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The Persistence of Mother-To-Child Transmission of HIV in Njombe Town Council in Tanzania

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Abstract

The HIV epidemic poses a dire threat to global public health. With an estimated 78 million people infected worldwide, and a staggering 39 million deaths attributed to HIV-related causes, the scale of this crisis demands immediate and continued action. This article examined the factors contributing to the ongoing transition of HIV from mother to their children in Njombe Town Council, Tanzania.

Methods

This study employed a mixed methods approach with a cross-sectional design. The data were collected from 90 participants including HIV-positive mothers' and key informants. Participants were selected purposefully, and data were collected using interviews and focus group discussions. Data were analyzed using content analysis.

Results

The study identified various factors contributing to the ongoing challenge of preventing mother-to-child transmission of HIV. These factors include demographic and socioeconomic factors (age, marital status, education, occupation, spousal support), health-seeking behavior and cultural aspects (voluntary HIV testing, willingness to seek antenatal and postnatal services, stigmatization), health facility-related factors (availability of healthcare providers, their attitude towards infected mothers), and distance to health facilities.

Conclusion

Mother-to-child transmission of HIV in Njombe Town Council persists primarily due to demographic and socio-economic factors, cultural and healthcare-related factors, and distance to health facilities. The study identifies a multi-pronged approach to tackle mother-to-child HIV transmission. This includes securing more funding for healthcare improvements, training more medical professionals including HIV specialists, and promoting early prenatal care. It also emphasizes raising public awareness to fight HIV stigma and getting men involved in both preventing and treating the disease.

***Keywords**: Mother to Child Transmission, Persistence, HIV and AIDS, Health seeking behavior, Stigma*

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INTRODUCTION

Mother-to-child transmission (MTCT) of HIV is a critical global public health concern. It is estimated that approximately 78 million individuals have contracted HIV, among them an estimated 36.7 million individuals have died from AIDS-related diseases worldwide since the beginning of the epidemic (UNAIDS, 2020b). Among the affected population, approximately 3.2 million children under the age of 15 were infected with HIV in 2019 (Case et al., 2019). Mother-to-child transmission of HIV plays a significant role in the spread of HIV accounting for 15–45% of HIV infections in children.

Globally, the MTCT rate of HIV varies across different regions. For example, Brazil has a rate of 9.16%, China has a rate of 4.8%, and Europe has a rate of 12.4% (Yitayew et al, 2019, Ghoma et al, 2019; ECDC, 2023). The prevalence of HIV is higher among women compared to men, with a prevalence rate of 6.2% among women and 3.7% among men (UNICEF, 2020). However, there has been notable progress in reducing new HIV infections among children. Worldwide new HIV infections among children declined by 52% in 2019 (UNAIDS, 2020b). This progress is encouraging and reflects ongoing efforts to prevent MTCT and improve access to prevention and treatment services.

Sub-Saharan Africa carries a disproportionate burden of HIV, accounting for more than 70% of the global burden of infection. Of the estimated 6000 daily new infections globally, two–thirds occur in this region, with young women continuing to bear an uneven burden. Adolescent girls and young women aged 15-24 years have up to eight higher rates of HIV infection compared to their male peers. The rate of infection differs from one country to another for example, South Africa (25%), Nigeria (13%), Mozambique (6%), Uganda (6%), Tanzania (6%), Zambia (4%), Zimbabwe (6%), Kenya (6%), Malawi (4%) and Ethiopia (3%), account for almost 80% of all people living with HIV (Kharsany & Karim, 2016).

According to the Tanzania Demographic Health Survey (THIS) 2022-2023, there were approximately 60,000 new cases of HIV reported in the country. The survey also revealed that the prevalence among adults aged 15 years and older is estimated to be 4.5% in rural and 7.5% in urban and cities. This varies across gender, age, socioeconomic status, and geographical locations. For example, HIV prevalence ranges from 1.7% in Kigoma to 12.7% in Njombe, whereas in Zanzibar, the prevalence is lower at 0.4% in all regions. Women and girls continue to be most affected compared to men. In the absence of antiretroviral therapy (cART), the risk of HIV transmission from infected mother to their children is estimated to be between 25% and 40%. Within this transmission route, approximately 10% to 25% of transmission occurs during pregnancy, while the majority 35% to 40%, happens during labor and delivery whereas another 35% to 40% of transmission occurs through breastfeeding.

In the year 2000, Tanzania launched its prevention of mother-to-child transmission (PMTCT) program. By 2011, approximately 92% of all HIV-positive pregnant women in need of antiretroviral (ARV) therapy received their doses, and 46.6% of babies were diagnosed with HIV at birth (UNAIDS, 2020b). The national PMTCT program set a target to reduce the PMTCT of HIV to less than 2% by 2020. While Tanzania has made significant progress in reducing PMTCT, there are still areas where transmission persists. Njombe district remains a challenge in terms of MTCT of HIV, despite various government interventions. This article aims to assess the contributing factors to the persistence of mother-to-child transmission of HIV in Njombe Town Council.

METHODS

Research design

The study used a mixed method of cross-sectional research design. The choice of this design was guided by the fact that data was collected once at one point in time in the study areas since variables were not expected to change over time. According to Bryman, (2015, in relatively less-known areas, where there is little experience and theory available to serve as a guide, intensive study is a very useful method of gaining insight instead of revisiting the study area.

Study area

The study was conducted in Njombe Town Council, specifically in selected health facilities located in six wards. They include Kibena District Hospital and Wikichi Dispensary in Ramadhan Ward, Njombe Health Centre, Idundilanga Health Centre and Tumaini Dispensary in Njombe Mjini Ward, Mjimwema Dispensary and Anglican Health Centre in Mji Mwema Ward, Uwemba Health Centre in Uwemba Ward, Limage Dispensary in Yakobi Ward, and Muungano Dispensary in Kifanya Ward.

The area was selected for the study based on its high prevalence rate of HIV and AIDS infections which was reported to be 12.7% (Wang et al., 2022). The researchers specifically targeted Njombe due to its elevated prevalence compared to other regions. Additionally, the economic activities carried out by women in Njombe, such as selling locally brewed beer and producing lumber, have been identified as factors that accelerate the MTCT of HIV (Mhapa, 2011; Kiranga, 2011). Furthermore, Njombe is known to be a transit point for long-distance trucks traveling to neighboring countries. Many truck drivers spend the

nights in the area and engage in sexual activities, thereby increasing the risk of contracting HIV transmission. These factors influenced the decision to focus on Njombe for the study, as they contribute to the local dynamics of HIV prevalence and transmission in the region.

Study population and sampling techniques

The study population consisted of HIV- positive women who were visiting the health facilities in the selected areas. In addition, key informants such as nurses, medical doctors, mother and child service personnel, the Community Development Officer, Community Based Organization (CBO) leaders, and village executive officers were included in the study. The total sample size consisted of 90 participants, with 70 being infected women and 20 being the key informants. The participants were purposefully selected for inclusion in the study, taking into consideration their relevance and expertise in the field of HIV and AIDS and health care in the specific context of the study.

Data collection

The study collected both primary and secondary data. Primary data was obtained through in-depth interviews and Focus Group Discussions (FGDs) with HIV–positive women and key informants. Secondary data was gathered from relevant statistical publications, such as books, journal articles, and government documents. The use of both primary and secondary data provided a comprehensive understanding of the HIV and AIDS situation in the study area.

In-depth interviews were administered to healthcare professionals, doctors and nurses, CBO leaders, and HIV-infected women visiting health facilities. Information sought includes; their familiarity with MTCT of HIV, awareness of preventive methods, attitudes towards seeking prenatal care, concerns about discrimination, satisfaction with care received, and the impact of economic circumstances on HIV transmission risks. Community Development Officers and Village leaders were also interviewed to gain insights into their perceptions of HIV-infected women, community support, awareness campaigns, and stigma reduction efforts.

The FGDs were administered as well. A total of five groups were formed in each of the two wards of the study. Two groups consisted of key informants, including community-based leaders, Community Development Officers, and village leaders. These individuals were chosen for their expertise and experience in the community. Separate discussions were conducted with nurses and medical doctors to gather their views and insights based on their specific roles and knowledge on the prevention of MTCT of HIV, their attitude towards serving HIV-infected pregnant women, and their satisfaction with the provision of service.

The other three groups were composed of HIV-infected women who were receiving care in different health facilities. The discussions with these groups gathered information about their willingness to timely attend prenatal services, their fears of stigma, their attitude toward the services they received, and their economic activities concerning the transmission of HIV.

The purpose of conducting FGD was to obtain detailed qualitative information from a relatively large number of participants. According to Akyildiz, & Ahmed (2021), FGDs are an effective method to gather individuals with similar backgrounds or experiences to discuss specific topics of interest. The use of FGDs allowed for a deeper exploration of the participants' perspectives and experiences, providing valuable qualitative insights into the study's research questions.

Data analysis

Data were analysed quantitatively and qualitatively. Qualitative data obtained from Key informant interviews (KIIs), FGD, and documentary reviews underwent thematic content analysis. Thematic analysis was applied in a detailed manner to identify and categorize themes emerging from FGDs and KIIs. The transcribed texts were then imported into Atlas ti 9 computer software for organization, analysis, and examination of the relationships within the qualitative data. The writing of the article was based on the output obtained from the Atlas ti software, presenting a narrative that accurately captured the details of the data collected. This comprehensive approach allowed for a robust analysis and presentation of the study findings and was narrated as a story capturing the actual details of the data obtained.

Ethical consideration

In conducting this study, at most consideration and respect were given to the primary ethical concerns of the participants. A data collection permission letter was obtained from Mzumbe University and an official permission letter to collect data was obtained from the Regional Administrative Secretary (RAS) office, District Administrative Secretary (DAS) offices, and District Medical Offices (DMO) in Njombe Town Council. The investigator prioritized privacy and confidentiality by ensuring that the information shared by individual participants remained confidential. Participants were informed about the anonymous use of their data, and their names were not included on the data collection sheets to ensure strict confidentiality. The questionnaire was thoughtfully restructured with the use of polite language, demonstrating a commitment to ethical practices. Moreover, the study made efforts to reduce the inclusion of potentially offensive words, thereby avoiding any harm or discomfort to the participants. Ethical clearance from the PMTCT programs ethical committee at Kibena Hospital was obtained to ensure compliance with ethical guidelines. By addressing ethical issues, the researcher maintained a high-quality and standard study, fostering the generation of knowledge in an ethically responsible manner.

RESULTS

Demographic and socioeconomic factors

The majority of participants (51.4%) fell within the 25-34

age group. Slightly less than a third (27.2%) were aged 15-24, and the remaining participants (21.4%) were above 35. The study found a high proportion of married participants (68.6%). Widows (20%) and single individuals (11.4%) made up the remaining groups. Over half (58.6%) of the participants had a primary education. Secondary education was reported by 21.4%, while 12.9% had post-secondary education. A small portion (7.1%) had no formal education. The primary occupation among participants was farming (61.4%). Small business ownership (18.6%) and salaried employment (12.9%) were less common. A small percentage (7.1%) reported being unemployed (Table 1).

Table 1: Socio-Demographic Factors (N=100)

Age	Frequency	Percentage %
15-24	19	27.2
25-34	36	51.4
35-44	15	21.4
Marital status		
Single	8	11.4
Married	48	68.6
Widow	14	20.0
Education level		
Non-educated	5	7.1
Primary education	41	58.6
Secondary	15	21.4
Post-Secondary	9	12.9
Occupation		
Farmers/ Peasants	43	61.4
Small business	13	18.6
Employed	9	12.9
No specific occupation	5	7.1

Health-seeking behaviour and cultural factors

This category investigated pregnant women's decisions regarding HIV testing, their use of antenatal care (ANC) and postnatal care (PNC) services, and their overall healthcare-seeking patterns. Out of 70 women, 42 (60%) attended ANC but were not willing to do testing, 21 (30%) attended ANC and underwent testing, and 7 (10%) did not attend ANC until delivery. It shows that 46 (65.7%) of the women reported experiencing stigma, while 24 (34.2%) did not experience stigma. Out of 70 women, 36 (51.4%) attended ANC with their spouse/partner, 19 (27.2%) did not attend with their spouse/partner, and 15 (21.4%) were single parents (Table 2).

Table 2: Health Seeking Behaviour and Cultural Factors (N=100)

ANC Attendance status	Frequency	Percentage
Attend ANC but not willing to do testing	42	60
Attend ANC and Undergo testing	21	30
Do not attend NAC until delivery	7	10
Stigma experience		
Experienced stigma	46	65.7
Not experienced stigma	24	34.2
Male involvement in ANC		
Attended with their spouse/partner	36	51.4
Not attend ANC with spouse/partner	19	27.2
Single parent	15	21.4

During interviews, it was reported that stigma, which is a significant cultural factor contributing to MTCT, discourages pregnant women living with HIV from seeking antenatal care (ANC) services or disclosing their status, hindering early diagnosis and treatment initiation. One Community Development Officer at Ramadhan ward has this to say.

The study focused on health facility factors contributing to MTCT persistence. A prominent theme emerged regarding initial anxieties and concerns around the disclosure of HIV status to healthcare providers, particularly during the first ANC visit. One participant, a 30-year-old woman from Tumaini Health Centre, expressed:

"I have been feeling anxious and afraid to disclose my HIV status to the healthcare providers, especially the nurses. Because of these fears, I have been hesitating to seek the care I need. It was difficult for me to overcome this anxiety and trust that my personal information would be handled with the utmost confidentiality. Indeed, I want to ensure that my privacy is respected and that I can receive the best possible care without any judgment or breaches of confidentiality."

This quote exemplifies the fear of judgment and confidentiality breaches faced by some participants. However, the participant also highlights a gradual shift in perception, recognizing respectful treatment and confidentiality from healthcare providers.

The consequences of stigmatization are distressing. Families and communities distance themselves from infected women, leading to isolation and exclusion. In some cases, families even refrain from sharing anything with these infected women. Consequently, upon witnessing the discrimination and mistreatment experienced by those who disclose their HIV status, infected individuals opt to remain silent avoiding attending ANC and PNC services. Tragically, this silence only exacerbates the transmission of the virus.

In-depth interviews and focus group discussions revealed that travel distance significantly impacted ANC service utilization. The shortest recorded distance from participants' homes to ANC services was 3-5 kilometers, with longer distances exceeding 5 kilometers. Several women residing far from healthcare facilities reported irregular attendance at ANC services, primarily attending only during emergencies or delivery. This highlights the challenge distance poses for consistent care.

During an in-depth interview with a 27-year-old mother, she expressed the following concerns:

I live approximately far away from the essential facilities. Consequently, I have to rely on hired transportation to reach the facility since public transport is unreliable in my place of residence. Even when it is available, the buses are usually crowded with passengers, which poses challenges given my condition. The cost of hiring transportation each month is expensive, making it difficult for me to attend the clinic regularly. As a result, I only seek antenatal care when I am experiencing health issues, and otherwise, I wait until delivery.

Discussion

This study explored the relationship between demographic factors and PMTCT of HIV. The age distribution of participants revealed a notable concentration (51.4%) within the 25-34 year-old range, followed by 27.2% in the 15-24 age group and 21.4% above 35 years old. This finding suggests a predominance of participants within the sexually active age group. This life stage is associated with various physical, mental, and emotional changes that can increase vulnerability to acquiring sexually transmitted infections (STIs) like HIV. Furthermore, it is during this period that individuals often experience transition into parenthood. If a mother is HIV-positive, there is a risk of transmitting the virus to her baby during pregnancy, delivery, or breastfeeding. Our study aligns with Bekker et al. (2015) who highlighted the heightened risk of HIV infection among young people (adolescents and young adults) due to the multifaceted challenges and developmental tasks they navigate during this period. These factors can contribute to risky sexual behaviors, placing them at a greater vulnerability to HIV.

This study investigated the influence of marital status on PMTCT outcomes among HIV-positive mothers. Han et al. (2014) suggest marital status can influence overall behavior. Similarly, a woman's HIV status can impact her relationship dynamics, parenting ability, self-care, and overall well-being. One explanation for this finding is that married women may have a higher frequency of sexual activity with their partners. Traditional gender norms in this context can make it difficult for women to initiate conversations about condom use, even if they are aware of their husband's HIV status. This aligns with Mtenga et al. (2015) who highlighted how gender norms, marital dynamics, and sexual behavior all contribute to the high prevalence of HIV among couples. A nurse participant in our study emphasized the power imbalance and potential for gender-based violence, making it challenging for women to refuse unwanted sexual advances, even when fearing HIV transmission.

The study identified a concerning trend: married women appeared to have a higher prevalence of HIV compared to unmarried participants. While the data itself cannot establish causality between marital status and HIV infection, it prompts a closer look at the potential underlying factors. One possible explanation lies in the complex interplay between gender roles, sexual behavior, and decision-making within marriage. Traditionally, men hold more power in sexual relationships, making it difficult for women to initiate conversations about condom use, even if they suspect their partner is HIV-positive. This aligns perfectly with Mtenga et al. (2015) who highlighted how gender norms, marital dynamics, and sexual behavior all contribute to the high prevalence of HIV among couples. The study also resonates with a nurse participant's observation regarding the power imbalance within marriages. She emphasized how this imbalance, coupled with the potential for gender-based violence, creates significant challenges for women attempting to refuse unwanted sex, even when fearing HIV transmission.

This study explored the educational background of participants in PMTCT. Study results show that over half (58.6%) had completed primary education, followed by secondary education (21.4%), post-secondary education (12.9%), and 7.1% with no formal education. A primary education background suggests some level of literacy, potentially facilitating adherence to treatment regimens for both mothers and children. However, this level of education might also limit access to comprehensive HIV prevention information, potentially impacting informed decision-making. This aligns with Worku et al. (2021) who found mothers with moderate education levels demonstrated a better understanding of PMTCT compared to those without any formal education. The study also investigated participants' occupations, considering the influence on healthcare affordability. The majority (61.4%) were farmers/peasants, followed by small business owners (18.6%), employed individuals (12.9%), and 7.1% with no reported occupation. This distribution may reflect a selection bias, as participants were recruited from a specific location with limited economic diversification.

Farming emerged as the primary occupation among women participants. However, land and farm product ownership often reside with husbands, highlighting the power dynamics within these partnerships. This lack of independent financial control can limit women's access to healthcare resources, as their ability to purchase medication for themselves and their children depends on their husband's priorities. These findings resonate with Garrison et al. (2021) who emphasized how restrictive gender norms can impede women's healthcare access and decision-making power. Understanding the educational background and occupational distribution of the

target population is crucial for designing effective PMTCT interventions. Tailoring education materials to appropriate literacy levels and addressing gender-based inequalities in resource access are essential for optimizing PMTCT program outcomes.

The study aimed to understand whether participants adhered to national guidelines on HIV testing, timely antenatal care (ANC) and postnatal care (PNC) attendance, and factors influencing late ANC initiation. To assess health-seeking behavior, the study first examined participants' general knowledge of HIV and AIDS prevention methods, including abstinence (A), faithfulness (B), condom use (C), and diagnosis/testing (D). This knowledge is crucial as it can influence behavioral change, a pivotal factor in preventing MTCT. Encouragingly, in-depth interviews revealed that nearly all participants demonstrated a satisfactory level of knowledge regarding prevention methods. Specifically, most participants were aware of at least three out of the four ABCD methods, with condom use being the most commonly mentioned.

This study identified a concerning disconnect between knowledge and action. While participants demonstrated a high understanding of methods to prevent mother-to-child transmission (MTCT) of HIV, healthcare workers reported persistent cases. This discrepancy appears to stem from late attendance at antenatal care (ANC) services. Delayed ANC enrollment means later initiation of antiretroviral (ARV) treatment for infected mothers, significantly increasing the risk of MTCT. The findings reveal that nearly half (51%) of pregnant women initiate ANC in the third or fourth trimester. This not only increases MTCT risk but also jeopardizes retention in care throughout pregnancy and postpartum, further amplifying the problem.

According to the World Health Organization (WHO, 2021; 2023), ideally, the first ANC appointment should occur within the first trimester. Early ANC visits are crucial for HIV screening, enabling timely detection and intervention to prevent transmission. The study suggests that socio-cultural factors contribute to these delays. Traditionally, pregnancies may be seen as routine, especially for women who have given birth before. Additionally, seeking permission and financial support from husbands can be a significant barrier. Differing financial priorities within couples can hinder timely ANC attendance.

Supporting the notion of early health-seeking behavior during pregnancy is important not only for the well-being of the pregnancy but also for addressing other infections such as syphilis and anemia that could impact the growth and overall life of the unborn child. This aligns with findings from Gudayu et al. (2014), who stressed the importance of early prenatal visits. Their study suggests that such visits enable the screening for conditions like syphilis in the early stages of pregnancy. This allows for prompt treatment, potentially preventing stillbirth and other infections that could harm the fetus.

The study also identified stigma as a significant cultural factor contributing to MTCT. People living with HIV and AIDS face intentional discrimination. Communities often perceive them as morally compromised and dangerous, questioning their fidelity. This fosters a climate of stigma with detrimental consequences. Infected women, especially after their status is known, become more vulnerable to both enacted (external) and internalized (self-directed) stigma, both within and outside the home. This aligns with Cunha et al. (2017) who found that HIV-related stigma discourages pregnant women from seeking and adhering to ANC services.

The study also explored male involvement in PMTCT. While some men accompanied their wives to ANC services, potentially strengthening their relationships and jointly caring for their children, patriarchal norms presented a significant barrier. These norms often assign pregnancy and childcare responsibilities solely to women, hindering male participation in such services. This finding aligns with Adane et al. (2020) who noted that in patriarchal societies, men are not expected to be directly involved in their wives' pregnancy and delivery care.

In-depth interviews with key informants revealed a concerning dynamic related to gender and power inequality. Women did not always have sole decision-making authority regarding HIV testing. Some felt pressured to seek their husband's consent, who might not prioritize testing. This often resulted in delayed testing until delivery, significantly hindering effective PMTCT interventions. These findings align with Alhassan et al. (2022) who highlighted the risks faced by women with limited autonomy. Their inability to access essential services without a partner's permission compromises confidentiality and overall well-being. Furthermore, the study suggests that gender inequality extends beyond testing. Limited ability to discuss faithfulness, negotiate condom use, and experiences of domestic violence all contribute to HIV transmission risk.

Health facility factors also emerged as a significant contributor to MTCT persistence. Interviews with HIV-positive mothers revealed initial anxieties and concerns regarding healthcare providers, particularly during the first antenatal care (ANC) visit. While some women acknowledged a generally supportive and calm demeanor from service providers, these experiences were not universal. This finding aligns with Mannava et al. (2015) who reported that negative experiences during pregnancy were common. However, the situation improved for women who encountered knowledgeable and experienced providers equipped to handle HIV infections.

The study revealed infrastructure-related challenges that likely contributed to the mixed experiences. Insufficient numbers and distribution of healthcare facilities, coupled with a shortage of specialized health workers, meant

counseling services suffered in terms of both time and privacy. Long queues, overcrowded rooms, and multiple health workers sharing limited space compromised confidentiality. Consequently, some HIV-infected mothers, as reported in Iguto (2018), opted to avoid ANC services and deliver at home to maintain secrecy and avoid potential stigma. This fear of disclosure due to socioeconomic status aligns with Iguto's findings, suggesting women prioritized secrecy over healthcare access. Staff shortages, lack of private rooms, and limited consultation time were acknowledged as discouraging factors for clients, leading to service neglect. These findings resonate with Bintara et al. (2021) who highlighted the challenges faced by HIV-positive individuals due to lack of privacy (particularly for disclosing test results) and the heavy workload of healthcare workers.

These findings highlight the challenges posed by distance and uneven healthcare facility distribution observed during data collection. In some areas, facilities were readily accessible (within 5 kilometers), while others had significant gaps in access, requiring women to travel much farther. Our study emphasized the significant influence of distance to healthcare facilities on healthcare service utilization. They found that distance impacts the number and timing of ANC visits, ultimately affecting the quality of care received. Consequently, as demonstrated in this study, increased distance can contribute to the risk of MTCT. These findings underscore the need for strategies to address the geographical barrier posed by distance. Increasing the accessibility of ANC services through mobile clinics or strategically located facilities could be crucial in promoting consistent attendance and improving PMTCT outcomes.

Conclusion

This study identified a persistent challenge of mother-to-child transmission (MTCT) of HIV in Njombe Town Council. Our findings suggest a confluence of factors contributing to this persistence, including sociodemographic characteristics, health-seeking behaviors, cultural beliefs, gender dynamics, health facility limitations, and geographical accessibility. Sociodemographic factors such as age, marital status, education level, and occupation can shape a woman's vulnerability to HIV and her ability to access healthcare. Health-seeking behaviors like reluctance to undergo HIV testing and delays in seeking prenatal care further complicate the issue. Cultural factors such as stigma associated with HIV and gender power dynamics can also hinder service utilization. Health facility factors including provider attitudes, inadequate infrastructure, and insufficient expertise create additional barriers. Finally, the distance to healthcare facilities disproportionately affects financially disadvantaged pregnant women who may be discouraged from traveling long distances for essential services.

Recommendations

Efforts to strengthen HIV education and awareness among pregnant women should focus on increasing awareness about the importance of HIV testing and counseling. Community-based education programs, targeted outreach, and involvement of community leaders can effectively disseminate information and promote a culture of acceptance. Encouraging early and regular antenatal and postnatal care through incentives, improved services, and adequate staffing is crucial. Healthcare provider training programs should emphasize HIV prevention and care, with a focus on fostering a supportive and non-discriminatory attitude. Investments in healthcare infrastructure, including equipment and facilities for testing and treatment, are essential.

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Conflict of interests

The authors declare that they have no competing interests.

Authors' contributions

Tulah Mkute was involved in designing the research and gathering the data from the field. Elizabeth Lulu Genda participated in the analysis and interpretation of the data. All authors made significant contributions to the writing of the manuscript, and have read and approved the final version.

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