaba & Sunday, 2025), along with other important barriers including preference for traditional or religious healing (36%), fear of partner violence following disclosure (29%), and limited autonomy in health decisions (32%) (Egwuaba & Sunday, 2025). Stigma-related constraints are pervasive, with 63% of respondents reporting community stigma and 69% reporting limited male partner involvement (Egwuaba & Sunday, 2025). In Kano, stakeholders identified fear of being seen accessing HIV-related services, low male partner involvement, and socio-cultural beliefs about the dangers of hospital-based delivery as key barriers to PMTCT uptake (Dirisu et al., 2020).

Health system challenges also contribute, including long clinic waiting times (61%), inadequate counseling services (48%), frequent drug stock-outs (43%), and poor integration of PMTCT with ANC (37%) (Egwuaba & Sunday, 2025).

Antiretroviral therapy (ART) is the cornerstone of PMTCT (Egwuaba & Sunday, 2025). Despite the availability of PMTCT services in Nigeria, utilization remains suboptimal, and Nigeria has not yet achieved the elimination of MTCT target (Dirisu et al., 2020). Understanding the factors influencing PMTCT service utilization is essential for designing targeted interventions to improve uptake and advance elimination of mother-to-child HIV transmission.

Most studies on PMTCT utilization in Nigeria have been conducted in primary health centers or specific geographic regions, with limited focus on tertiary health facilities in South-East Nigeria. Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, serves a large population of pregnant women from Anambra State and surrounding areas, yet there is limited data on PMTCT service utilization patterns and influencing factors among its antenatal attendees.

This study aims to investigate the factors influencing PMTCT service utilization among antenatal women at Nnamdi Azikiwe University Teaching Hospital, Nnewi. The specific objectives are: To identify the socio-demographic factors (age, occupation, religion, educational status, and marital status) influencing PMTCT service utilization among antenatal women at

NAUTH, Nnewi. To identify the therapies adopted among antenatal women at NAUTH, Nnewi.

To assess the influence of antenatal women's knowledge about PMTCT on their service utilization. To determine individual factors (beliefs, attitudes, and cultural practices) influencing PMTCT service utilization among antenatal women at NAUTH, Nnewi. The findings from this study will inform policy and program interventions to improve PMTCT service uptake at NAUTH and similar tertiary facilities in South-East Nigeria, ultimately contributing to the elimination of mother-to-child HIV transmission in Nigeria.

METHODS

Research design: A descriptive cross-sectional survey design was used to assess factors influencing prevention of mother-to-child transmission (PMTCT) service utilization among antenatal clients at Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi.

Study setting: The study took place at NAUTH, Nnewi, a federal tertiary teaching hospital established in 1991. NAUTH provides comprehensive maternal and child health services, including antenatal care and PMTCT services, and serves as a regional training and referral centre for healthcare professionals (Obianeri, 2023).

Target population: The target population comprised all HIV-positive pregnant women who registered for antenatal care at NAUTH between January and April 2023 (N = 169, clinic records).

Sample size and sampling technique: Using Taro Yamane's formula for finite populations with a 5% margin of error, the required sample size was calculated (n = 119). Allowing for a 10% attrition/non-response rate, the final target sample was 131 participants.
Participants were recruited using consecutive sampling of eligible women attending the ANC/PMTCT clinic during the study period.

Inclusion criteria were: HIV-positive pregnant women registered for ANC/PMTCT at NAUTH during the study period who provided informed consent.

Exclusion criteria were: HIV-positive pregnant women who declined participation.

Women unable to communicate adequately in the study languages (English or the local language) and for whom no competent interpreter is available.
Women with severe acute illness or medical instability that prevents participation (e.g., in labour, emergency admission).

Women with significant cognitive impairment or acute psychiatric conditions that impair capacity to provide informed consent or answer the questionnaire reliably.

Women younger than the legal age of consent for research participation without an available parent/guardian consent (if local regulations require parental consent for minors).

Data collection instrument: A structured questionnaire, developed from current PMTCT literature and programme standards, was used. The instrument contained four sections. Section A: socio-demographic and obstetric characteristics; Section B: therapies and clinical management related to PMTCT; Section C: knowledge of PMTCT and related services; Section D: individual, social, and service-level factors influencing PMTCT utilization.

Validity and reliability: Content and face validity were established through review by the project supervisor and subject-matter experts; recommended revisions were incorporated. The instrument was pretested using the test–retest method with 12 HIV-positive antenatal clients at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH). Internal consistency (Cronbach's alpha) for relevant subscales was 0.80, indicating acceptable reliability.

Data collection procedure: After obtaining ethical approval and institutional permission, the researcher and two trained nurses administered questionnaires to consenting participants. The study team explained study objectives, obtained informed consent, and assisted respondents as needed. Data collection occurred weekly between 10:00 and 14:00 across two months. Completed questionnaires were checked on site for completeness.
a
Data management and analysis: Questionnaire data were coded, entered, and analysed using SPSS version 29. Descriptive statistics (frequencies, percentages, means, and standard deviations where applicable) summarized participant characteristics and study variables. Where appropriate, cross-tabulations and chi-square tests were used to explore associations; significance was set at $p < 0.05$.

Ethical considerations: Ethical clearance was obtained from the NAUTH Research Ethics Committee. Participants received verbal and written information about the study and provided informed consent. Confidentiality was maintained by de-identifying responses and restricting access to data to the research team. Participation was voluntary, and participants could withdraw at any time without consequence.

RESULTS

Table 1: Socio-demographic variables of the respondents.

		Frequency (n = 131)	Percentage
Educational status	**No Formal education**	33	25.4%
	Primary	15	11.5%
	Secondary	32	24.6%
	Tertiary	30	38.5%
	No response	21	16.0%
Religion	**Christianity**	82	63.1%
	Islam	21	16.2%
	Traditional worshipper	25	19.2%
	No response	2	1.5%
Age range	**Below 20**	12	9.2%
	21 to 30	53	40.8%
	31 to 40	40	30.8%
	41 and above	25	19.2%
Occupation	**House wife**	28	21.5%
	Government employee	36	27.7%
	Self employed	29	22.3%
	Student	37	28.5%
Marital status	**Divorced**	38	29.2%
	Married	49	37.7%
	Widowed	26	20.0%
	Single	17	13.1%

Table 1 shows that 25.4% of respondents have no formal education, 11.5% attained primary level of education, 24.6% attained secondary level, and 38.5% attained tertiary level. On religion, 1.5% of respondents gave no response, 63.1% were Christians, 16.2% were Muslims, and 19.2% were traditionalists. On age range, 9.2% of respondents were below 20 years, 40.8% were within 21 to 30, 30.8% were within 31 to 40, and 19.2% were within 41 and above. On occupation, 21.5% were housewives, 27.7% were government employees, 22.3% were self-employed, and 28.5% were students; 7.7% of respondents were married, 20.0% were widowed, 13.1% were single, and 29.2% were divorced.

Table 2: Socio-demographic factors affecting the PMTCT of HIV service utilization

		Are you taking any antiretroviral drug?					
		No response	**Yes**	**No**	**Total (%)**	**X^2**	**P-value**
Educational status	**No Formal education**	2 (1.5%)	14 (10.8%)	17 (13.1%)	33(25.4%)	35.748	0.000*
	Primary	0 (0.0%)	12 (9.2%)	3 (2.3%)	15 (11.5%)		
	Secondary	0 (0.0%)	22(16.9%)	10 (7.7%)	32 (24.6%)		
	Tertiary	2 (1.5%)	7 (5.4%)	41 (31.5%)	50 (38.5%)		
Religion	**No response**	0 (0.0%)	2 (1.5%)	0 (0.0%)	2 (1.5%)	31.773	0.000*
	Christianity	4 (3.1%)	20 (15.4%)	58 (44.6%)	82 (63.1%)		
	Islam	0 (0.0%)	17 (13.1%)	4 (3.1%)	21 (16.2%)		
	Traditional worshipper	0 (0.0%)	16 (12.3%)	9 (6.9%)	25 (19.2%)		
Age range	**Below 20**	0 (0.0%)	6 (4.6%)	6 (4.6%)	12 (9.2%)	38.739	0.000*
	21 to 30	2 (1.5%)	6 (4.6%)	45 (34.6%)	53 (40.8%)		
	31 to 40	2 (1.5%)	25 (19.2%)	13 (10.0%)	40 (30.8%)		
	41 and above	0 (0.0%)	18 (13.8%)	7 (5.4%)	25 (19.2%)		
Number of children	**No response**	0 (0.0%)	2 (1.5%)	0 (0.0%)	2 (0.0%)	29.508	0.000*
	None	2 (1.5%)	4 (3.1%)	32 (24.6%)	38 (29.2%)		
	One	2 (1.5%)	15 (11.5%)	19 (14.6%)	36 (27.7%)		
	Two	0 (0.0%)	22 (16.9%)	12 (9.2%)	34 (25.2%)		
	More than two	0 (0.0%)	12 (9.2%)	8 (6.2%)	20 (15.4%)		
Marital status	**Divorced**	2 (1.5%)	6 (4.6%)	30 (23.1%)	38 (29.2%)	21.241	0.002*
	Married	2 (1.5%)	21 (16.2%)	26 (20%)	49 (37.7%)		
	Widowed Single	0 (0.0%) 0 (0.0%)	16 (12.3%) 12 (9.2%)	10 (7.7%) 5 (3.8%)	26 (20.0%) 17(13.1%)		

Cross-tabulation of socio-demographic variables with ARV uptake (Table 2) indicates that among women with no formal education (25.4% of the sample), 10.1% reported taking antiretroviral drugs while 13.1% did not; among those with primary education (11.5%), 9.2% took ARVs and 2.3% did not; among those with secondary education (24.6%), 16.9% took ARVs and 7.7% did not; and among those with tertiary education (38.5%), 5.4% took ARVs while 31.5% did not. By religion, 15.4% of Christians reported ARV uptake compared with 44.6% who did not, while traditional worshippers accounted for 12.3% ARV uptake and 6.9% non-uptake. Age-wise, the 21–30 group (40.8%) included 4.6% who took ARVs and 34.6% who did not, and the 31–40 group (30.8%) included 19.2% who took ARVs and 10.0% who did not. By marital status, married respondents (37.7%) reported 16.2% ARV uptake and 20.0% non-uptake; widowed women (20.0%) reported 12.3% uptake and 7.7% non-uptake; and single women (13.1%) reported 9.2% uptake and 3.8% non-uptake.

Table 3: Antiretroviral therapies adopted among antenatal women.

Antiretroviral drugs taken by respondents		
Drugs	**Frequency**	**Percentage (%)**
Dolutegravir	19	14.6%
Emtricitabine	23	17.7%
Tenofavir	18	13.8%
Alafenamide fumarate	0	0.0%
None	70	53.8%
Total	**131**	**100.0%**

With respect to therapies (Table 3), 53.8% of participants did not specify the antiretroviral drug they were taking; of the 46.2% who did respond, 17.7% reported emtricitabine, 14.6% dolutegravir, and 13.8% tenofovir, while none reported alafenamide fumarate.

DISCUSSION

The findings revealed that educational status was significantly associated with PMTCT service utilization ($\chi^2 = 35.748$, $p < 0.001$), with respondents who had tertiary education demonstrating the highest uptake of antiretroviral drugs. This finding suggests that education enhances awareness, understanding, and acceptance of HIV prevention interventions. Educated women are more likely to understand the benefits of PMTCT services, adhere to treatment protocols, and seek timely healthcare services. The significant influence of educational status indicates the need for continuous health education and literacy programmes targeting women with lower educational attainment. Healthcare providers should simplify PMTCT information and utilize community-based awareness campaigns to improve understanding among less educated women. Maternal education and literacy are consistently linked to PMTCT knowledge, uptake, and the risk of vertical transmission, so your recommendation for continuous health education and simplified counselling is well supported. Community-based and targeted outreach approaches are also supported by evidence that education and outreach interventions improve HIV knowledge and engagement in underserved populations (Ganguly et al., 2018). This finding concurs with findings by Hahn and Truman (2015) where they noted that education improves public health and health equity, supporting the broader value of health education. Ganguly et al. (2018) in their study noted that Literacy status is associated with vertical HIV transmission risk and PMTCT-related outcomes. Similarly, Kamanzi et al. (2022) reported that PMTCT uptake is influenced by low education and related social determinants. This finding is consistent with the study by Adeniyi et al. (2019), which reported that higher educational attainment significantly increased maternal utilization of PMTCT services due to improved knowledge of HIV transmission and prevention strategies.

Religion also showed a significant relationship with PMTCT service utilization ($\chi^2 = 31.773$, $p < 0.001$). Evidence shows that faith-based organizations can be effective partners in HIV prevention because religious communities are trusted and can reduce stigma through culturally sensitive messaging. A UNFPA training manual also explicitly recommends involving religious leaders to reduce HIV-related stigma and discrimination (Ochillo, van Teijlingen, Hind, 2017; Obeagu, 2024). Religious beliefs and support systems may influence health-seeking behaviour and acceptance of HIV-related interventions. Faith-based organizations often play a crucial role in HIV awareness and stigma reduction. This finding agrees with Astawesegn et al. (2024), who found that religious affiliation influenced women's willingness to access PMTCT services and adhere to treatment recommendations.

Age was another significant determinant of PMTCT service utilization ($\chi^2 = 38.739$, $p < 0.001$). Women aged 21–30 years had the highest uptake of antiretroviral drugs. This age group represents the most active reproductive population and may have greater exposure to antenatal care services and health education. Younger women below 20 years recorded lower utilization, possibly due to limited autonomy, poor knowledge, or fear of stigma. Similar findings were reported by Turan et al. (2017), who observed that women within the peak reproductive age were more likely to utilize PMTCT services than adolescents. Adolescent pregnant women often have poorer ANC attendance and lower PMTCT uptake than older women, which supports the need for

adolescent-friendly reproductive health services. The evidence also supports tailored counselling, home visits, and peer/community-based support models for this age group (Ronen, K. et al.,2017).

Parity was significantly associated with PMTCT service utilization ($\chi^2 = 29.508$, $p < 0.001$). Primiparous women demonstrated higher utilization compared to those with multiple children. This may be because first-time mothers are generally more attentive to antenatal care recommendations and more motivated to protect their unborn children. Women with larger families may experience financial constraints, competing responsibilities, or healthcare fatigue, which could reduce service utilization. This finding supports the work of Patel et al (2015), who reported that parity significantly influenced attendance and adherence to PMTCT programmes. Inggrit and Uli (2025) noted that Maternal parity is associated with PMTCT utilization.

Marital status was also significantly associated with PMTCT service utilization ($\chi^2 = 21.241$, $p = 0.002$). Married women constituted a substantial proportion of service users, suggesting that partner support may facilitate healthcare access and adherence to treatment (Masaba & Mmusi-Phetoe, 2020). Spousal involvement has been identified as an important factor in PMTCT programme success, particularly in African settings where decision-making regarding healthcare is often influenced by family structures. This finding corroborates the study by Adejoh et al. (2018), which found that married women were more likely to utilize PMTCT services due to emotional and financial support from their spouses.

The findings showed that Emtricitabine (17.7%) was the most commonly reported antiretroviral drug among respondents, followed by Dolutegravir (14.6%) and Tenofovir (13.8%). The preference for these medications reflects current recommendations for antiretroviral therapy due to their effectiveness in suppressing viral load and reducing mother-to-child transmission of HIV. However, more than half of the respondents (53.8%) provided no response regarding the antiretroviral therapy they were taking, suggesting possible gaps in patient knowledge, documentation, or treatment awareness.

The utilization of Dolutegravir-based regimens is consistent with recommendations from the World Health Organization (2021), which endorses Dolutegravir-containing regimens as first-line treatment for pregnant women because of their high efficacy, rapid viral suppression, and favourable safety profile. Similarly, the use of Emtricitabine and Tenofovir aligns with global PMTCT treatment guidelines.

The association between religion and PMTCT utilization highlights the importance of involving religious leaders and faith-based organizations in HIV prevention campaigns. Such collaborations can help reduce stigma and encourage acceptance of PMTCT services.

The age-related differences suggest that adolescent-friendly reproductive health services should be strengthened to improve PMTCT uptake among younger pregnant women. Tailored counselling and peer-support programmes may help address barriers experienced by this group.

The influence of parity underscores the need for targeted interventions for women with multiple children. Flexible clinic schedules, community outreach programmes, and family-centred approaches may improve access and adherence among multiparous women.

The significance of marital status suggests that male partner involvement should be encouraged during antenatal care visits. Couple counselling and partner education could enhance support for pregnant women and improve PMTCT outcomes.

The high proportion of non-responses regarding drug therapy suggests a need for improved patient education on antiretroviral treatment. Pregnant women should be adequately informed about the medications they are receiving, their benefits, and the importance of adherence.

Healthcare providers should strengthen counselling sessions during antenatal visits to ensure that women understand their treatment regimens. Improved documentation and follow-up systems are also necessary to enhance treatment monitoring and evaluation.

WHO-recommended antiretroviral regimens remain the standard for PMTCT and are essential for reducing mother-to-child transmission and improving maternal health (WHO, 2010).

Conclusion

The findings of the study show that PMTCT service utilization is shaped by a combination of socio-demographic, cultural, and health-system factors. Women's educational status, religion, age, parity, and marital status all appear to influence how well they access and use PMTCT services, while gaps in patient education and counselling may also limit treatment understanding and adherence.

Recommendations

Overall, the study suggests that improving PMTCT outcomes will require more than routine antenatal care. It calls for stronger health education, simplified counselling, adolescent-friendly services, partner involvement, community engagement, and better documentation and follow-up systems. Sustained use of recommended antiretroviral therapy remains essential for reducing mother-to-child transmission and improving maternal and infant health.

DECLARATIONS

ACKNOWLEDGEMENTS
The researchers appreciate our respondents' contributions to this study. We are very grateful to the Ethics and Research Committee of the Faculty of Health Sciences and Technology for approving this study. We also thank the head and other staff of the Antenatal Unit where postnatal mothers were recruited for their assistance.

Authors' contributions
All authors were involved in the conception of the research idea, design, and implementation of the project. CCHO, CBO, and VCO reviewed the literature. CBO did data collection and data entry. VCO wrote the first draft of the manuscript. CCHO critically reviewed the manuscript. CCHO wrote the final manuscript and arranged the manuscript in line with the journal's guidelines. All authors read and approved the final manuscript and this submission.

Funding
This study was not funded

Ethical Consideration
The study was conducted in line with the Declaration of Helsinki.

Approval to conduct the study was given by the Ethics and Research Committee of Nnamdi Azikiwe University Teaching Hospital, Nnewi.

Oral administrative permission to proceed with the study was obtained from the Head of the Antenatal Unit involved in the study. Verbal consent was also obtained from the respondents. The researchers ensured that the respondents were well-informed before soliciting their consent. The following ethical principles were also considered:
Respondent's autonomy: Only respondents who gave consent were assessed. In addition, they were allowed to withdraw from their studies at any time they wished, without any consequence.

Confidentiality: Confidentiality of information exchanged with the study groups remains with the respondents and the researchers.

Study Hazards: No hazard resulted from the study because the researcher only elicited information from the respondents.

Consent for publication
Not applicable

Declaration of conflict of interests
The authors declared no potential conflict of interest.

Data availability statement
The data that support the findings of this study are available from the corresponding author upon request.

Fundings
No grant was obtained for this study

Conflict of Interest
None

REFERENCES

1. Adewoyin, Y., Onalu, E. C., Ebimgbo, O. S., Agha, A. A., & Okoye, U. O. (2019). Factors affecting the utilization of mother-to-child transmission of HIV services in Anambra South, Nigeria. *Research Gate*. https://www.researchgate.net/publication/332442299
2. Astawesegn, F. H., Mannan, H., Stulz, V., & Conroy, E. (2024). Understanding the uptake and determinants of prevention of mother-to-child transmission of HIV services in East Africa: Mixed methods systematic review and meta-analysis. *PLOS ONE, 19*(4): e0300606. https://doi.org/10.1371/journal.pone.0300606
3. Dawet, M. P., Noel, N. P., & Daboer, J. C. (2024). Availability and utilization of PMTCT services in primary health care centres of Jos South, North-Central Nigeria. *International Journal of Healthcare Sciences* (12): 16–21. https://doi.org/10.5281/zenodo.11518219
4. Dirisu, O., Eluwa, G., Adams, E., Torpey, K., Shittu, O., & Adebajo, S. (2020). "I think this is the only challenge… the stigma": Stakeholder perceptions about barriers to antenatal care and prevention of mother-to-child transmission uptake in Kano State, Nigeria. *PLOS ONE, 15*(4): e0232028. https://doi.org/10.1371/journal.pone.0232028
5. Egwuaba, U., & Sunday, B. (2025). Barriers to the use of antiretroviral therapy among HIV-positive pregnant women in Awka, South-East Nigeria. *The Nigerian Health Journal, 25*(3): 1186–1196. https://doi.org/10.71637/tnhj.v25i3.1163
6. Eze, C., & Aliyu, A. A. (2017). Knowledge of prevention of mother-to-child transmission of HIV and its uptake among antenatal care attendees in a tertiary hospital in Abakaliki, Nigeria. *Asian Journal of Medicine and Health, 3*(2), 1–8. https://doi.org/10.9734/AJMAH/2017/31429
7. Ganguly, S., Goswami, D. N., Mondal, S., Chakrabarti, S., & Mundle, M. (2018). A retrospective cohort study on effect of literacy status of HIV-positive pregnant women on possibility of child getting HIV infected. *Journal of Family Medicine and Primary Care, 7*(1), 167–170. https://doi.org/10.4103/jfmpc.jfmpc_88_17
8. Hahn, R. A., & Truman, B. I. (2015). Education improves public health and promotes health equity. *International Journal of Health Services, 45*(4), 657–678. https://doi.org/10.1177/0020731415585986
9. Inggrit, R., & Uli, M. (2025). Association between maternal parity and utilization of PMTCT services in HIV/AIDS prevention at Biak Kota Primary Health Center. *Journal of Social and Education*

Research, 3(3), 173–183. https://journal.larpainstitute.com/index.php/jser

10. Kamanzi, J., Richter, S. M., Paul, P., & Jarvis, K. (2022). Social determinants of health that influence the uptake of the PMTCT program. *International Journal of Nursing and Health Care Research, 5:* 1362. https://doi.org/10.29011/2688-9501.101362
11. Masaba, B. B., & Mmusi-Phetoe, R. M. (2020). Barriers to and opportunities for male partner involvement in antenatal care in efforts to eliminate mother-to-child transmission of human immunodeficiency virus in Kenya: Systematic review. *The Open Nursing Journal, 14:* 232–246. https://doi.org/10.2174/1874434602014010232
12. Nzelu, C., Nzelu, U., Ugwunze, A. U., & Azodoh, N. (2024). Determinants of comprehensive knowledge of HIV transmission and prevention among women of reproductive age 15–49 years in Nigeria. *PLOS Global Public Health, 4*(7): e0003450. https://doi.org/10.1371/journal.pgph.0003450
13. Obeagu, E. I. (2024). Faith-based initiatives, HIV awareness, religious communities, health education, stigma reduction. *International Journal of Medical Sciences and Pharma Research, 10*(4): 74–79. https://doi.org/10.22270/ijmspr.v10i4.127
14. Ochillo, M. A., van Teijlingen, E., & Hind, M. (2017). Influence of faith-based organisations on HIV prevention strategies in Africa: A systematic review. *African Health Sciences, 17*(3): 753–761. https://doi.org/10.4314/ahs.v17i3.18
15. Onalu, C., Agwu, P., Okoye, U., & Agha, A. (2021). Mother-to-child transmission of HIV and utilization of preventive services in Anambra South Senatorial Zone, Nigeria. *Education and Society*. https://discovery.dundee.ac.uk/en/publications/mother-to-child-transmission-of-hiv-and-utilization-of-preventive/
16. Onono, M., Kwena, Z. A., Turan, J. M., Bukusi, E. A., Cohen, C. R., & Gray, G. E. (2015). "You know you are sick, why do you carry a pregnancy again?" Applying the socio-ecological model to understand barriers to PMTCT service utilization in Western Kenya. *Journal of AIDS & Clinical Research, 6*(6). https://doi.org/10.4172/2155-6113.1000467
17. Ongaki, D., Obonyo, M., Nyanga, N., & Ransom, J. (2019). Factors affecting uptake of PMTCT services, Lodwar County Referral Hospital, Turkana County, Kenya, 2015 to 2016. *Journal of the International Association of Providers of AIDS Care, 18*: 2325958219838830. https://doi.org/10.1177/2325958219838830
18. Otorkpa, M. J., & Ramsey, M. Y. (2021). Barriers, motivations to utilization of prevention of mother-to-child transmission of HIV among women attending antenatal clinic at a teaching hospital in Abuja, Nigeria. *Zenodo*. https://zenodo.org/records/6416327
19. Patel, R. C., Onono, M., Gandhi, M., Blat, C., Hagey, J., Shade, S. B., Vittinghoff, E., Bukusi, E. A., Newmann, S. J., & Cohen, C. R. (2015). Pregnancy rates in HIV-positive women using contraceptives and efavirenz-based or nevirapine-based antiretroviral therapy in Kenya: A retrospective cohort study. *The Lancet HIV, 2*(11): e474–e482. https://doi.org/10.1016/S2352-3018(15)00184-8
20. PediAIDS. (2024). Supporting adolescents in pregnancy and motherhood. Elizabeth Glaser Pediatric AIDS Foundation. https://pedaids.org/our-work/prevention-of-mother-to-child-hiv-transmission/supporting-adolescents-in-pregnancy-and-motherhood/
21. Ronen, K., et al. (2017). Gaps in adolescent engagement in antenatal care and prevention of mother-to-child HIV transmission services in Kenya. *Journal of Acquired Immune Deficiency Syndromes, 74*: 30–37. https://www.semanticscholar.org/paper/Gaps-in-Adolescent-Engagement-in-Antenatal-Care-and-Ronen-McGrath/bef98047e3235d75edb40e6b4493ce697d953f28
22. World Health Organization. (2010). *Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants*. https://www.who.int/publications/i/item/9789241599818
23. World Health Organization. (2021). *Consolidated guidelines on HIV prevention, testing, treatment, service delivery and monitoring: Recommendations for a public health approach* (2021 update). https://iris.who.int/handle/10665/342899