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## Barriers to the Use of Antiretroviral Therapy Among HIV-Positive Pregnant Women in Awka, South-East Nigeria.

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### Abstract

**Background:** Despite significant scale-up of Prevention of Mother-to-Child Transmission (PMTCT) programmes in Nigeria, adherence to antiretroviral therapy (ART) among HIV-positive pregnant women remains suboptimal, sustaining the risk of vertical HIV transmission.

**Objective:** This study explored the socio-cultural, health system, stigma-related, and economic factors influencing ART uptake and adherence among HIV-positive pregnant women in Awka, South-East Nigeria.

**Methodology:** A cross-sectional descriptive survey was conducted involving 200 HIV-positive pregnant women accessing PMTCT services in selected health facilities. Data were collected using structured interviewer-administered questionnaires and analysed with descriptive statistics including frequencies and percentages.

**Results:** Key socio-cultural barriers included fear of stigma and social rejection (74%), preference for traditional or religious healing (36%), fear of partner violence following disclosure (29%), and limited autonomy in health decisions (32%). Health system challenges identified were long clinic waiting times (61%), inadequate counselling services (48%), frequent drug stock-outs (43%), and poor integration of PMTCT with antenatal care (37%). Stigma-related and familial constraints involved limited male partner involvement (69%), pervasive community stigma (63%), and fear of losing family support (42%). Economic impediments encompassed high transportation costs (56%), inability to afford adequate nutrition (52%), opportunity costs (46%), and long distances to health facilities (39%).

**Conclusion:** ART adherence among HIV-positive pregnant women in Awka is impeded by intersecting socio-cultural, systemic, and economic factors. Comprehensive, multi-sectoral strategies targeting stigma reduction, male partner engagement, service integration, and economic support are critical to improving adherence and advancing elimination of mother-to-child HIV transmission.

**Keywords:** Adherence, Antiretroviral therapy, HIV, Mother-to-child transmission, PMTCT, Pregnant women, Socio-cultural barriers, Stigma



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## INTRODUCTION

The global expansion of antiretroviral therapy (ART) has led to significant reductions in HIV-related morbidity, mortality, and mother-to-child transmission (MTCT) of HIV.<sup>1</sup> Prevention of mother-to-child transmission (PMTCT) programmes, which depend heavily on the consistent and effective use of antiretroviral drugs by HIV-positive pregnant women, have been central to this progress. The World Health Organization recognises PMTCT as one of the most successful public health interventions aimed at achieving an HIV-free generation.<sup>2</sup>

In sub-Saharan Africa, including Nigeria, PMTCT coverage has improved markedly over the past decade. Nevertheless, considerable gaps remain in ART uptake, adherence, and retention in care among pregnant women.<sup>3,4,5</sup> Nigeria carries a substantial HIV burden, with an estimated 1.8 million people living with the virus in 2021, many of whom are women of reproductive age.<sup>1</sup> The country's national guidelines recommend lifelong ART for all HIV-positive pregnant and breastfeeding women under the Option B+ approach. Despite this, adherence rates continue to fall short of targets, contributing to approximately 22,000 new paediatric HIV infections annually, primarily due to incomplete or inconsistent maternal ART use during pregnancy and breastfeeding.<sup>6,7,1</sup>

Research conducted in Nigeria has identified a broad range of barriers to ART uptake and adherence among pregnant women. These include stigma, fear of disclosure, gender-based violence, limited support from partners or family, economic hardship, transportation challenges, frequent drug stockouts, and weak health systems.<sup>8,9</sup> Within South East Nigeria, cultural and religious norms alongside patriarchal family structures further complicate women's ability to consistently access and adhere to antiretroviral regimens.<sup>10</sup>

Awka, the capital of Anambra State, provides a pertinent context for examining these issues due to its relatively developed health infrastructure paired with persistent disparities in healthcare access, especially among peri-urban and low-income populations. Although ART is provided free of charge, indirect costs such as transportation expenses, time lost from work, and lack of childcare frequently hinder regular clinic attendance and follow-up care.<sup>11</sup> Additionally, insufficient counselling and limited psychosocial support services

contribute to suboptimal treatment adherence and increased loss to follow-up among HIV-positive pregnant women.<sup>12,13</sup>

Despite ongoing national and regional PMTCT initiatives, these persistent socio-cultural, economic, and health system barriers continue to impede efforts to eliminate paediatric HIV infections. While national data provide useful insights, there remains a scarcity of detailed, localised evidence from urban centres like Awka. Understanding the unique interplay of these barriers within this setting is essential to inform the development of effective, contextually relevant interventions.

This study, therefore, seeks to explore the multidimensional challenges that influence ART uptake and adherence among HIV-positive pregnant women in Awka. It aims to shed light on socio-cultural factors, health system constraints, stigma and discrimination, partner and family dynamics, and economic and geographic accessibility issues that affect the consistent use of ART during pregnancy. Through this, the study intends to provide evidence to guide improved policies and practices for PMTCT service delivery tailored to the local realities of Awka.

## LITERATURE REVIEW

Antiretroviral drugs (ARVs) are medications that suppress HIV replication, enhance immune function, and reduce HIV transmission, including mother-to-child transmission during pregnancy and breastfeeding.<sup>1</sup> Adherence refers to the extent to which individuals consistently follow prescribed ARV regimens to achieve viral suppression.<sup>2</sup> Prevention of Mother-to-Child Transmission (PMTCT) encompasses a comprehensive set of interventions including HIV counselling and testing, ARV therapy, safe delivery practices, and infant feeding counselling aimed at preventing HIV transmission from mother to child.<sup>1</sup> Barriers denote the spectrum of individual, socio-cultural, economic, and health system factors that hinder continuous access to and consistent use of ARVs during pregnancy.

Global scale-up of ART has substantially reduced paediatric HIV infections, with PMTCT programmes averting an estimated 1.4 million new infections between 2010 and 2020 [3]. The World Health Organization's Option B+ strategy, which recommends lifelong ART

for all HIV-positive pregnant and breastfeeding women, has significantly increased ART coverage worldwide [1]. Despite these gains, adherence remains a challenge, particularly in low- and middle-income countries, due to stigma, fear of disclosure, drug side effects, inadequate counselling, and socioeconomic constraints.<sup>4,5</sup> Conversely, high-income countries have improved adherence through service integration, mobile health technologies, psychosocial support, and community-based interventions.<sup>6</sup>

Sub-Saharan Africa bears the highest global burden of HIV among pregnant women, accounting for over 60% of cases.<sup>1</sup> Although Option B+ is widely adopted, adherence is undermined by persistent socio-cultural stigma, fear of partner violence, and limited male involvement in PMTCT programmes.<sup>7</sup> Additionally, weak health systems characterised by frequent drug stock-outs, staff shortages, and long clinic wait times compromise treatment continuity.<sup>8</sup> Economic challenges such as transportation costs and income loss further hinder ART uptake [8]. Evidence emphasises the critical role of partner support, disclosure counselling, and community education in improving adherence.<sup>2</sup>

In Nigeria, with an estimated 1.8 million people living with HIV, PMTCT services have expanded under Option B+, yet vertical transmission rates remain unacceptably high.<sup>3</sup> Stigma and fear of disclosure persist as major barriers, with pregnant women facing risks of partner violence, social rejection, and loss of economic support.<sup>9,10</sup> Health system inefficiencies including drug shortages, inadequate counselling, and workforce deficits negatively affect treatment adherence.<sup>11</sup> Indirect costs, such as transportation and childcare responsibilities, place additional burdens on especially low-income women. Cultural reliance on traditional and spiritual healing further hinders consistent ART use.<sup>4</sup> Awka, the capital of Anambra State, provides a unique context with relatively well-developed health infrastructure and multiple PMTCT service points. However, significant barriers remain, including stigma, cultural preferences for traditional healing, and male-dominated household decision-making that limit ART uptake and disclosure.<sup>12</sup> Clinics face periodic drug stock-outs, long waiting times, and poor integration of PMTCT services with routine antenatal care.<sup>13</sup>

Economic constraints, particularly among women in peri-urban settings, reduce clinic attendance due to high transport costs and opportunity costs of time.<sup>11</sup>

Fear of HIV-related stigma and social rejection discourages many women from accessing PMTCT services.<sup>4</sup> Competing faith-based and traditional healing practices undermine ART adherence [12]. Gender power imbalances and fear of partner violence restrict disclosure and consistent treatment [10,6]. Health system challenges such as drug stock-outs, inadequate counselling, and fragmented service delivery increase the burden on women.<sup>14,13</sup>

Stigma, both anticipated and enacted, remains a formidable barrier to care-seeking, especially where partner and family support are lacking.<sup>8</sup> Limited male involvement in PMTCT reduces opportunities for shared decision-making and adherence support.<sup>12</sup> Although ART is provided free, indirect costs including transport and lost income pose substantial barriers.<sup>11</sup> Poverty-related poor nutrition exacerbates drug side effects and undermines adherence.<sup>2</sup> Social protection measures integrated with ART services are critical to addressing these challenges.

This study is guided by the Health Belief Model (HBM), which explains health behaviours based on individuals' perceptions of susceptibility, severity, benefits, barriers, cues to action, and self-efficacy.<sup>15,16</sup> For HIV-positive pregnant women in Awka, perceived susceptibility and severity relate to awareness of mother-to-child transmission risk. Cultural beliefs may diminish these perceptions, lowering motivation for adherence. Perceived benefits of ART are often compromised by misinformation and competing faith narratives.<sup>12</sup> Perceived barriers including stigma, fear of disclosure, economic hardship, and health system challenges may outweigh benefits.<sup>4,2</sup> Weak cues to action and low self-efficacy further reduce consistent ARV use.<sup>5</sup> The HBM provides a valuable framework for understanding how personal, socio-cultural, and structural factors interact to influence ART use and for designing targeted interventions to improve PMTCT outcomes.

## METHODOLOGY

### Setting

The study was conducted in selected health facilities in Awka, Anambra State, Nigeria, that provide Prevention of Mother-to-Child Transmission (PMTCT) services.

These facilities included Primary Health Centres (PHCs), General Hospitals, and private hospitals offering routine HIV care and antiretroviral therapy (ART) to pregnant women. In these facilities, HIV-positive pregnant women receive a comprehensive package of care, including HIV counselling and testing, initiation or continuation of ART, adherence counselling, antenatal services, and routine laboratory monitoring.<sup>17</sup>

### Study Design

A cross-sectional descriptive design was employed within a mixed methods framework. Following Teddlie and Tashakkori's typology, a convergent parallel mixed methods approach was adopted, whereby quantitative and qualitative data were collected concurrently, analysed separately, and then compared.<sup>18</sup>

**Quantitative Component:** A cross-sectional descriptive survey design was used to collect numerical data on variables of interest at a single point in time.

**Qualitative Component:** A descriptive qualitative design involving in-depth interviews was used to capture participants' perspectives and contextual factors surrounding the phenomenon under study.<sup>19</sup>

### Study Site and Population

#### Study Site

The study was conducted in Awka, the capital city of Anambra State, South-East Nigeria. Awka is an urban centre with a mix of public and private healthcare facilities serving both city residents and surrounding rural communities. It has a vibrant commercial sector, a large student population due to the presence of tertiary institutions, and a significant number of civil servants and artisans.

Healthcare in Awka is delivered through Primary Health Centres (PHCs), General Hospitals, and private hospitals/clinics. Only a subset of these facilities are accredited to provide Prevention of Mother-to-Child Transmission (PMTCT) services. PMTCT service delivery in the area includes HIV counselling and testing, initiation and continuation of antiretroviral therapy (ART), adherence counselling, antenatal services, and routine laboratory monitoring.

The facilities selected for this study were distributed across different zones of Awka to capture a range of patient populations, from densely populated inner-city

areas to peri-urban neighbourhoods. They represent various levels of care:

**PHCs:** Provide basic maternal and child health services, including PMTCT, at the community level.

**General Hospitals:** Offer more comprehensive services, including specialist HIV care.

**Private Hospitals/Clinics:** Provide PMTCT services to self-paying clients and those referred from smaller facilities.

### Study Population

The target population consisted of HIV-positive pregnant women who were already on ART at the time of data collection.

### Inclusion Criteria:

Women aged 18 years and above, or emancipated minors (below 18 years but legally recognised as adults). Currently receiving ART as part of PMTCT services in one of the selected facilities.

Willing and able to provide informed consent.

### Exclusion Criteria:

Newly diagnosed HIV-positive pregnant women who had not yet initiated ART.

Women too ill to participate at the time of the study.

The focus on women already on ART ensured that responses reflected actual experiences and barriers to ART continuation rather than challenges with initiation.

### Sample Size

The sample size for the quantitative component was calculated using the Cochran formula for proportions [20]:

$$n = \frac{Z^2 pq}{d^2}$$

Where:

$Z$  = standard normal deviate at 95% confidence level (1.96)

$p$  = estimated prevalence of ART use among HIV-positive pregnant women (from previous studies or national estimates)

$q = 1 - p$

$d$  = desired precision (0.05)

The calculated minimum sample size was adjusted for a design effect of 1.5 (to account for the multistage sampling) and a 10% allowance for non-response, giving a final target of approximately 200 respondents [20].

### Sampling Approach

A multistage sampling technique was employed:

**Stage 1:** Purposive selection of health facilities providing PMTCT services across different levels of care (PHCs, General Hospitals, and private hospitals).

**Stage 2:** Stratified sampling to ensure proportional representation of the three facility types in the sample.

**Stage 3:** Systematic random sampling of eligible respondents within each selected facility. The sampling interval ( $k$ ) was calculated by dividing the estimated daily attendance of ART clients by the required sample size for that facility. Recruitment continued until the allocated quota for each facility type was achieved [20].

### Study Variables

The key study variables included:

Socio-demographic characteristics (age, marital status, education, occupation, parity)

Knowledge of ART

Perceived barriers to ART use (socio-cultural, economic, health system, stigma-related)

ART adherence behaviours

### Data Collection

**Quantitative Data:** Collected using a structured, interviewer-administered questionnaire adapted from validated PMTCT adherence instruments [21]. The tool was pre-tested for clarity and cultural relevance.

**Qualitative Data:** Obtained through semi-structured interview guides, allowing flexibility to probe emerging themes [19]. Interviews were conducted in English or Igbo, audio-recorded with participant consent, and transcribed verbatim.

### Data Analysis

**Quantitative Analysis:** Data were coded and analysed using SPSS version 25. Descriptive statistics (frequencies, percentages, means, standard deviations) summarised participants' characteristics. Inferential statistics, including chi-square tests and logistic regression models, examined associations between variables and identified predictors of non-adherence, with  $p < 0.05$  considered statistically significant [22].

**Qualitative Analysis:** Data were thematically coded and analysed using NVivo 12 to identify patterns and relationships [19].

Triangulation was applied to integrate findings from both components, enhancing analytical depth and validity.

**Ethical Considerations:** Ethical approval was obtained from the Research Ethics Committee of Chukwuemeka Odumegwu Ojukwu University,

Igbariam, Anambra State, Nigeria. Written informed consent was obtained from all participants after explaining the study's objectives, potential benefits, and risks. Participation was voluntary, and confidentiality was ensured by anonymising responses and restricting data access to the research team.<sup>23</sup> Respondents were informed of their right to withdraw at any time without negative consequences. Participants showing signs of emotional or psychological distress during interviews were referred to appropriate psychosocial support services in line with ethical research practices.<sup>23</sup>

## RESULTS

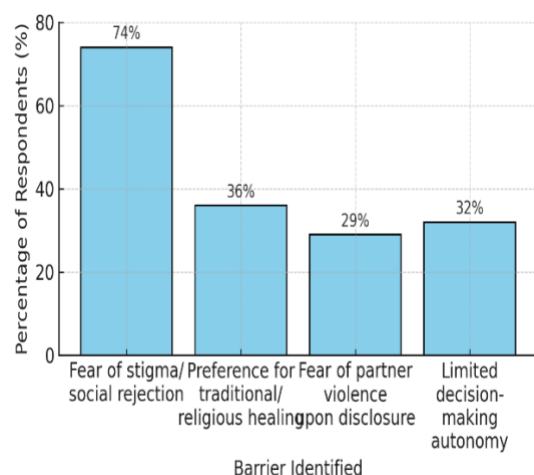
**Table 1: Socio-Demographic Characteristics of Respondents (n=200)**

Variable	Frequency	Percentage (%)
<b>Age (years)</b>		
18–24	46	23.0
25–34	98	49.0
35–44	56	28.0
<b>Educational Level</b>		
No formal education	18	9.0
Primary	52	26.0
Secondary	96	48.0
Tertiary	34	17.0
<b>Marital Status</b>		
Married	154	77.0
Single	32	16.0
Widowed/Separated	14	7.0
<b>Occupation</b>		
Trader	82	41.0
Civil Servant	34	17.0
Unemployed	58	29.0
Others	26	13.0
<b>Total</b>	<b>200</b>	<b>100.0</b>

Source: Field Survey, 2025

Age distribution indicates that nearly half of respondents (49%) were aged 25–34 years, with 23% aged 18–24 years and 28% aged 35–44 years. The findings indicate that most of the women affected fall within their prime reproductive years. This highlights the need for targeted antiretroviral therapy (ART) adherence support and prevention of mother-to-child transmission (PMTCT) interventions within this age group to effectively reduce the risk of vertical transmission.

Educational level shows that while 48% attained secondary education and 17% reached tertiary level, a substantial minority had only primary (26%) or no formal education (9%). Marital status reveals that a large majority (77%) were married, with smaller proportions single (16%) or widowed/separated (7%). High rates of marriage suggest that partner dynamics such as disclosure, male involvement, and risk of partner violence are highly relevant to ART adherence. Married women may face pressures or negotiations that can either support or hinder consistent ART use. Occupational status shows that 41% of respondents were traders, 17% were civil servants, 29% were unemployed, and 13% engaged in other occupations. The high unemployment rate and predominance of informal trading highlight potential economic vulnerability. Women with unstable income may struggle with transport costs, opportunity costs of clinic visits, or the nutritional needs that support ART tolerance.

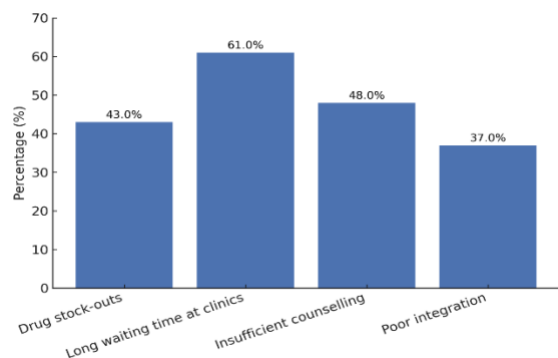


**Figure 1:** Socio-Cultural Factors Affecting ART Use among HIV-Positive Pregnant Women in Awka  
Source: Field Survey, 2025

The bar chart titled *Socio-Cultural Factors Affecting ART Use among HIV-Positive Pregnant Women in Awka* illustrates the key self-reported socio-cultural barriers to antiretroviral therapy (ART) adherence among respondents in Awka, South-East Nigeria. Fear of stigma and social rejection emerged as the most prominent barrier, cited by 74% of respondents. This finding highlights the pervasive role of anticipated discrimination in discouraging clinic attendance and

sustained ART use. Women may avoid health facilities for fear of being identified as HIV-positive, which limits disclosure and continuity of care. Preference for traditional or religious healing was reported by 36% of participants. This reflects enduring cultural beliefs that can undermine biomedical treatment uptake, as women may seek faith-based or herbal alternatives instead of adhering to ART regimens.

Fear of partner violence upon disclosure was cited by 29% of respondents. This underscores the role of intimate partner dynamics in shaping health-seeking behavior. The risk of violence or abandonment can deter women from disclosing their status or attending clinics regularly. Limited decision-making autonomy was reported by 32% of respondents, indicating that gendered power relations within households may constrain women's ability to seek and maintain treatment. Women's healthcare decisions may be influenced or controlled by partners or family elders, reducing their capacity to prioritize ART adherence. Corroborating these findings, IDI Participants reported as follows: "If people know my status, they will avoid me. That's why I hide my drugs and sometimes forget to take them." (Respondent 05, 28 years, IDI), "I'm afraid to tell my husband. He might send me away if he knows." (Respondent 12, 24 years, IDI); "My pastor said prayers can heal me. Sometimes I stop taking the drugs because I have faith." (Respondent 09, 31 years, IDI); "People here trust herbs more than hospital drugs." (Health Worker 02, IDI, and "I can't go to the clinic without telling my husband, but he doesn't agree with it." (Respondent 17, 22 years, IDI).

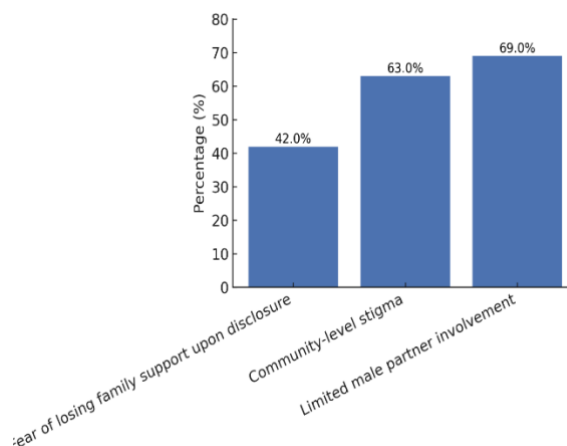


**Figure2.** Health System Barriers to ART Use among HIV-Positive Pregnant Women in Awka  
**Source:** Field Survey,2025

The bar chart illustrates the distribution of key health system barriers reported by HIV-positive pregnant women in Awka, South-East Nigeria, that hinder their access to and adherence to antiretroviral therapy (ART). Long waiting times at clinics account for the largest proportion, at 61%. This indicates that overcrowding and slow service delivery significantly discourage women from attending regular clinic visits necessary for consistent ART use. Long wait times can also pose challenges for women balancing household, childcare, or employment obligations.

Insufficient counselling, reported by 48% of respondents, reflects gaps in health worker capacity or time to provide clear, supportive guidance on ART adherence, side effects, and disclosure strategies. Limited counselling reduces understanding and motivation to remain on treatment. Drug stock-outs were cited by 43% of participants. Interrupted drug supplies undermine adherence by forcing women to miss doses, risking viral rebound, resistance, and vertical transmission to the child. Stock-outs also damage trust in the health system. Poor integration with antenatal care (ANC) services, at 37%, highlights how fragmentation in service delivery complicates follow-up. If ART services are not streamlined with routine ANC, women may need multiple visits or face confusion about where to receive care, increasing the risk of loss to follow-up. Supporting the above findings, IDI Respondents opined as follows: *“Sometimes there is no drug when you come. You must wait or buy outside.”* (Respondent 14, 35 years, IDI); *“You*

*will wait for hours even when pregnant. Many give up and go home.”* (Respondent 07, 30 years, IDI); *“We don’t have enough counsellors to attend to everyone.”* (Health Worker 01, IDI), and *“You have to go to different places for ANC and HIV drugs. It’s stressful.”* (Respondent 10, 27 years, IDI).



**Figure 3.** Stigma, Discrimination, and Family Support Issues Among HIV-Positive Women in Awka  
**Source:** Field Survey, 2025

The bar chart presents the distribution of key stigma, discrimination, and family support barriers reported by HIV-positive pregnant women in Awka, South-East Nigeria. Limited male partner involvement was the most frequently cited barrier at 69%, indicating that male partners often play little or no role in supporting women’s HIV care. This lack of engagement can undermine disclosure, reduce emotional and financial support, and limit women’s autonomy to attend clinics or adhere to ART regimens.

Community-level stigma, reported by 63% of respondents, emerged as another major barrier. Anticipated or experienced discrimination from neighbors, friends, and wider community members deters women from accessing services openly. Fear of being recognized at HIV clinics may lead to missed appointments or secrecy around medication use. Fear of losing family support upon disclosure was cited by 42% of participants. Disclosure to family members is often fraught with fear of rejection, blame, or social ostracism. Such fear limits open communication, restricts support networks, and complicates adherence to lifelong ART. Alluding to these findings, IDI participants stressed as

follows: “If my in-laws know, they will reject me.” (Respondent 11, 32 years, IDI). “People will gossip if they see you at the HIV center.” (Respondent 08, 26 years, IDI). “My husband doesn’t want to come for counselling with me.” (Respondent 03, 29 years, IDI), and “Men think it’s a woman’s problem. They don’t want to be involved.” (Health Worker 03, IDI).

**Table 2:** Economic and Accessibility Barriers affecting ART Adherence among HIV-Positive Pregnant Women in Awka.

Barrier Identified	Frequency	Percentage (%)
High transport costs	112	56.0
Long distance to clinic	78	39.0
Opportunity cost of clinic visits	92	46.0
Inability to afford good nutrition	104	52.0

Source: Field Survey, 2025

The results reveal multiple economic and accessibility barriers affecting ART adherence among HIV-positive pregnant women in Awka. High transport costs were the most commonly reported barrier (56%), indicating that even when ART medications are free, indirect costs of accessing services remain prohibitive for many women. This highlights the significance of geographic and economic inequality in health access. Inability to afford good nutrition was cited by 52% of respondents. Good nutrition is essential for managing ART side effects and maintaining overall health, but poverty can undermine adherence by reducing women’s ability to tolerate or consistently take their medications.

Opportunity cost of clinic visits was cited by 46% of participants, reflecting loss of income or time, particularly among women in informal labor or childcare who may prioritize immediate household needs over health visits. Long distance to clinics was reported by 39%, underscoring geographic barriers, especially in peri-urban and rural settlements around Awka with poor transport infrastructure. In-depth interview participants highlighted these challenges: “Transport is too expensive. Sometimes I can’t go” (Respondent 16, 33 years); “It is far, and the road is bad when it rains” (Respondent 06, 25 years); “If I go to the clinic, I lose money for that day” (Respondent 04, 30 years);

and “They say eat well with the drugs. But I can’t afford it” (Respondent 13, 27 years).

## DISCUSSION

This study explored the multifaceted challenges influencing antiretroviral therapy (ART) uptake and adherence among HIV-positive pregnant women in Awka, South-East Nigeria. Findings reveal that socio-cultural, health system, stigma-related, and economic factors collectively undermine optimal ART use and retention in care. Prominent socio-cultural barriers included fear of stigma and social rejection (74%), reliance on traditional or religious healing (36%), fear of partner violence upon disclosure (29%), and limited autonomy in health-related decision-making (32%). These findings are consistent with previous studies highlighting stigma as a key driver of non-disclosure and disengagement from HIV services across sub-Saharan Africa.<sup>24,25</sup> Additionally, preferences for traditional healing reflect enduring cultural and religious beliefs that may reduce trust in biomedical interventions [26]. Gender-based power imbalances further restrict women’s health-seeking behaviour.<sup>27</sup> Addressing these barriers requires culturally sensitive stigma-reduction strategies, community dialogue, and initiatives that promote safe disclosure and gender equity.<sup>28</sup>

Health system-related challenges included long clinic wait times (61%), inadequate counselling (48%), frequent drug stock-outs (43%), and poor integration of ART services with antenatal care (37%). These challenges corroborate prior evidence of fragile health systems limiting the effectiveness of PMTCT programmes in Nigeria.<sup>29,30</sup> Interruptions in drug supply and insufficient counselling undermine continuity of care and patient understanding of ART benefits.<sup>31,32</sup> Strengthening ART delivery necessitates investment in human resources, reliable drug supply chains, and improved service integration within maternal health services.

Limited male partner involvement (69%), pervasive community stigma (63%), and fear of family rejection upon HIV status disclosure (42%) further demonstrate the critical role of social support in sustaining ART adherence. These findings are consistent with studies emphasizing the influence of partner and family dynamics on engagement with HIV services.<sup>28</sup> In the Nigerian context, PMTCT efforts often lack adequate

male involvement, constraining opportunities for shared decision-making and adherence support.<sup>31</sup> Enhancing male participation and fostering supportive community environments are vital for improving retention in care. Economic barriers such as high transportation costs (56%), poor nutrition (52%), opportunity costs of clinic attendance (46%), and long distances to health facilities (39%) represent significant constraints to ART use. Despite free ART provision, these indirect costs disproportionately affect low-income women.<sup>29,33</sup> Integrating PMTCT services with poverty alleviation programmes, nutritional support, and decentralised care delivery may alleviate these economic burdens and improve sustained ART adherence.

### Limitations of the Study

The cross-sectional design limits causal inference between identified barriers and ART adherence. Longitudinal studies are needed to track changes over time and their impact on treatment outcomes.

Second, the study relied on self-reported data obtained through interviewer-administered questionnaires, which may be influenced by social desirability bias. Respondents might have underreported sensitive issues such as stigma, domestic violence, or non-adherence to avoid perceived judgment.

Third, the sample was restricted to HIV-positive pregnant women receiving PMTCT services in Awka, thereby excluding women who are not engaged in care or those in more rural or hard-to-reach areas. This limits the generalisability of the findings to broader populations of HIV-positive women across South-East Nigeria or nationally.

Additionally, while the study identified key barriers, it did not assess the level of ART adherence quantitatively (e.g., via viral load monitoring or pharmacy refill data), which could have provided a more objective measure of adherence levels.

Future research should consider employing mixed methods approaches, expanding geographic coverage, and incorporating clinical adherence data to enrich understanding and guide more targeted interventions.

### Implications of the Findings

The findings highlight the need for targeted interventions to address identified barriers to ART

adherence. For practice, healthcare providers should incorporate adherence counselling, psychosocial support, and patient-centred care strategies. For research, longitudinal and interventional studies are needed to explore causal relationships and evaluate the effectiveness of tailored adherence-enhancing approaches. For policy, strengthening ART service delivery through supportive health policies, adequate resource allocation, and community-based programmes can improve adherence and treatment outcomes.

For practice, stigma reduction campaigns should be implemented through community education involving traditional, religious, and local leaders to foster supportive attitudes toward HIV care. Male partner involvement must be promoted via couple-based counselling and inclusive antenatal programmes that encourage shared responsibility. For policy, strengthening health system capacity through a steady ART supply, training additional counselling personnel, and integrating ART delivery into routine maternal care is critical. Economic barriers should be addressed by providing transport subsidies, decentralising ART services, and offering nutritional support, especially in underserved communities. For research, further longitudinal and intervention studies are required to evaluate the effectiveness of these strategies in improving ART adherence and preventing mother-to-child transmission.

Stigma, inadequate support, economic constraints, and limited health system capacity remain major barriers to ART adherence among HIV-positive pregnant women, increasing the risk of mother-to-child transmission. Empowering women through targeted health education, community engagement, and protective legal frameworks, alongside multi-sectoral collaboration across health, social welfare, transportation, and economic planning, is essential. Updating national and state PMTCT guidelines to incorporate culturally sensitive, locally driven strategies will strengthen adherence and improve prevention outcomes.

### CONCLUSION

This study explored the multifaceted barriers to antiretroviral therapy (ART) use among HIV-positive pregnant women in Awka, South-East Nigeria. The findings identified a range of socio-cultural, health system, stigma-related, and economic challenges that

discourage or delay ART uptake and consistent use. Socio-cultural barriers included fear of stigma and discrimination, preference for traditional or spiritual healing, fear of partner violence upon disclosure, and limited autonomy in making health-related decisions. Health system barriers such as prolonged waiting times, drug stock-outs, inadequate counselling services, and poor integration with antenatal care also contributed to reduced service utilisation.

While this study did not directly measure ART adherence levels, the reported barriers indicate substantial risks to optimal use and sustained engagement in treatment. Addressing these challenges requires culturally sensitive interventions, improved health system responsiveness, and multi-sectoral collaboration to enhance ART accessibility and acceptability for pregnant women living with HIV.

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