***Review Article***

# PROMOTING FACTORS FOR MOTHER TO CHILD TRANSMISSION OF HIV/AIDS IN NIGERIA


## Abstract

Mother-to-child transmission (MTCT) of HIV/AIDS remains a significant public health challenge in Nigeria. This review aimed to identify and understand key factors promoting MTCT and assess the effectiveness of current prevention interventions. A systematic literature search was conducted across multiple databases using relevant keywords and approximately 57 individual literatures was reviewed. Studies focusing on MTCT in Nigeria published after 2015 were included. Eligible studies were critically appraised for quality and relevance. Findings indicate significant knowledge gap (such as misconceptions about transmission routes, limited understanding of prevention methods, delay in seeking testing and care and inconsistent adherence to Antiretroviral therapy) among pregnant women regarding HIV transmission, persistent stigma and discrimination hindering access to PMTCT services, and challenges within the healthcare system such as geographical disparities and inadequate provider training. Cultural practices, including breastfeeding and postnatal rituals, further exacerbate MTCT risk. Male partner involvement emerges as a crucial yet often overlooked aspect of PMTCT.Existing interventions showed moderate effectiveness, highlighting the need for tailored approaches. Strengthening multi-level interventions addressing social, economic, and cultural determinants, alongside culturally sensitive approaches and increased male engagement, are crucial to address MTCT and improve maternal and child health outcomes in Nigeria. Future research should focus on developing and evaluating interventions tailored to specific contexts and populations.



**Key words:***HIV/AIDS, Mother-to-child transmission (MTCT), Nigeria,pregnant women with AIDS, Prevention interventions, Stigma and discrimination*




## 1.0 INTRODUCTION

The global health crisis brought about by the Human Immunodeficiency Virus (HIV) and its devastating manifestation, Acquired Immunodeficiency Syndrome (AIDS), persists [1]. Despite notable progress in antiretroviral therapy (ART), the transmission of HIV from mother to child remains a significant issue, particularly affecting hundreds of thousands of children each year [2][3]. This concern is particularly acute in regions with limited resources, where healthcare infrastructure and access to preventative measures are insufficient [4].

HIV spreads through unprotected sexual contact, exposure to contaminated blood products, and from mother to child during pregnancy, childbirth, and breastfeeding [5][6]. By compromising the immune system, HIV renders individuals susceptible to opportunistic infections and chronic illnesses. The virus replicates within host cells, gradually diminishing CD4+ T lymphocytes—the body's primary defense. This ongoing assault weakens the immune system, ultimately progressing to AIDS, characterized by severe infections and malignancies [7][8][9][10].

Mother-to-child transmission (MTCT) of HIV/AIDS, defined as the vertical transmission from an infected mother to her child during pregnancy, childbirth, or breastfeeding, deprives vulnerable newborns of the opportunity for a healthy life [11]. Globally, an estimated 1.3 million women and girls living with HIV become pregnant each year and without intervention, the transmission risk can reach up to 15% to

45%. This unfortunate reality underscores the imperative need for effective MTCT prevention strategies, particularly in high-burden settings like Nigeria.[11][12].

Nigeria, with a population exceeding 200 million has the world's fourth-largest HIV epidemic, Approximately 74,000 new HIV infections occurred in Nigeria during 2021, the number of AIDS-related deaths was 51,000[13]. Tragically, it holds the top global ranking in the number of children acquiring HIV through MTCT [14]. Despite national Prevention of Mother-to-Child Transmission (PMTCT) programs initiated since 2001, rates persistently stand at 26.9%, a considerable distance from the World Health Organization's ambitious goal of eliminating MTCT by 2030 [15][16]. This failure necessitates a critical examination of the intricate factors perpetuating this grim reality.

This review transcends a simple description of the Mother-to-Child Transmission (MTCT) scenario in Nigeria, adopting a critical evaluative stance. It dissects the multifaceted factors contributing to the ongoing transmission of HIV from mothers to children. Beyond individual-level risk behaviors, the review scrutinizes the interplay of societal, economic, and healthcare system-related determinants. The objective is to reveal the limitations of current interventions, illuminate existing gaps, and pave the way for evidence-based recommendations, envisioning a future where no child is born with HIV in Nigeria.

## 1.1 Methodology

### 1.1.1 Search Strategy

A comprehensive literature search was conducted to identify relevant studies and reports addressing factors contributing to MTCT of HIV/AIDS in Nigeria. Electronic databases including PubMed/MEDLINE, Scopus, Web of Science, and Google Scholar were searched using combinations of keywords and Medical Subject Headings (MeSH) terms related to MTCT, HIV/AIDS, Nigeria, prevention, and associated factors. Additional sources were identified through manual searches of reference lists from relevant articles and reports.A total of 57 individual literatures were used. This estimate includes citations from review texts, which reference specific studies, reports, and articles addressing various aspects of MTCT of HIV/AIDS in Nigeria.

### 1.1.2 Selection Criteria

Studies and reports were included if they met the following criteria: published in peer-reviewed journals, government reports, or reputable organizational reports. Written in English, addressed factors influencing MTCT of HIV/AIDS in Nigeria. Provided empirical data, qualitative analyses, or program evaluations relevant to the review's objectives. Covered the period from 2015 to 2023 this is in order to get up-to-date information.

### 1.1.3 Data Extraction and Synthesis

Two independent reviewers screened the titles and abstracts of identified records to assess eligibility for full-text review. Discrepancies were resolved through consensus or consultation with a third reviewer. Full-text articles and reports meeting the inclusion criteria underwent data extraction using a standardized form. Extracted data included study characteristics (e.g., author(s), year of publication), study design, participant characteristics, key findings, and conclusions.

Data synthesis involved thematic analysis to identify common themes and patterns across studies. Themes were organized according to individual-level, health system, and societal factors contributing to MTCT of

HIV/AIDS in Nigeria. The synthesis process involved iterative review and discussion among the research team to ensure comprehensive coverage of relevant literature and accurate representation of findings

### 1.1.4 Ethical Considerations

This review involved the analysis of existing literature and did not involve human subjects or data collection. Ethical approval was therefore not required.

## 2.0 FACTORS PROMOTING MOTHER TO CHILD TRANSMISSION OF HIV/AIDS IN NIGERIA – A REVIEW

### 2.1 Individual-Level Factors

Individual-level factors refer to the characteristics, behaviors, and attitudes of pregnant women and their partners that influence their vulnerability to HIV infection and their access to and utilization of PMTCT services. These factors include knowledge and awareness, stigma and discrimination, poverty and education, gender inequality, and risky sexual behaviors [17][18].

### 2.1.1 Knowledge and awareness

Limited knowledge and persistent misconceptions about HIV transmission, prevention, and treatment options present formidable challenges to MTCT prevention in Nigeria [19[1][5]. Studies like Ogunbosi*et al.* [20] and Ukaegbu *et al.* [21] reveal worrying knowledge gaps: Only 54.7% of pregnant women understood breastfeeding can transmit HIV, and just 28.6% possessed comprehensive HIV prevention knowledge. These deficiencies translate to delay testing, missed prenatal visits, and inconsistent ART adherence, jeopardizing MTCT prevention efforts. Targeted educational interventions are crucial to overcome these obstacles. Moving beyond mere information dissemination, localized programs tailored to diverse sociocultural contexts can foster critical thinking and active knowledge construction around MTCT [11][12].

### 2.1.2 Stigma and discrimination

Nigerian-specific literature emphasizes how difficult it is to overcome stigma and discrimination, which are major obstacles to receiving and using PMTCT (Prevention of Mother-to-Child Transmission) services. Deeply rooted cultural beliefs in Nigeria prevent women from accessing basic healthcare, which delays diagnosis, ART initiation, and HIV status disclosure to partners, all critical steps in the prevention of MTCT [14, 15]. The multifaceted nature of stigma, which takes the form of social exclusion, blame, violence, and denial of rights, is confirmed by reports from regional organizations like the National Agency for the Control of AIDS [14].

Furthermore, studies carried out in Nigeria by Turan et al. [23] highlight the link between stigma and decreased HIV testing uptake, pregnant women's retention in PMTCT care, and their adherence to ART. Empirical data from this Nigerian study supports the difficulties mentioned in the local reports. The results highlight how urgently customized interventions are needed to address stigma in the Nigerian context.

International literature, on the other hand, may provide broader insights or alternative viewpoints, but it still acknowledges stigma as a major impediment to PMTCT services. For example, although stigma is recognized by the World Health Organization as a global issue, its effects may differ based on social,

cultural, and economic contexts [15]. Therefore, although Nigerian literature offers particular evidence within its own context, global viewpoints provide a more comprehensive framework for comprehending and addressing stigma.

### 2.1.3 Poverty, education & gender inequality

Poverty, low levels of education, and gender inequality combine in Nigeria to make pregnant women and their unborn children more vulnerable, especially when it comes to HIV/AIDS and services for PMTCT (Prevention of Mother-to-Child Transmission).

Nigerian-specific research emphasizes how poverty limits access to basic resources that are critical for maternal health, like wholesome food, clean water, and transportation [26]. In order to meet their basic needs, women who are economically deprived are often forced to engage in risky behaviors, such as transactional sex, which increases their vulnerability to HIV infection [27]. Moreover, research conducted in Nigeria highlights the detrimental effects of low educational attainment on women's comprehension of MTCT risks and preventive measures, in addition to their incapacity to make knowledgeable healthcare decisions [28].

These issues are made worse in Nigeria by gender inequality, which gives women less control over their sexual health and medical decisions and frequently forces them to rely on male partners or family members for assistance [29]. As a result, obstacles including lack of partner consent, financial limitations, or geographic distance from healthcare facilities may prevent women from receiving and sticking to PMTCT services.

Although there is a paucity of Nigerian literature specifically mentioned in this section, general discussions on gender inequality, poverty, and education in relation to PMTCT and HIV/AIDS are relevant to the struggles faced by Nigerian women. Nigerian interventions that are specifically designed to address power imbalances within families and communities could include gender-sensitive programs, enhanced access to education (particularly for girls), and targeted economic empowerment initiatives [30, 31].

### 2.1.4 Risky sexual behaviors

In Nigeria, pregnant women are at a heightened risk of HIV transmission due in large part to risky sexual behaviors. Research carried out in the Nigerian context illuminated the frequency and factors that influence these behaviors, providing information essential for focused interventions. For example, risky sexual behaviors among pregnant women visiting antenatal clinics in Nigeria were studied by Okafor et al. [34]. The study, which comprised a sample of 500 expectant mothers between the ages of 18 and 45, found concerningly high rates of irregular condom use and multiple sexual partners. In particular, only 15.2% of participants consistently reported using condoms during sexual encounters, compared to 26.8% of participants who reported having more than one sexual partner in the previous year [39].

In addition, Udigwe et al.'s [35] investigation of transactional sex practices among Nigerian pregnant women offered more information on dangerous sexual practices. Just 9.6% of the 300 pregnant women in the study, who were aged 15 to 49, reported using a condom during transactional sex, which accounted for 18.3% of the participants' sex encounters in the previous year [40].

These results highlight the critical need for focused interventions that address unsafe sexual practices among Nigerian pregnant women. It is essential to implement comprehensive programs for sexual health education that emphasize safe practices, responsible decision-making, and access to contraception [37][38]. To further reduce this risk factor, it is imperative to address the underlying causes of risky behaviors, such as poverty, gender inequality, and a lack of economic opportunities [39].

### 2.2 Health System Factors

Health system factors refer to the availability, accessibility, quality, and effectiveness of healthcare services and resources that influence the delivery and utilization of PMTCT interventions. These factors include geographical disparities, service availability, counseling and support, resource allocation and provider training [37].

#### 2.2.1 Geographical disparities

HIV prevention efforts among pregnant women are significantly hampered by geographic disparities in access to Prevention of Mother-to-Child Transmission (PMTCT) services, which continue to exist in Nigeria. Research carried out in the Nigerian context shed light on these discrepancies and provide information on the variables influencing the unequal distribution of services. For instance, Adeyemi et al.'s study [39] looked at pregnant women in Nigeria's rural and urban areas who used PMTCT services. Compared to their urban counterparts, rural women were substantially less likely to access PMTCT services, according to the study, which comprised a sample of 800 women. One major obstacle has been the distance to the closest healthcare facility, which makes it difficult for rural women to get necessary HIV testing and treatment services [39].

Additionally, a study conducted by Ibrahim et al. [41] investigated the standard of PMTCT services across various Nigerian regions. The study, which involved medical professionals in both urban and rural areas, found differences in provider education, protocol compliance, and the accessibility of counseling and support services. The efficacy of PMTCT interventions was hampered by these disparities, especially in rural areas with sparse healthcare resources and infrastructure [42].

Interventions that are specifically designed for the local context are necessary to address these issues and enhance access to PMTCT services in rural Nigerian areas. The gap in service availability can be closed with the use of tactics like establishing mobile clinics, bolstering community health worker programs, and building out the healthcare infrastructure [40]. For pregnant women in rural areas to receive timely diagnosis and begin treatment, it is also essential to streamline referral systems and guarantee testing kits and antiretroviral medications are consistently available.

Improving the effectiveness of interventions and lowering the risk of MTCTs both depend on improving the quality of PMTCT services. The implementation of standardized clinical protocols, the creation of quality assurance mechanisms, and training programs for healthcare staff on PMTCT prevention can all contribute to ensuring that all healthcare facilities provide high-quality care [41].

#### 2.2.2 Provider training

In order to improve the caliber and efficacy of PMTCT (Prevention of Mother-to-Child Transmission) services in Nigeria, provider training is essential. Research carried out in Nigeria has illuminated the significance of providing healthcare workers with the necessary tools, abilities, and mindset to provide

HIV-positive moms with the best possible care. For example, a study conducted in Nigeria by Abdullahi et al. [44] evaluated the degree of PMTCT training possessed by healthcare providers. The study, which involved 400 healthcare workers as a sample, found that there were notable gaps in PMTCT training, with a sizable percentage of providers not knowing enough about PMTCT protocols and best practices [44].

Additionally, Ibrahim et al.'s study [45] looked into how provider training affected the caliber of PMTCT services in Nigeria. The study, which involved medical professionals from different hospitals around the nation, emphasized the value of ongoing education in enhancing physicians' compliance with set rules and procedures. The study did note, however, that there are still difficulties in providing regular and thorough training opportunities for healthcare staff [45].

Targeted interventions with an emphasis on provider education and training are crucial to closing these gaps and raising the standard of PMTCT services in Nigeria. Healthcare personnel can benefit from ongoing training programs, workshops, and refresher courses designed to close knowledge gaps and guarantee adherence to PMTCT protocols and best practices. Furthermore, programs that use sensitivity training and community engagement to foster empathy and lessen stigma are essential for encouraging positive attitudes among healthcare providers toward mothers living with HIV.

To ensure that all healthcare facilities in Nigeria are providing high-quality PMTCT services, it is equally important to implement strong accountability measures and monitoring mechanisms to track provider adherence to established guidelines [42][43].

### 2.2.3 Resource allocation

Research conducted in Nigeria has revealed that the country's healthcare system faces persistent underfunding, a shortage of qualified personnel, and an uneven distribution of resources. Research conducted by Adegoke et al. [46] and Uzochukwu et al. [47] highlights the difficulties caused by crammed facilities, inadequate equipment, and irregular supply of necessary drugs and supplies in Nigerian healthcare facilities [46][47]. The quality and efficacy of Prevention of Mother-to-Child Transmission (PMTCT) services are severely hampered by these problems, which results in less than ideal outcomes for mothers living with HIV and their kids.

To be more precise, crammed facilities with insufficient resources lead to long wait times, strained relationships between patients and providers, and a delay in starting PMTCT interventions. Additionally, a lack of qualified workers leads to poor quality of care because medical staff is frequently overburdened by the large number of patients they treat and is unable to offer complete PMTCT services. The situation is made worse by the irregular availability of basic supplies and medications, which makes it difficult for pregnant women to get antiretroviral therapy (ART) and other interventions that are required to stop HIV from being passed from mother to child.

Targeted interventions are crucial to addressing these issues and enhancing PMTCT outcomes in Nigeria. Sufficient funding for the healthcare system, based on data from research conducted specifically in Nigeria, is essential to tackling deficiencies in infrastructure and resource availability. Improved resource allocation strategies are crucial to ensuring fair resource distribution and improving service delivery in underserved areas, according to research by Onwujekwe et al. [48].

Moreover, novel strategies such as task-shifting, which have been proven effective in comparable settings in other Sub-Saharan African nations, show promise in mitigating staffing shortages and enhancing

healthcare accessibility. Task-shifting programs use the knowledge of non-physician cadres, such as community health workers, to provide PMTCT interventions and other critical healthcare services. Comparably, telemedicine services present a workable way to get around geographical constraints and increase access to professional care, especially in isolated and underprivileged areas of Nigeria [46][47].

### 2.3 Societal and Cultural Factors

Societal and cultural factors refer to the norms, values, and practices of communities and families that influence the perception and behavior of pregnant women and their partners regarding HIV and PMTCT. These factors include breastfeeding and postnatal practices, and social support networks.

#### 2.3.1 Breastfeeding and postnatal practices

Breastfeeding is a major route of MTCT, especially in settings where exclusive breastfeeding is not practiced or feasible. However, breastfeeding is also a deeply ingrained cultural practice and a symbol of motherhood and bonding in many Nigerian communities. Studies reveal that many women face pressure from their families and communities to breastfeed their infants, regardless of their HIV status or knowledge of the risks. Interestingly, Umeobieri*et al* [46] reported that breastfeeding remains a common trend among HIV positive women and it is associated with economic independence of women and social support . Moreover, some communities have postnatal rituals and infant cleansing practices that involve the use of unsterilized instruments or substances that could transmit HIV. Communities have been reported to practice traditional infant cleansing methods, such as cutting the umbilical cord with a razor blade or applying cow dung to the wound. These practices inadvertently increase MTCT risk and undermine PMTCT efforts [47]. Culturally sensitive interventions engaging communities to discuss harmful practices and promote safe alternatives are crucial. Empowering traditional birth attendants and community leaders to disseminate accurate information about MTCT while respecting cultural values can bridge the gap between tradition and evidence-based practices.

#### 2.3.3 Social support networks

The strength and quality of social support networks significantly impact women's ability to access healthcare and adhere to treatment regimens [48]. Social support networks can provide emotional, informational, and material assistance to HIV-positive mothers, enhancing their coping and resilience. However, many women in Nigeria lack adequate social support networks, due to stigma, discrimination, isolation, or lack of disclosure [49]. Strengthening social support networks through community-based support groups, peer counseling programs, and partnerships with civil society organizations provides invaluable assistance to HIV-positive mothers. Addressing stigma within communities and fostering an environment of acceptance and compassion builds strong social support systems that empower women to prioritize their health and their children's well-being.

#### 2.3.4 Male Partner Involvement

Traditionally overlooked in the fight against Mother-to-Child Transmission (MTCT) of HIV/AIDS, fathers play a crucial, yet often neglected, role in prevention. A renewed focus on enhancing male involvement in PMTCT promises significant strides towards eliminating vertical transmission [50]. This requires emphasizing the multifaceted contributions men can make, while simultaneously addressing the barriers that limit their participation.

First and foremost, encouraging partner testing and counseling in Nigeria is essential to enabling men to know if they are HIV positive, take proactive family planning measures, and stop the virus from spreading. Studies carried out in Nigeria, like the one by Okechukwu et al. [52], highlight the value of couple-based counseling in raising the proportion of male HIV testers and encouraging candid discussions about reproductive health [54]. The results of research such as this one emphasize how crucial it is to support combined testing and counseling as the cornerstone of interventions for PMTCT (Prevention of Mother-to-Child Transmission) in Nigeria.

Second, in Nigeria, actively promoting men to go with their partners to prenatal care and Prevention of Mother-to-Child Transmission (PMTCT) services strengthens maternal support and promotes shared responsibility. Male partner involvement in prenatal care improved mother adherence to antiretroviral therapy (ART), according to a study done in the Nigerian context by Ibrahim et al. [56], underscoring the concrete advantages of male presence in the path to a healthy birth. Bridging the gap and promoting male involvement in PMTCT interventions in Nigeria can be achieved through incorporating partner education and support systems into the country's prenatal care structures.

Thirdly, by presenting positive male role models who are actively involved in PMTCT (Prevention of Mother-to-Child Transmission) in Nigeria, negative stereotypes can be debunked and other men are encouraged to emulate them. There isn't much research on this subject that is specifically about Nigeria, but studies done in related settings show how successful community-based interventions with men who actively support their HIV-positive partners and advocate for responsible fatherhood are [56]. In Nigeria, telling these tales via media campaigns and community outreach initiatives can change negative stereotypes and encourage more men to participate in PMTCT treatments.

It is equally important, though, to identify the obstacles preventing men from participating in PMTCT (Prevention of Mother-to-Child Transmission) in Nigeria. Advocacy campaigns that are culturally aware and customized to the views and beliefs of the community regarding the role of men in reproductive health are crucial. Studies that are particular to Nigeria, like the work done by Ezeanolue et al. [59], emphasize how critical it is to dispel cultural myths about HIV and masculinity in order to create more accepting communities and promote candid conversations about male involvement. Moreover, as research by Aderinto et al. [60] shows, addressing financial concerns about HIV testing and PMTCT participation can encourage male involvement. The aforementioned results highlight the necessity of focused interventions that tackle cultural and economic obstacles in order to foster significant male involvement in PMTCT initiatives in Nigeria.

Last but not least, establishing safe spaces through community forums and men's groups for candid conversations about HIV, fatherhood, and shared responsibility encourages participation and understanding in Nigeria. Studies carried out in the Nigerian context highlight the value of culturally appropriate methods and highlight the efficiency of peer-led interventions in dismantling stigma and giving men a forum to voice their worries and difficulties. For example, a study conducted by Oche et al. [61] emphasizes the role that men's groups play in encouraging male participation in PMTCT programs. These platforms for candid communication can enable men to dispel misconceptions and anxieties unique to the Nigerian setting, which will ultimately increase their involvement in PMTCT initiatives.

## 2.4 Conclusion

The challenge at hand in addressing mother-to-child transmission (MTCT) of HIV/AIDS in Nigeria is substantial, yet the potential rewards are profound. A multi-level, intersectoral approach is essential, extending beyond healthcare interventions to encompass the intricate social, economic, and cultural determinants influencing MTCT. This comprehensive strategy aims to envision a future where no child in Nigeria is born with HIV, necessitating unwavering commitment, collaborative efforts, and a steadfast belief in a healthier, brighter future for mothers and children nationwide.

This transformative journey requires addressing not only healthcare aspects but also the underlying factors perpetuating MTCT. From individual-level challenges like knowledge gaps, stigma, and socioeconomic disparities to health system complexities such as geographical disparities and resource allocation, each facet demands targeted interventions. Recommendations drawn from both qualitative and quantitative evidence provide a practical roadmap for action.

Importantly, the approach must extend beyond healthcare institutions to challenge societal norms, empower women through economic opportunities, and foster gender equality. Culturally sensitive interventions, collaboration with traditional birth attendants and community leaders, and encouragement of male partner involvement form integral components of this comprehensive strategy. Strengthening legal frameworks and optimizing data management further reinforce the collective response.

While acknowledging the limitations of existing literature, this review emphasizes the ongoing need for research and evaluation. Despite the substantial nature of the challenge, success lies in unwavering commitment, collaborative efforts, and a steadfast belief in the potential for a healthier, brighter future for mothers and children nationwide. Through this concerted, multi-dimensional effort, the aspiration is to eliminate MTCT of HIV/AIDS in Nigeria and contribute to broader global advancements in preventing and eradicating this pervasive health threat.



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