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Understanding HIV-Free Survival: A Qualitative Analysis of Factors Impacting Exposed Infants in Homa Bay County, Kenya

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Abstract

Introduction: Prevention of mother-to-child transmission (PMTCT) programs significantly reduce HIV transmission from mothers to children. However, uptake remains low in high-prevalence areas such as Homa Bay County, Kenya. Socio-economic, cultural, and logistical factors continue to limit integration of PMTCT into maternal and child health services.

Methods: This qualitative study explored barriers and enablers of PMTCT service uptake among HIV-positive mothers. Data were collected from 13 key informant interviews with healthcare providers and eight focus group discussions with HIV-positive mothers across seven sub-counties of Homa Bay County. Thematic analysis was guided by the Gioia methodology to identify first-order concepts, second-order themes, and aggregate dimensions.

Results: Participants identified major barriers including stigma, economic hardship, transportation challenges, cultural norms, misinformation, and gaps in the referral system. Enablers of service uptake included male partner involvement, effective service delivery models, peer support systems, and community sensitization. Emotional and nutritional support, alongside consistent health education, were seen as essential for improving adherence to PMTCT protocols.

Conclusion: Improving PMTCT uptake in high HIV-prevalence settings requires addressing both systemic and sociocultural barriers. Interventions should enhance male participation, community engagement, service integration, and referral coordination. These findings support the need for multifaceted, context-sensitive strategies to strengthen PMTCT outcomes in Homa Bay County.

Keywords: PMTCT, HIV, maternal health, barriers to care, qualitative study, Homa Bay County.

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Introduction

Approximately 2.5 million children live with HIV, with the majority residing in sub-Saharan Africa.[1] Many acquire the infection from their mothers during birth, breastfeeding, or pregnancy.[2-3] Mother-to-child transmission (MTCT) remains the most significant source of HIV in children.[4] Hence, one of the most crucial areas of intervention to prevent HIV transmission is the introduction of Prevention of Mother-to-Child Transmission (PMTCT) programs.[5] During pregnancy, labor, delivery, and breastfeeding, PMTCT therapies help prevent HIV transmission from an infected mother to her child.[6] Timely administration of antiretroviral therapy (ART) to an HIV-positive pregnant woman and her unborn child dramatically lowers the risk of MTCT.[7,8] Consequently, PMTCT is now regarded as a critical public health strategy.[9-11]

PMTCT interventions can reduce HIV transmission risk from 45% to 5% during pregnancy, delivery, and lactation.[4] The World Health Organization (WHO) recommends Option B—lifelong ART for all HIV-positive pregnant and nursing women, regardless of clinical condition.[12] Early infant diagnosis (EID) programs track HIV-exposed infants until the age of two.[4] In 2002, the United Nations (UN) established a four-

pronged approach aimed at preventing HIV in reproductive-age women, reducing unintended pregnancies among HIV-positive women, limiting mother-to-child transmission, and providing care for affected families.[13] This approach seeks to reduce HIV transmission, increase ART access, and improve survival outcomes.[14,15]

Kenya began implementing PMTCT initiatives as stand-alone projects in 2002.[16] Despite the success of these programs, a significant number of mothers continue to drop out, primarily due to the stigma associated with Comprehensive Care Clinics (CCCs).[17] PMTCT is increasingly being integrated into maternal and newborn healthcare services.[18] Combining PMTCT with other healthcare services aims to enhance access for women and children while optimizing financial and human resources to improve service quality.[19] Moreover, integrating PMTCT into routine medical care may help reduce the stigma faced by HIV-positive women.[20]

Although the Kenyan government has expanded PMTCT services, HIV-infected women still encounter various barriers.[21] Socioeconomic and cultural factors remain critical obstacles to care.[22-24]

Homa Bay County, located in western Kenya, has one of the highest HIV incidence and prevalence rates in the country.[21] The county contributes approximately 15% of new HIV cases.[25] However, limited empirical studies have explored socio-demographic determinants of PMTCT uptake. While logistical and economic barriers to PMTCT services have been studied,[26] the impact of community attitudes, gender norms, stigma, and traditional beliefs remains underexplored.[27] Additionally, male involvement and psychosocial support networks in PMTCT are understudied.[28] Addressing these knowledge gaps requires culturally sensitive approaches that encourage service utilization. This study was conducted to investigate the key barriers and enablers influencing PMTCT service utilization in Homa Bay County.

Methods

Study Design

This study employed a qualitative exploratory research design to examine barriers and enablers affecting PMTCT service uptake in Homa Bay County. Data collection involved 13 key informant interviews with healthcare providers and eight focus group discussions with HIV-positive mothers. The Gioia methodology was applied for thematic analysis and data categorization.

Study Area

The study area was Homa Bay County, located in western Kenya along the shores of Lake Victoria. The county is primarily inhabited by fishermen, farmers, and small traders, with much of the population living in poverty. It also has one of the highest HIV prevalence rates in Kenya, posing significant healthcare challenges.[25]

Data Collection

The researcher conducted key informant interviews with and aim of learning the experiences of the MTCT program managers on the PMTCT programmes in the seven Sub Counties of Homa Bay County. The study used key informant interviews to learn about the experiences of the MTCT program managers on the PMTCT programs in the seven Sub-counties in Homa Bay County. To augment this data, the researcher also conducted eight focus group discussions (FGDs) with mothers. The study's focus group discussions (FGDs) offered detailed insights into the difficulties and experiences of mothers and guardians participating in PMTCT programs in Homa Bay County's seven sub-counties.

Data Analysis

In line with the inductive and interpretive approach, and following the Gioia methodology, in this study the researcher shifted back and forth between exploring theory and analysing the data collected from the interviews and focus groups. The analysis was structured as follows. First, there was first order analysis which led to identification of codes and categories, based on recurrent expressions by the participants. In this first step, the researcher stayed very close to the respondents' language, thereby grounding the understanding in the empirical case. Afterward, the researcher abstracted the categories into second order themes. In this step, the findings were juxtaposed with existing literature. It led to refining of codes and concepts between theory and data. In the final step, the data-driven categories and theoretically informed themes were aggregated into dimensions, following the recommendations of Gioia, Corley, and Hamilton.[28]

Results and Analysis

Demographic Characteristics of Participants

In total, there were 13 KIIs and 8 FGDs conducted for this study. The demographic details of the participants in the interviews are summarised in Table 1. All participants had undergone PMTCT training between 2012 and 2015, ensuring substantial experience in providing PMTCT services.

Table 1. Demographic Details of Key Informant Interview Participants

Participant	Facility	Profession	PMTCT Training (Year)	Key Duties	Date of Interview
Participant 1	Nyangiela H/C	Nursing Officer	2012	Refill ARVs, antenatal services, discuss clients failing medication, client reminders, health education	22/02/2021
Participant 2	Ndiru H/S	Nurse	2012	Refill ARVs, general check-ups, counseling, timely VR/PCR uptake, antenatal services, tracing clients	10/06/2021
Participant 3	Nyangiela H/C	Nursing Officer	2014	Timekeeping, counseling, client bookings, health education, follow-ups	22/02/2021
Participant 4	Ndiru H/S	Nurse	2015	Refill ARVs, VR/PCR for HEI, antenatal services, counseling, tracing clients	10/06/2021
Participant 5	Konyango H/C	Nurse	2012	Counseling, ARV/prophylaxis refill, home visits, client follow-ups	10/03/2021
Participant 6	Miranga H/C	Nurse	2012	ARV refills, health education, ANC, follow-ups, client tracing	11/05/2021
Participant 7	Ndhiwa Sub-County H/S	Clinical Officer	2012	Health education, day-to-day care, linkage to ARVs, physiological support	14/07/2021
Participant 8	Ngegu Dispensary	Nursing Officer	2012	ARV refills, adherence counseling, nutritional education, PCR/HEI follow-ups	10/03/2021
Participant 9	Miranga H/C	Nurse	2012	Day-to-day care, maternal health education, follow-ups, client defaulter tracing	11/05/2021
Participant 10	Ny Wa H/C	Clinical Officer	2012	ARV refills, nutritional counseling, adherence counseling, client follow-ups	13/04/2021
Participant 11	Ober Health Center	Nurse	2013	ARV refills, client follow-ups, physiological support, continuous health education	14/04/2021
Participant 12	Rangwe Sub-County Hospital	Nursing/ Clinical Officer	2012	Day-to-day care, ARV refills, health education, community sensitization	10/03/2021
Participant 13	Nyangiela H/C	Nursing Officer	2014	Counseling, community sensitization, continuous health education, follow-ups	22/02/2021

Table 1 presents the demographic details of key informant interview participants, including their respective healthcare facilities, professional designations, years of PMTCT training, key responsibilities, and the dates when interviews were conducted.

Thematic Analysis

Transcripts from semi-structured interviews and focus groups were coded to identify first-order concepts, grouped into second-order themes, and further refined into aggregate dimensions. A data structure was then created to visualize emerging themes and concepts. Figure 1 provides the data structure that shows the first order codes, themes, and aggregate dimensions. Based on the Gioia methodology, seven main themes emerged which were grouped into three aggregate dimensions.

- *Barriers and enablers of access*- includes two themes: Barriers to accessing PMTCT services; and male involvement in PMTCT.
- *Service delivery and implementation*- includes three themes: effective service delivery, adherence to treatment protocols, and infant feeding practices.
- *Psycho-social and cultural dynamics*- includes two themes; socio-cultural dynamics that shape perceptions and behaviours and psycho-social and emotional needs.

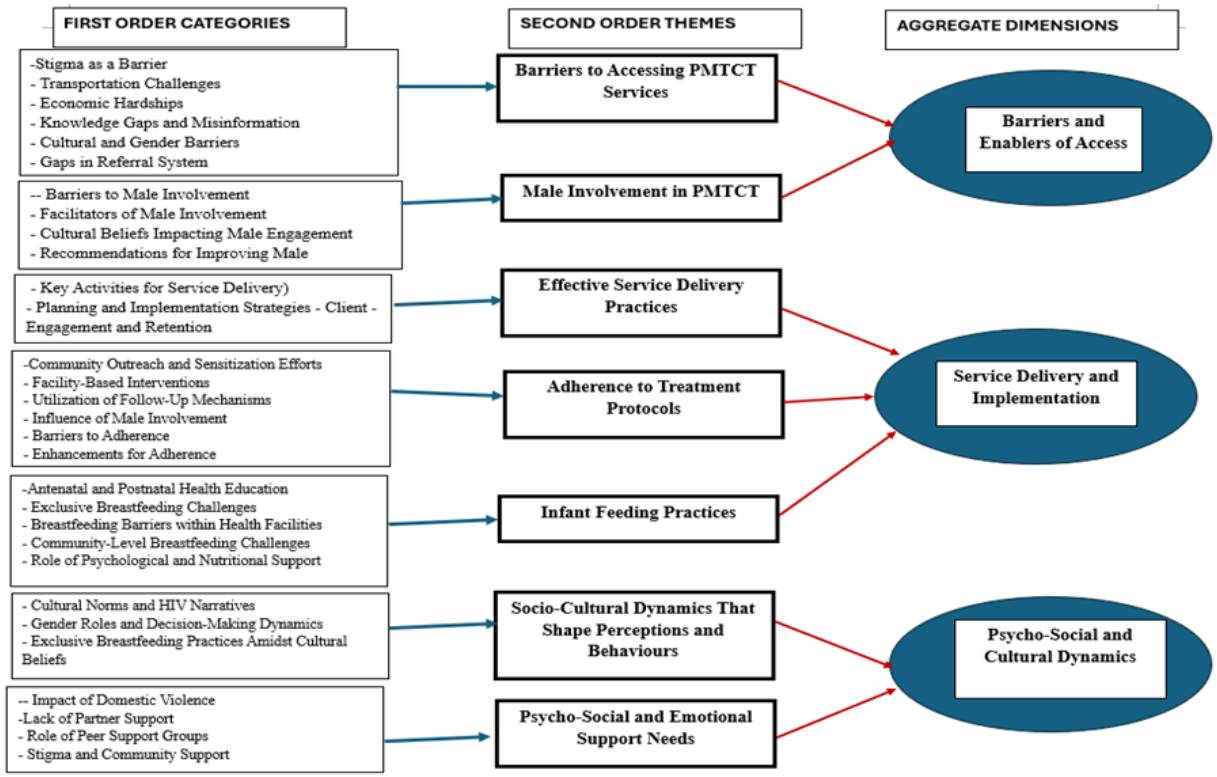

Figure 1. Data structure showing the first order categories, themes, and aggregate dimensions. (Figure 1 illustrates the data structure derived from the thematic analysis, detailing the first-order categories, second-order themes, and aggregate dimensions. The figure organizes key findings into seven themes, grouped under three aggregate dimensions.)

Theme 1: Barriers to accessing PMTCT Services

The theme captures the diverse challenges that prevent effective utilization of programs designed to reduce mother-to-child transmission of HIV. Insights from participants in interviews and focus groups highlight key barriers, including stigma, transportation difficulties, financial constraints, limited awareness, cultural and gender norms, and gaps in referral systems. From the interviews and focus group discussions, various barriers were identified, as summarised in Table 2. They include stigma, transportation challenges, economic hardships, knowledge gaps and misinformation, cultural and gender barriers, and gaps in referral system.

Table 2. Subthemes for Barriers to Accessing PMTCT Services

Subtheme	Description	Representative Quote
Stigma as a Barrier	Fear of being identified as HIV-positive deters clients from seeking PMTCT services.	*"Some clients refuse care because they are afraid of being identified as HIV-positive in the community"* (Interview Participant 11).
Transportation Challenges	Long distances and high transportation costs hinder access to PMTCT services.	*"Transportation can be difficult, too. Sometimes the clinics are far away, and getting there is expensive"* (Focus Group 7 Participant).
Economic Hardships	Financial difficulties prevent clients from affording transport and associated costs of PMTCT care.	*"Many clients cannot afford transport or other associated costs"* (Focus Group 6 Participant).
Knowledge Gaps and Misinformation	Lack of awareness and misconceptions about PMTCT limit service utilization.	*"Some clients are unaware of the importance of seeking PMTCT services"* (Interview Participant 9).
Cultural and Gender Barriers	Traditional gender roles and cultural norms discourage male involvement and restrict support for women accessing PMTCT.	*"Cultural beliefs often dictate that women handle health matters alone, making it hard for them to access necessary support"* (Focus Group 8 Participant).
Gaps in Referral System	Poor communication, financial strain, and inadequate guidance hinder successful follow-up of referrals.	*"Clients often fail to follow referrals due to a lack of resources and inadequate guidance"* (Focus Group 8 Participant).

The table summarises subthemes for barriers to accessing PMTCT services, including stigma, transportation challenges, economic hardships, knowledge gaps, cultural and gender barriers, and referral system gaps, with corresponding descriptions and representative quotes from participants.

Stigma as a barrier: One of the biggest obstacles to PMTCT services was stigma. Many participants avoided getting assistance out of fear of community criticism and rejection. One participant noted as follows, *"Some clients refuse care because they are afraid of being identified as HIV-positive in the community"* (Interview Participant 11). Fear of exposure shows how stigma prevents people from using PMTCT treatments and isolates them from crucial social and emotional support networks. The fear of being criticized by neighbours or family discourages health-seeking. Another participant reflected on how stigma is reinforced by societal attitudes, *"Stigma is a huge barrier. Some people in our community look down on us for being HIV-positive, making it hard to seek help"* (Focus Group 7 Participant). This comment shows how stigma makes people internalize societal criticism and isolate themselves. Perceptions like this delay or prevent care, increasing health risks for moms and children.

Transportation Challenges: Transportation issues make PMTCT services harder to access, especially in rural areas where health facilities are far apart and travel costs are high. One participant highlighted, *"Poverty makes it difficult for clients to travel to high-level facilities when referred"* (Interview Participant 6). Since rural residents lack affordable and dependable transportation, this statement highlights the simultaneous challenges of distance and economic hardship. Without transportation, some miss important follow-up appointments or delay care. Another participant noted the economic burden of traveling to distant clinics, "*Transportation can be difficult. Clinics can be far and expensive to reach*" (Focus Group 7 Participant). These logistical issues demonstrate how geography and budget limit access to vital services, especially for low-income communities.

Economic Hardships: The greatest hurdle to PMTCT services was poverty. Financial constraints prohibited many from prioritizing healthcare. A participant said, "*Many clients cannot afford transport or other associated costs*" (Interview Participant 13). This comment shows how PMTCT costs encompass daycare, lost earnings, and dietary needs in addition to transportation. Another participant stated, "Poverty is a major reason clients fail to adhere to referrals or access services" (Interview Participant 13). Financial pressures keep people from following their care, creating a loop.

Knowledge Gaps and Misinformation: Many participants said that a lack of awareness and ignorance regarding PMTCT services deter individuals from seeking care. One participant said, *"Some clients are unaware of the importance of seeking PMTCT services"* (Interview Participant 9). Poor community education sometimes leaves people unaware of the benefits of early and regular engagement with PMTCT programs. Another participant said, *"There's also a lot of misinformation about HIV and PMTCT, so some women don't know they should seek these services"* (Focus Group 7 Participant). Myths surrounding HIV transmission and PMTCT services encourage avoidance, particularly in communities where misinformation prevails.

Cultural and Gender Barriers: Many participants see the lack of male involvement in healthcare decision-making as a significant barrier to PMTCT services for women. *"Many men feel they shouldn't be involved in women's health matters, which can limit their participation"* (Focus Group 7 Participant), indicating how gender norms drive women to make healthcare decisions without adequate support. Another Focus Group 8 participant said, *"Cultural beliefs often dictate that women handle health matters alone, making it hard for them to access necessary support."* These findings emphasize the critical influence of cultural attitudes and highlight the need for community engagement to foster gender parity in healthcare.

Gaps in the Referral System: Barriers within the referral system emerged as another significant challenge to accessing PMTCT services. Poor communication and the financial burden of referrals often prevent clients from following through with recommended care. One participant explained, *"Poverty makes it difficult for clients to travel to high-level facilities when referred"* (Interview Participant 6), highlighting the practical difficulties faced by individuals who are referred to higher-level facilities but cannot afford the associated costs. Another participant emphasized the lack of clarity in the referral process, stating, *"Clients often fail to follow referrals due to a lack of resources and inadequate guidance"* (Interview Participant 8). These insights reflect systemic inefficiencies within the referral system, where inadequate communication and support mechanisms contribute to missed opportunities for essential care.

Participants emphasized the need for structured support mechanisms to facilitate referrals. A nurse suggested, *"Clients should be supported so that most services they are referred for are either free or subsidized."* (Interview Participant 6). Another participant added, *"If proper communication is done before the referral, it would help reduce confusion and ensure that clients know exactly where to go and what to expect."* (Interview Participant 10). This lack of coordination and support for clients highlights gaps in the current referral systems. Follow-up was another area where participants saw room for improvement. One nurse remarked, *"We refer clients, but there is no follow-up to see if they made*

it to the referral facility or received the care they needed." (Interview Participant 5). Ensuring continued engagement after referral was identified as a critical step to improving health outcomes and minimizing care disruptions.

Theme 2: Male involvement in PMTCT services

Male involvement plays a pivotal role in enhancing the uptake and success of PMTCT services. While traditionally viewed as a maternal health issue, the integration of male partners into these programs can lead to improved adherence, reduced stigma, and greater emotional support for HIV-positive mothers. However, societal norms, cultural beliefs, and logistical barriers often exclude men from actively participating in maternal and child health. This theme explores the factors limiting male participation, strategies to facilitate their involvement, and the wide-ranging benefits of male engagement in PMTCT services.

Participants identified several barriers hindering male involvement in PMTCT services. One key issue was the stigma men face when attending clinics. A participant expressed, *"Fears to sit in between women because of stigma. Other women will also know that they are also positive."* Another barrier is the demanding nature of men's work, particularly for those engaged in night fishing, which limits their availability during clinic hours. One participant explained, *"Being they are fishing at night, they are not getting time to come with their wives because during the day they are sleeping"* (Focus Group 3 Participant). Logistical challenges, such as long waiting times and the perception that clinic settings are designed primarily for women, also discourage male involvement. One participant emphasized, *"They are waiting for long before being served, and booking makes it difficult for male involvement"* (Interview Participant 9). These systemic issues exacerbate the reluctance of men to participate actively in PMTCT initiatives.

Participants highlighted the need for structural adjustments and community-level advocacy to improve male participation. Prioritizing men at clinics was suggested as an effective strategy, with one participant noting, *"Being given first priority as they come for PMTCT services encourages attendance."* Another added that respectful communication from healthcare workers could further motivate male involvement, stating, *"By talking to them in a friendly manner and not shouting at them when they missed their appointment."* (Interview Participant 3). Community-based interventions such as education programs for men and support groups were also recommended. A focus group participant suggested, *"Encouraging community leaders to advocate for male engagement can help shift perceptions,"* reflecting the potential of leadership to influence societal attitudes (Focus Group 7).

Cultural beliefs pose significant challenges to male involvement. Many men perceive reproductive health as solely a woman's domain, which limits their willingness to participate. A participant remarked, *"In our culture, many still believe that issues related to HIV and health care are women's responsibilities"* (Focus Group 5 participant*).* This cultural norm reinforces the idea that men's involvement in such issues challenges traditional gender roles. There are also concerns about masculinity being questioned. One participant elaborated, *"Some men worry about challenges to their masculinity if they show involvement in what is seen as a female issue"* (Focus Group 1 participant) These cultural stigmas necessitate targeted interventions to address deep-rooted perceptions about gender roles and health responsibilities.

Participants proposed various strategies to enhance male participation. Regular health education targeting men and couples was emphasized as a critical measure. A participant suggested, *"Conduct health education regularly when they come for their visits"* (Interview Participant 10). Additionally, integrating home visits to educate and support families could bridge existing gaps. One participant recommended, *"Conduct home visits to see how they stay and how they give prophylaxis to their infants "* (Interview Participant 1). These insights underline the importance of multi-faceted approaches that combine systemic changes, community engagement, and cultural sensitivity to promote male involvement in PMTCT services.

Theme 3: Effective service delivery practices

Effective PMTCT service delivery is crucial for client adoption and adherence. This theme includes scheduled activities, thorough preparation, and customer retention techniques. It stresses the importance of healthcare professionals in closing service gaps, following up with clients, and building trust. ARV refills, prenatal services, counselling, health education, and community involvement address service delivery and accessibility. The participants in this study identified key activities for service delivery, planning and implementation strategies, and client engagement and retention strategies (Table 3).

Table 3. Effective Service Delivery Practices

Subtheme	Category/Activity	Representative Quote
Key Activities for Service Delivery	ARV Refills and Client Check-ups	*"Refill of ARVs and general checking of clients"* (Interview Participants 1, 2, 5, 9, 10, 12).
	Providing Antenatal Services	*"Providing antenatal services"* (Interview Participants 1, 2, 9, 10).
	Counseling and Adherence Discussions	*"Discussing clients who are failing on medication"* (Interview Participants 1, 2, 5, 9, 12).
	Health Education and Physiological Support	*"Health education and physiological support provided before seeing clients"* (Interview Participants 2, 4, 6).
	Infant Feeding Health Education	*"Teaching the importance of exclusive breastfeeding for six months"* (Interview Participants 4, 6, 9).
	Follow-ups and Tracing	*"We trace clients who miss appointments to ensure they return for care"* (Interview Participants 1, 2, 4, 6).
Planning and Implementation Strategies	Daily Bookings and Appointment Scheduling	*"Activities are planned by booking clients daily"* (Interview Participants 1, 4, 6).
	Community Sensitization and Awareness	*"Community sensitization programs to reduce stigma and encourage service uptake"* (Focus Group 7: Participants 15, 25).
	Peer and Mentor Support	*"Involving peer educators and mentor mothers in PMTCT services"* (Interview Participants 6, 9).
	NGO and Government Support	*"These activities are supported by the Ministry of Health and EGPAF"* (Interview Participants 4, 6, 9, 10).
Client Engagement and Retention	Timely Follow-ups	*"Phone reminders help clients stay engaged in PMTCT care"* (Interview Participants 1, 6, 9).
	Privacy and Confidentiality	*"Maintaining privacy encourages clients to continue care"* (Interview Participant 6).

Table 3 shows the subthemes for effective service delivery practices, detailing key activities (ARV refills, antenatal services, counselling, health education, and follow-ups), planning and implementation strategies (community sensitization, peer support, external support), and client engagement and retention approaches, with representative quotes from participants.

Improving client adherence, adoption, and health outcomes requires efficient PMTCT service delivery. This theme highlights important initiatives, strategic planning, and engagement strategies meant to close service gaps and guarantee continuity of care. The provision of integrated services, including counselling, health education, prenatal care, ARV refills, and community outreach, is crucial for sustaining adherence, according to the participants. "*Our main duties are to provide antenatal services and refill ARVs*" (Interview Participant 9). Frequent ARV refills and prenatal care improve patient-provider connections and minimise medication interruptions, which eventually improve PMTCT results.

Counselling has become a vital part of service delivery, helping clients deal with medication issues and combat stigma. One participant noted, "*We talk about clients who are not taking their medications as a way to understand their problems and find solutions*" (Interview Participant 1). Building trust and promoting adherence are two benefits of empathic involvement, particularly for patients who are dealing with negative pharmacological effects or social stigma. Health education programs also help to clarify myths about things like the dangers of nursing for women with HIV. According to one medical professional, "*Teaching women about exclusive breastfeeding helps them protect their babies"* (Interview Participant 4). Having accurate information enhances adherence to PMTCT treatments and empowers women to make educated decisions.

Maintaining care continuity through systematic follow-ups and client tracing was another critical finding. Phone reminders and proactive tracing efforts were cited as effective tools for re-engaging clients who missed appointments. "*We trace clients who miss appointments to ensure they return for care*," said a participant (Interview Participant 6). Such initiatives are particularly impactful in rural areas, where logistical challenges often hinder consistent healthcare access.

The study also highlighted planning and implementation strategies that optimize healthcare delivery. Daily appointment scheduling was a common practice to reduce overcrowding and improve service efficiency. "*Activities are planned by booking clients daily to avoid overcrowding*," explained one respondent (Interview Participant 6).

Community sensitization and awareness campaigns were noted as effective in reducing stigma and promoting service uptake, with local leaders and peer educators playing key roles in outreach efforts. One participant stated, "*Community sensitization programs help reduce stigma and encourage mothers to seek care*" (Focus Group 7 Participant). Furthermore, involving mentor mothers fosters emotional support and inspires clients, as reflected in the comment, "Involving mentor mothers helps clients see that living positively is manageable" (Interview Participant 8).

External support from NGOs and government agencies enhances service delivery by providing resources and expertise. "*These activities are supported by NGOs, which makes it easier to reach more clients*" (Interview Participant 10). Such partnerships strengthen healthcare systems and expand PMTCT coverage.

Client engagement and retention are fundamental to achieving positive health outcomes. Participants highlighted the importance of timely reminders and maintaining confidentiality during consultations. "*Phone reminders help clients stay engaged in PMTCT care*" (Interview Participant 1). Ensuring privacy during consultations was also deemed essential in fostering trust and comfort, as noted by a respondent: "*Privacy during consultations helps mothers feel comfortable and safe" (*Interview Participant 6). These practices reduce stigma, enhance trust, and improve adherence.

Theme 4: Adherence to treatment protocols

HIV therapy and mother-to-child transmission prevention depend on protocol adherence. Interviews and focus groups revealed healthcare facilities' tactics, community and facility-based interventions, follow-up mechanisms and counseling, and male involvement. Several barriers affect adherence rates, and participants suggested ways to improve treatment consistency. Table 4 summarizes key concepts under this theme as identified from the study.

Table 4. Subthemes and representative quotes for adherence to treatment protocols

Subtheme	**Description**	**Representative Quotes**
Community Outreach and Sensitization Efforts	Focus on educating communities to reduce stigma and encourage uptake of services and adherence to treatment.	*"We onduct community awareness campaigns to educate people on HIV, its treatment, and why adherence is important"* (Interview Participant 1).
Facility-Based Interventions	Strategies implemented at healthcare facilities, including routine education, service integration, and specialized support.	*"ARVs are provided alongside counseling and nutritional education, all under one roof"* (Key Informant Interview); *"We are reminded of our appointments during every clinic visit"* (Focus Group 4 Participant).
Utilization of Follow-Up Mechanisms, Reminders, and Counseling	Tracking clients through reminders, counseling, and tracing missed appointments to sustain adherence.	*"Mentor mothers and peer educators are key in following up with patients"* (Key Informant Interview).
Influence of Male Involvement in Maintaining Treatment Consistency	The role of male support in enhancing adherence among mothers and families.	*"When husbands accompany their wives to clinics, it boosts the women's confidence and encourages them to stick to their treatment"* (Interview Participant 11)
Barriers to Adherence	Factors such as stigma, domestic violence, food insecurity, and financial constraints that hinder treatment adherence.	*"Mothers lack enough food to eat to provide breast milk and sustain their health while on medication"* (Interview Participant 3).
Proposed Enhancements for Adherence	Suggestions for improving adherence, including integrating services and providing psychosocial and economic support.	*"Providing all services under one roof"* (Interview Participant 5); *"Ensure active support group"* (Interview Participant 4, 7, 8, and 9).

Table 4 presents subthemes and representative quotes related to adherence to treatment protocols, including community outreach efforts, facility-based interventions, follow-up mechanisms, the influence of male involvement, barriers to adherence, and suggested enhancements to improve adherence.

The study found that community outreach and facility-based treatments improve PMTCT adherence. Community awareness campaigns coordinated by trustworthy local leaders and peer educators reduce stigma and boost treatment uptake. These activities made HIV discussions more comfortable, participants claimed. However, stigma and resource limits limit their potential, requiring more money and training. Access is improved via facility-based ART, nutritional counselling, and psychological support. Understaffing and large patient volumes hinder responsibility and trust, although appointment reminders and planned therapy sessions help.

Following these methods, counselling and follow-up sustain adherence. Mentor mothers, peer educators, and mobile reminders provide continuity and emotional support. Even with these attempts, tracking abruptly moving patients demands greater networks and technology. Male involvement is crucial because supportive spouses improve adherence through shared accountability. Participants emphasised inclusive health education's ability to boost male participation, reduce stigma, and improve adherence and outcomes.

PMTCT program adherence issues demonstrate the difficulty of maintaining client treatment. Stigma and prejudice were major issues because fear of judgment deters therapy. As one participant explained, *"Fear of stigma stops people from coming to the clinic or taking their medication openly"* (Interview Participant 6). Participants cited transport and other expenditures as prohibitive, compounding these challenges. Food insecurity became another issue, especially for women using medicine. Domestic abuse and male apathy also weaken treatment adherence support structures. Relocating without notifying healthcare facilities hampers follow-up and challenges continuity of care.

Participants suggested many adherence tactics to overcome these obstacles. Integrating services under one roof reduced logistical challenges, while community-based support groups and mentor programs reduced isolation and promoted adherence. As noted by one participant, *"Creating support groups in the community helps patients feel less isolated and more encouraged to adhere"* (Interview Participant 4). To reduce financial stress, food support and income-generating activities were suggested. Patient participation can be improved by phone reminders and peer-led tracing networks. Community education initiatives eliminate stigma, while male partners in counseling and support networks promote shared accountability. These initiatives promote PMTCT treatment adherence through a holistic, community-driven approach.

Theme 5: Infant Feeding Practices

HIV-positive mothers infant feeding practices are crucial to their and their children's health. This theme examines baby feeding practices, problems, and support systems from mothers' and healthcare providers' perspectives. Antenatal and postnatal education, exclusive breastfeeding barriers, and psychological and nutritional assistance are important. The research shows that cultural norms, institutional restrictions, and community-level stigma affect feeding habits. The qualitative insights from the participants concerning infant feeding practices are summarised in Table 5.

Table 5. Subthemes for Theme 7 - Infant Feeding Practices

Subtheme	Description	Representative Quotes
1. Antenatal and Postnatal Health Education	Structured sessions provided to educate HIV-positive mothers on infant feeding practices.	"*They are taught on the importance of exclusive breastfeeding until six months*." (Interview participant 1)
2. Exclusive Breastfeeding Challenges	Barriers to adherence to exclusive breastfeeding among HIV-positive mothers.	" mother lacks enough food to eat to provide sufficient breast milk." (Focus Group 3 participant)
3. Barriers within Health Facilities	Institutional challenges affecting the implementation of feeding practices.	"We lack enough food support for the clients, even for those in need." (Interview Participant 4)
4. Community-Level Challenges and Recommendations	Societal and cultural factors impacting infant feeding practices and proposed solutions.	"Encourage men to support their partners to adhere to infant feeding guidelines." (Focus Group 5 participant)
5. Role of Psychological and Nutritional Support	Continuous support mechanisms to enhance adherence to infant feeding guidelines.	"Provide continuous psychological and nutritional support to mothers." (Interview participant 7)

Table 5 presents subthemes for Theme 7 on infant feeding practices, including antenatal and postnatal health education, challenges with exclusive breastfeeding, barriers within health facilities, community-level challenges and recommendations, and the role of psychological and nutritional support, with representative quotes from participants.

Infant feeding practices are crucial for the health of HIV-positive mothers and their children. Key issues include health education, exclusive breastfeeding barriers, facility constraints, and community stigma. Antenatal and postnatal education provides essential guidance, but mothers still face significant challenges like food insecurity and lack of partner support. Participants emphasized the need for nutritional aid and a supportive family environment to improve adherence. One participant noted, *"They are taught on the importance of*

exclusive breastfeeding until six months" (*Interview Participant 1*). Addressing these barriers is vital for ensuring effective PMTCT adherence and better health outcomes.

Healthcare facilities also struggle to provide adequate support due to resource limitations, such as insufficient food assistance and frequent shortages of medication. One participant explained, *"We lack enough food support for the clients, even for those in need"* (Interview Participant 4), while another noted, *"There is often a shortage of infant prophylaxis"* (Interview Participant 10). These constraints underscore the need for improved resource allocation to ensure uninterrupted care. Additionally, community stigma and limited partner involvement hinder mothers' adherence to feeding guidelines. Participants recommended community sensitization campaigns to reduce discrimination and encourage supportive practices. *"Create community awareness to reduce discrimination and support mothers"* (Interview Participant 9). Promoting male involvement was viewed as essential, with a participant stating, *"Encourage men to support their partners to adhere to infant feeding guidelines"* (Focus Group 5 Participant).

Continuous psychological and nutritional support emerged as a critical factor in helping mothers overcome infant feeding challenges. Peer mentorship programs and support groups provide valuable emotional and informational assistance. As noted by one participant, *"Provide continuous psychological and nutritional support to mothers"* (Interview Participant 7), while another added, *"Clients with special needs are seen separately in their support groups"* (Interview Participant 6). These findings highlight the importance of creating a nurturing and well-informed support system to improve adherence and health outcomes for HIV-positive mothers and their children.

Theme 6: Socio-Cultural Dynamics That Shape Perceptions and Behaviours

This theme examines the socio-cultural factors influencing perceptions and behaviours around HIV and PMTCT services. It examines how cultural beliefs, traditions, and community dynamics shape attitudes and practices, affecting the acceptance and utilization of PMTCT services. The subthemes that emerged here include cultural norms and HIV narratives, gender roles and decision-making dynamics, and exclusive breastfeeding amidst cultural beliefs (Table 6).

Table 6. Subthemes Socio-Cultural Dynamics

Subtheme	Description	Representative Quotes
Cultural Norms and HIV Narratives	Cultural beliefs frame HIV as a curse or punishment, perpetuating stigma and discouraging open discussion.	"In some communities, people think HIV is a curse or punishment, so they avoid discussing it openly" (Interview Participant 6). "There are people who believe that breastfeeding spreads HIV no matter what" (FGD 8 Participant).
Gender Roles and Decision-Making Dynamics	Traditional gender roles limit women's healthcare autonomy and discourage male involvement in PMTCT.	"Men are not involved, which makes it harder for mothers to adhere to treatment" (Interview Participant 5). "Many men feel they shouldn't be involved in women's health matters, which can limit their participation" (FGD 8 Participant).
Exclusive Breastfeeding Practices	Societal misconceptions about breastfeeding and food insecurity hinder adherence to guidelines.	"Some people think that if you're HIV-positive, you should just use formula, even if exclusive breastfeeding can be safe" (FGD 7 Participant). "Food insecurity is a major challenge. Without enough to eat, it's hard to sustain breastfeeding" (Interview Participant 13).

Table 6 presents subthemes on socio-cultural dynamics affecting PMTCT service uptake, including cultural norms that frame HIV as a curse, gender roles that limit male involvement and hinder women's healthcare decisions, and misconceptions surrounding exclusive breastfeeding. The table includes representative quotes from interview participants and focus group discussions that highlight these challenges.

Cultural Norms and HIV Narratives

Many participants highlighted how HIV is perceived through the lens of punishment or curses, perpetuating stigma and silence. As one participant noted,

> **"***In some communities, people think HIV is a curse or punishment, so they avoid discussing it openly***"** (Interview Participant 6).

This view is compounded by societal reluctance to acknowledge HIV, as noted in the focus group discussion:

> *"Stigma is a huge barrier. Some people in our community look down on us for being HIV-positive, making it hard to seek help"* (FGD 7 Participant 3).

Misconceptions about HIV transmission also emerge within this context, with participants expressing fear and misinformation.

> *"There are people who believe that breastfeeding spreads HIV no matter what"* (FGD 8 Participant 3).

These cultural narratives create an environment of fear, where individuals may avoid seeking treatment or discussing their status.

Gender Roles and Decision-Making Dynamics

Traditional gender roles significantly influence access to HIV prevention services and decision-making processes. Participants repeatedly pointed out the exclusion of women from critical decisions concerning their health and that of their children.

> *"Men are not involved, which makes it harder for mothers to adhere to treatment"* (Interview Participant 5).

In discussions about male involvement, several participants described the impact of limited male engagement on PMTCT outcomes:

> *"Many men feel they shouldn't be involved in women's health matters, which can limit their participation"* (FGD 8 Participant 12).

At the same time, some participants acknowledged the potential for improvement if men actively supported their partners:

> *"If men see other men actively supporting their partners, they may feel encouraged to join in, too"* (FGD 8 Participant 15).

Addressing patriarchal norms and promoting male involvement is critical for enhancing adherence and reducing the stigma associated with HIV.

Exclusive Breastfeeding Practices Amidst Cultural Beliefs

Exclusive breastfeeding among HIV-positive mothers often intersects with cultural beliefs and misinformation. Many mothers recounted societal opposition to breastfeeding, driven by the misconception that it inevitably transmits HIV to the child.

> *"Some people think that if you're HIV-positive, you should just use formula, even if exclusive breastfeeding can be safe"* (FGD 7 Participant 11).

However, some participants highlighted the importance of adherence to medical guidance:

> *"Health professionals usually recommend exclusive breastfeeding for HIV-positive mothers, provided they are on antiretroviral treatment and have an undetectable viral load"* (FGD 8 Participant 19).

Resource limitations also challenge breastfeeding adherence:

> *"Food insecurity is a major challenge. Without enough to eat, it's hard to sustain breastfeeding"* (Interview Participant 13).

Encouraging adherence to medical advice, addressing misinformation, and providing community support are vital to overcoming these barriers.

Theme 7: Psycho-Social and Emotional Support Needs

HIV-positive mothers' psycho-social and emotional wellbeing is essential to their compliance with PMTCT guidelines and attaining favourable health results. This theme explores the crippling impacts of domestic abuse and a lack of support from partners, as well as the life-changing potential of peer support groups, therapy, and compassionate medical professionals in offering the much-needed emotional support. Key insights are summarised in Table 7.

Table 7. Psycho-Social and Emotional Support Needs

Subtheme	Description	Representative Quotes
Impact of Domestic Violence and Lack of Partner Support	Examines how domestic abuse and lack of partner involvement hinder adherence to PMTCT care and emotional stability.	2. "*Domestic violence at home discourages mothers from adhering to the care they are given."* (Interview Participant 6*)* 3. "*Some men are not supportive to these mothers to ensure that they adhere to the care they are given*." (Interview Participant 9)
Role of Peer Support Groups	Highlights the importance of counseling, peer groups, and mentor mothers in providing emotional resilience and adherence support.	4. "*Continuous psychological support helps mothers cope with their diagnosis and adhere to treatment*." (Interview Participant 2*)* 6. "*Mentor mothers play a big role in showing new clients that living positively is manageable*." (Interview Participant 8*)*
Stigma and Community Support	Focuses on the adverse effects of societal stigma and the need for community-level interventions to normalize HIV support.	7. "*Women who experience violence at home often face judgment in the community, which worsens their mental health and discourages them from seeking help*." (Interview Participant *6)* 8. "*Stigma and discrimination in the society are still big challenges*." (Interview Participant 13*)* 9. "*Create community awareness to reduce discrimination and instead support the mothers*." (Interview Participant 5)

Table 7 presents subthemes on psycho-social and emotional support needs, highlighting the impact of domestic violence and lack of partner support on adherence, the role of peer support groups in fostering resilience, and the adverse effects of stigma, with representative quotes from interview participants.

A recurring barrier highlighted by participants was the emotional distress caused by domestic violence and lack of partner support. Several respondents reported that without the involvement and support of their partners, many mothers felt isolated and discouraged from continuing care. One healthcare worker remarked,

"Men are not involved, and some women face domestic violence, which discourages them from following up with care."

The absence of emotional and practical support from partners not only undermines adherence but also worsens the mental health of affected mothers, creating an urgent need for interventions targeting domestic violence and partner involvement.

Peer support groups, mentor mothers, and counselling were key facilitators, helping HIV-positive mothers manage challenges and build emotional resilience. Peer groups offered safe spaces for sharing experiences, as noted by a participant: *"We encourage mothers to join support groups where they can share their experiences and encourage each other"* (Interview Participant 7). Mentor mothers, serving as role models, inspired adherence by showing that living positively is achievable. Despite these efforts, stigma remains a significant barrier. One participant highlighted, *"Stigma and discrimination in the society are still big challenges"* (Interview Participant 13). Addressing these issues is crucial for improving PMTCT service engagement and outcomes.

Discussion

The study found a number of obstacles to receiving PMTCT, such as financial limitations, transportation problems, cultural misconceptions, information gaps, stigma, and ineffective referral practices. Stigma is associated with social exclusion and delayed care in Nigeria, Ethiopia, and Eswatini.[7] The stigma was increased in Kenyan society since PMTCT was linked to adultery.[20] In Zimbabwe and Uganda, poverty and high transportation costs made it impossible to receive consistent care.[29,30] Similar to Swaziland and Kenya, service acceptability was hampered by incomplete referral systems and information gaps.[31] In line with earlier studies, community education, male participation, and faster referrals were proposed as ways to improve care access.[9,22]

Male engagement became vital to PMTCT adherence. Participants said supportive male partners provide shared responsibility and emotional support, improving adherence. Ugandan studies found that male engagement increased ART usage and reduced stigma.[32] Men are sometimes excluded from maternal health treatments due to gender conventions. Swaziland and Indonesian research found that feminine healthcare facilities discourage male engagement.[31-33] Similar gender biases were found in Kibera, Kenya.[34] Interventions should include marital counselling and clinic scheduling changes for men. Kim et al. documented successful Malawian community campaigns that demonstrate the potential of male-focused initiatives to improve PMTCT outcomes.[35]

Effective service delivery was key to PMTCT success. Consistent ARV refills, adherence counselling, and thorough health education were highlighted. In Guinea-Bissau and Kenya, integrated service delivery enhanced patient retention and adherence.[16] The study also showed that phone reminders and peer-led interventions improve service continuity. Community health worker interventions in Ethiopia lowered PMTCT dropout rates.[35] Constant issues included excessive wait times and staff shortages. Similar systemic inefficiencies were found in South Africa, where capacity-building was advised.[36]

Program efficacy depends on PMTCT protocol compliance. Economic challenges, transportation issues, and food insecurity were key impediments. Ahoua et al. and Kweyamba found that financial issues greatly affect adherence in Uganda and Mozambique.[29] Local support mechanisms like peer educators and mentor mothers helped promote adherence. Tanzanian and Malawian studies found that peer-led efforts give emotional and informational support.[37] Indonesians report that stigma and domestic abuse still prevent adherence.[38] An integrated approach with structural and psychosocial assistance is needed to overcome these problems.[6]

Participants noted that medical advice, cultural norms, and economic considerations affect newborn feeding. Cultural misconceptions about breastfeeding and HIV were major impediments, as in Guinea-Bissau and Eswatini.[6] Nutritional help is needed since food insecurity makes feeding habits harder to follow. Ethiopian and Kenyan studies related baby feeding issues to poverty.[20] Effective prenatal and postnatal counselling can reduce these difficulties, as shown in Malawi and Ethiopia.[2-8]

Sociocultural factors greatly impact PMTCT. Cultural stigmas and gender inequality restrict service uptake, participants said. Tanzanian research indicated that moral HIV stigma causes social isolation.[37] Zimbabwe and Nigeria also hinder women's healthcare access due to patriarchal norms.[12,30] Challenges to such norms require community and local leader involvement.[22]

Psychosocial support boosted PMTCT adherence. Mentor mothers, peer support groups, and counselling help HIV-positive women build resilience. Malawi and

Ethiopia studies found that emotional support boosts service engagement.[10] Domestic abuse and poor partner support remain major issues. These concerns require comprehensive psychological therapies, as shown in Eswatini and Indonesia. [6,39]

Conclusion

This study provides a comprehensive understanding of the barriers and enablers influencing PMTCT service uptake in Homa Bay County. The major challenges identified include stigma, financial constraints, transportation issues, and cultural misconceptions, which hinder consistent adherence. Effective service delivery, male involvement, community engagement, and peer support were significant facilitators promoting PMTCT uptake. Addressing these issues requires a holistic approach that integrates healthcare advancements with community-driven solutions. Improved health education, male engagement, resource availability, and enhanced referral networks are recommended. In high HIV-prevalence regions, these measures can increase PMTCT adherence and improve maternal and child health. Further research should explore the long-term impact of these interventions to guide sustainable policy development.

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