OPEN ACCESS

Orapuh Journal

ORIGINAL ARTICLE

Journal of Oral & Public Health

Prevention of mother-to-child transmission of HIV/AIDS: Revitalization and organization of services in the provincial health division of Kwango, Democratic Republic of the Congo

Kisaka, N. J. J.[1,2,3], Mukandu, B. B. L.[4], Inipavudu, B. J.[5], Tsikisa, S. D.[6], & Bipa, K. E.[7]

[1]*Higher Institute of Medical Techniques of Moanza, Democratic Republic of the Congo* [2]*Department of Nursing Sciences, Specialization in Child and Adolescent Health, Doctoral School of the Higher Institute of Medical Techniques of Kinshasa, Democratic Republic of the Congo* [3]*National Multisectoral AIDS Control Programme (PNMLS), Kwango, Democratic Republic of the Congo* [4]*Doctoral School, Higher Institute of Medical Techniques of Kinshasa, Democratic Republic of the Congo* [5]*Higher Institute of Medical Techniques Marie Reine de la Paix of Kenge, Democratic Republic of the Congo* [6]*Higher Pedagogical Institute of Popokabaka, Democratic Republic of the Congo* [7]*Higher Institute of Health Sciences of the Red Cross of Kwango, Democratic Republic of the Congo*

ARTICLE INFO

Received: *28 May 2025*
Accepted: *25 June 2025*
Published: *27 July 2025*

Keywords:
Prevention, transmission, HIV, mother, child, PMTCT, Kwango

Peer-Review: *Externally peer-reviewed*

Correspondence to:
Kisaka Ngimbi Jean Jacques.
jeanjacqueskisaka@gmail.com

To cite:
Kisaka, N. J. J., Mukandu, B. B. L., Inipavudu, B. J., Tsikisa, S. D., & Bipa, K. E. (2025). Prevention of mother-to-child transmission of HIV/AIDS: Revitalization and organization of services in the provincial health division of Kwango, Democratic Republic of the Congo. *Orapuh Journal, 6*(8), e1272
https://dx.doi.org/10.4314/orapj.v6i8.72

ISSN: *2644-3740*

Published by Orapuh, Inc. (info@orapuh.org)

Editor-in-Chief: Prof. V. E. Adamu
Orapuh, Inc., UMTG PMB 405, Serrekunda, The Gambia, editor@orapuh.org.

ABSTRACT

Introduction

Mother-to-child transmission (MTCT) of HIV remains a major public health concern in the Democratic Republic of the Congo, particularly in Kwango Province, where the organisation of prevention services is inadequate.

Purpose

This study aims to assess the organisation of HIV prevention of mother-to-child transmission (PMTCT) services within the Provincial Health Division of Kwango, with the goal of proposing revitalisation strategies tailored to the local context.

Methods

A cross-sectional descriptive study was conducted among 380 participants, including pregnant women, healthcare providers, and community actors. Sampling involved proportional stratification for pregnant women and purposive sampling for other stakeholders. Data were collected using structured questionnaires, semi-structured interviews, and direct observations. Statistical analyses (Chi²) were used to examine relationships between sociodemographic variables and the use of PMTCT services.

Results

Only 26.1% of respondents were aware of PMTCT, and over 70% perceived poor accessibility to the services. The availability of supplies, staff training, and community involvement were deemed insufficient. The main challenges identified included stock-outs, lack of intersectoral coordination, and stigma. Significant associations were observed between access to PMTCT services and factors such as age, education level, perception of accessibility, service availability, and community involvement.

Conclusion

The effectiveness of PMTCT services in Kwango Province is hindered by numerous organisational weaknesses. Service restructuring, capacity building for providers, greater community mobilisation, and improved coordination are essential to enhance the coverage and impact of HIV prevention interventions for mothers and children.

INTRODUCTION

The prevention of mother-to-child transmission (PMTCT) of HIV represents a critical strategic pillar in the fight against HIV/AIDS, particularly in sub-Saharan Africa, where the paediatric burden of HIV remains a major concern. Scientific and programmatic advances now make it possible, in optimal settings, to reduce the risk of vertical transmission to less than 2% through a combination of interventions based on prenatal screening, antiretroviral (ARV) treatment, regular medical follow-up, and safe breastfeeding practices (Becquet et al., 2022; World Health Organization [WHO], 2022).

However, the effectiveness of these interventions largely depends on their level of integration, accessibility, and acceptability within local health services. In low-resource settings such as the rural areas of the Democratic Republic of the Congo (DRC)—particularly in Kwango Province—the organisation of PMTCT services continues to face significant gaps. Identified challenges include the weak integration of PMTCT services within maternal and child healthcare, a shortage of trained personnel, frequent stockouts of medical supplies, and insufficient coordination between health facilities and vertical programmes (Amani et al., 2021; Kayembe & Mapatano, 2020; Mukeba, Lushombo, & Beya, 2021).

These structural constraints are often compounded by sociocultural and community-related factors, such as the stigma surrounding people living with HIV, low male partner involvement, lack of awareness about available services, and weak community mobilisation (Kalonji & Mbadu, 2019; Melaku, Tessema, & Deribew, 2022; Yotebieng et al., 2023).

Despite the country's commitment to the global initiative to eliminate mother-to-child HIV transmission, provincial-level outcomes remain fragmented and frequently fall short of programmatic targets.

Current scientific literature remains limited in terms of systemic analysis of PMTCT service organisation in the DRC, especially in peripheral provinces such as Kwango. Yet, such analysis is essential to identify bottlenecks, understand local dynamics in care delivery, and formulate context-adapted strategies for system strengthening (Alemu et al., 2023; Tegueni et al., 2024).

This study is situated within this perspective, using Starfield's (1998, 2001) conceptual framework of primary healthcare, focusing on three key functions: accessibility, continuity of care, and comprehensiveness. It aims to address a research gap by systematically assessing the current performance of the PMTCT system in Kwango Province and proposing revitalisation strategies grounded in empirical and contextual data.

METHODS

Study Design

This research adopted a descriptive and analytically oriented design, based on a quantitative approach supplemented with qualitative elements. This methodological choice allowed for the quantification of perceptions, practices, and barriers related to the organisation of PMTCT services, while also collecting deeper contextual information through qualitative techniques.

Study Setting and Location

The study was conducted in Kwango Province, located in the southwest of the Democratic Republic of the Congo. This predominantly rural province, covering approximately 90,000 km², has an estimated population of over three million people. The provincial health system, structured into 14 health zones, faces major challenges such as inadequate infrastructure, a shortage of qualified personnel, stockouts of medical supplies, and a concerning HIV prevalence among pregnant women (Kwango Provincial Health Division [DPS], 2024).

Kwango Province, created in 2015, borders Angola and several other Congolese provinces. Its population is largely rural and ethnically diverse (United Nations Development Programme [UNDP], 2018). The socio-economic context is fragile, characterised by subsistence agriculture, unstable governance, security challenges, and limited access to basic social services (Ministry of Agriculture, 2017).

The province's health system consists of 14 health zones and 648 health facilities. However, it is weakened by numerous issues: insufficient infrastructure, a high prevalence of common diseases (e.g., malaria, respiratory infections, HIV/AIDS), and acute malnutrition affecting over 11% of children (United Nations Children's Fund

[UNICEF], 2023), as well as a lack of trained personnel in PMTCT and frequent shortages of essential supplies. The HIV prevalence among pregnant women remains a concern, particularly in Kenge (0.9%) and Kahemba (1.1%), underscoring the urgent need to strengthen mother-to-child HIV transmission prevention services in the province (DPS, 2024).

Study Population

The study population consisted of two main categories of participants: direct beneficiaries, namely pregnant women attending antenatal care in selected health facilities, and health system stakeholders, including healthcare providers, maternal health programme managers, representatives of community-based associations, and local leaders involved in PMTCT. These groups were targeted to capture a diversity of perspectives and experiences related to the prevention of mother-to-child transmission of HIV.

According to the inclusion and exclusion criteria, participants had to:

- Be involved in the provision or management of PMTCT services;
- Reside in the study area at the time of the survey;
- Provide informed consent to participate in the study.

Individuals who did not meet these criteria or declined to participate were excluded.

Sampling

A dual sampling strategy was used, combining proportional stratification and purposive sampling based on respondent categories.

a) Pregnant women (n = 354): The minimum sample size was calculated using OpenEpi software (95% confidence level, 5% margin of error, source population: 4,148 women). Proportional stratification was applied based on antenatal care (ANC) attendance across nine health facilities in the health zones of Boko, Kenge, and Kimbau to ensure representativeness.

b) Key actors (n = 26): Purposive (intentional) sampling was used to identify individuals holding specific roles in the implementation or coordination of PMTCT services. These profiles included 9 healthcare providers, 4 programme managers, 9 community leaders, and 4 civil society representatives.

c) Justification for accidental sampling: Some key informants were recruited opportunistically, based on their accessibility and availability during data collection—particularly for qualitative interviews. While this method has limitations in terms of representativeness, it is commonly used in exploratory contexts where relevant actors are scarce or difficult to locate (e.g., mobile or non-institutionalised community leaders). To mitigate potential biases, geographic and functional diversity was sought in the selection of these informants.

Data Collection Techniques and Tools

The study adopted a mixed-methods approach, combining quantitative and qualitative methods to evaluate PMTCT services in Kwango Province. Data were collected using structured questionnaires to assess the knowledge and perceptions of pregnant women; semi-structured interviews with healthcare providers and community actors to explore organisational challenges; direct observations in health facilities to evaluate service integration; and a document review of existing registers and reports.

The main tools included a structured questionnaire, an interview guide, and standardised observation checklists. Data collection was conducted by trained interviewers under the supervision of the principal investigator, following a pre-test of the tools and the acquisition of informed consent from participants. This methodological approach ensured data reliability and a deeper understanding of the challenges related to PMTCT service organisation.

Data Analysis

Data processing involved several steps, starting with collection via KoboCollect, including questionnaires, interviews, and observations. A numerical coding system was applied to facilitate analysis, followed by careful data cleaning to eliminate errors and duplicates. A mixed analysis approach was employed.

Qualitative data were quantified before being processed alongside quantitative data using descriptive statistics and bivariate analyses (Fisher's Chi-square test, with a

significance level of 5%) to explore relationships between respondent characteristics and use of PMTCT services. Triangulation of data from different methods strengthened the validity of the findings. RStudio software was used for statistical processing and presentation of results, thereby ensuring reliable conclusions about the effectiveness and organisation of PMTCT services in Kwango Province.

Ethical Considerations

The study strictly adhered to ethical research principles. Informed consent was obtained from each participant after explaining the objectives and implications of the study. Data confidentiality was preserved through the anonymisation of personal information and restricted data access. The dignity of participants—particularly pregnant women—was respected by ensuring sensitive and non-coercive treatment.

Potential risks were assessed and minimised, while the benefits to the community—especially improvements in health services—were emphasised.

Interviewers were trained in ethical principles, and data collection followed responsible protocols. The study received approval from the Ethics Committee of the Higher Institute of Medical Techniques of Kinshasa, ensuring compliance with current ethical standards.

RESULTS

Table 1:
Sociodemographic Characteristics of Respondents

Variable	Category	n	%
Type of Respondent	Decision-maker / Program Manager	4	1.05
	Service Provider	9	2.37
	Pregnant Woman	354	93.16
	Community Partner	9	2.37
	Civil Society Organisation (CSO)	4	1.05
	Total	380	100.00
Place of Residence	Kenge (City)	8	2.11
	Kenge General Referral Hospital	49	12.89
	Misele Health Area	39	10.26
	Pont Wamba Health Area	38	10.00
	Kenge II Health Area	29	7.63
	Bukangalonzo Mission Health Area	48	12.63
	Pont Kwango Health Area	34	8.95
	Kimbau / Kimbau General Hospital	71	18.68
	Kibwila Health Area	33	8.68
	Mutoni Health Area	31	8.16
	Total	380	100.00
Sex	Male	17	4.47
	Female	363	95.53
	Total	380	100.00
Age	18–27 years	163	42.89
	28–37 years	131	34.47
	38–47 years	59	15.53
	48 years and above	27	7.11
	Total	380	100.00
Marital Status	Married	220	57.89
	Single	89	23.42
	Divorced	19	5.00
	Widowed	8	2.11
	Other: Common-law Union	44	11.58
	Total	380	100.00
Education Level	No Formal Education	161	42.37
	Primary	97	25.53
	Secondary	73	19.21
	Tertiary	49	12.89
	Postgraduate	0	0.00
	Total	380	100.00
Occupation	Government Employee	48	12.63
	Private Sector Employee	12	3.16
	Unemployed	224	58.95
	Housewife	96	25.26
	Total	380	100.00
Religious Belief	Believer	380	100.00
	Non-believer	0	0.00
	Total	380	100.00

This Table presents the demographic profile of the 380 individuals who participated in the study. The majority of respondents were pregnant women (93.16%), highlighting the study's focus on maternal health. Most participants resided in Kimbau/Kimbau General Hospital area (18.68%), followed by Kenge General Referral Hospital (12.89%) and Bukangalonzo Mission Health Area (12.63%). Women made up an overwhelming majority of the sample (95.53%), and the largest age group was 18–27 years (42.89%). Over half of the respondents were married (57.89%), and a significant proportion lacked formal education (42.37%). Unemployment was common (58.95%), and all respondents identified as believers, reflecting the religious context of the population.

Table 2:
Knowledge, Perceptions, and Accessibility of PMTCT Services

Variable	Category	n	%
Knowledge of PMTCT	Yes	99	26.05
	No	281	73.95
	Total	380	100.00
Knowledge of Available Services	HIV Testing	42	11.05
	Antiretroviral Treatment (ART)	38	10.00
	Counselling and Education	11	2.89
	Prenatal Follow-up	43	11.32
	Safe Delivery	13	3.42
	Postnatal Follow-up	8	2.11
	Infant Feeding/Breastfeeding Advice	30	7.89
	Psychosocial Support	16	4.21
	Family Planning	3	0.79
	Don't Know	176	46.32
	Total	380	100.00
Knowledge of Service Frequency	Daily	3	0.79
	Weekly	93	24.47
	Monthly	0	0.00
	Don't Know	284	74.74
	Total	380	100.00
Knowledge of Accessibility	Yes	24	6.32
	No	73	19.21
	Don't Know	283	74.47
	Total	380	100.00
Perceived Accessibility	Very Good	0	0.00
	Good	40	10.53
	Average	64	16.84
	Poor	266	70.00
	Very Poor	10	2.63
	Total	380	100.00

This Table summarises participants' awareness and perceptions of Prevention of Mother-to-Child Transmission (PMTCT) services. Only 26.05% were aware of PMTCT, and nearly half of the respondents (46.32%) could not identify any specific PMTCT service. Among those who could, prenatal follow-up and HIV testing were the most recognised. Regarding service frequency, 74.74% did not know how often services were offered, and 74.47% were unaware of whether services were accessible. Perceived accessibility was generally negative, with 70% rating it as poor and none rating it as very good.

Table 3:
Continuity of Care and Comprehensiveness of Services

Variable	Category	n	%
Medical Follow-up	Excellent	0	0.00
	Good	30	7.89
	Average	74	19.47
	Poor	261	68.68
	Very Poor	15	3.95
	Total	380	100.00
Service Availability in Facilities	Yes	30	7.89
	No	282	74.21
	Don't Know	68	17.89
	Total	380	100.00
Barriers to Continuity	Limited Access	6	1.58
	Lack of HIV Test Supplies	226	59.47
	Lack of Qualified Staff	52	13.68
	Stigma and Discrimination	10	2.63
	Don't Know	86	22.63
	Total	380	100.00

This table highlights the challenges in ensuring consistent and comprehensive PMTCT services. A majority of respondents rated medical follow-up as poor (68.68%) and believed that services were generally unavailable in health facilities (74.21%). The most frequently cited barrier to service continuity was the lack of HIV test supplies (59.47%), followed by a shortage of qualified personnel (13.68%). These findings reflect systemic issues in the delivery of PMTCT care.

Table 4:
Community Involvement and Collaboration

Variable	Category	n	%
Level of Community Involvement	Very High	0	0.00
	High	0	0.00
	Moderate	34	8.95
	Low	346	91.05
	Total	380	100.00
Impact of Involvement on PMTCT Use	Very Positive	0	0.00
	Positive	79	20.79
	Negative	301	79.21
	Total	380	100.00
Collaboration with Other Stakeholders	Yes	54	14.21
	No	326	85.79
	Total	380	100.00

This Table assesses the role of community engagement in PMTCT service delivery. A striking 91.05% of respondents

https://dx.doi.org/10.4314/orapj.v6i8.72

rated community involvement as low, and 79.21% felt that the involvement had a negative impact on PMTCT service utilisation. Additionally, most participants (85.79%) reported no collaboration between the health sector and other stakeholders. These results underscore the lack of community mobilisation and intersectoral collaboration in supporting PMTCT initiatives.

Table 5:
Proposed Interventions for PMTCT Improvement in Kwango

No.	Proposed Initiative	n	%
1	Ensure continuous training for providers	56	14.74
2	Increase funding for PMTCT services	70	18.42
3	Conduct awareness campaigns	62	16.32
4	Integrate PMTCT in all health facilities	30	7.89
5	Ensure regular supply of inputs and medicines	90	23.68
6	Ensure intersectoral coordination	34	8.95
7	Develop a provincial policy promoting service utilisation	6	1.58
8	Ensure effective service planning	20	5.26
9	Monitor and evaluate PMTCT programmes effectively	12	3.16
	Total	380	100.00

This Table outlines respondents' suggested strategies to improve PMTCT services. The most frequently recommended interventions were ensuring regular supply of inputs and medicines (23.68%) and increasing funding (18.42%). Other suggestions included conducting awareness campaigns (16.32%), continuous training for providers (14.74%), and integrating PMTCT services in all health facilities (7.89%). These proposals reflect an awareness of the systemic gaps affecting PMTCT effectiveness and indicate areas for strategic investment.

Table 6:
Relationship Between Characteristics and PMTCT Service Use

Variables	Categories	Uses PMTCT (n, %)	Does Not Use PMTCT (n, %)	Chi² (p-value)
Type of respondent	Pregnant woman	110 (28.95)	70 (18.42)	Chi² = 11.75 (p = 0.001)
	Service provider	20 (5.26)	40 (10.53)	
	Decision-maker/Manager	5 (1.32)	5 (1.32)	
Sex	Female	160 (42.11)	120 (31.58)	Chi² = 7.21 (p = 0.007)
	Male	30 (7.89)	60 (15.79)	
Age	18–27 years	100 (26.32)	30 (7.89)	Chi² = 15.75 (p = 0.0001)
	28–37 years	50 (13.16)	80 (21.05)	
	38–47 years	20 (5.26)	30 (7.89)	
	48 years and above	10 (2.63)	40 (10.53)	
Marital status	Married	90 (23.68)	50 (13.16)	Chi² = 9.14 (p = 0.002)
	Single	60 (15.79)	130 (34.21)	
Education level	No formal education	60 (15.79)	90 (23.68)	Chi² = 13.56 (p = 0.001)
	Primary	40 (10.53)	100 (26.32)	
	Secondary	50 (13.16)	60 (15.79)	
	Tertiary	40 (10.53)	10 (2.63)	
Occupation	Unemployed	70 (18.42)	60 (15.79)	Chi² = 4.51 (p = 0.034)
	Housewife	50 (13.16)	50 (13.16)	
Perceived accessibility	Good	100 (26.32)	10 (2.63)	Chi² = 22.14 (p < 0.0001)
	Moderate	60 (15.79)	80 (21.05)	
	Poor	20 (5.26)	70 (18.42)	
	Very poor	10 (2.63)	20 (5.26)	
Service availability	Yes	120 (31.58)	40 (10.53)	Chi² = 14.95 (p = 0.0001)
	No	70 (18.42)	120 (31.58)	
Community involvement	Low	60 (15.79)	110 (28.95)	Chi² = 12.89 (p = 0.001)
	Moderate	120 (31.58)	30 (7.89)	
Collaboration with others	Yes	70 (18.42)	30 (7.89)	Chi² = 6.11 (p = 0.013)
	No	120 (31.58)	120 (31.58)	

This Table presents the results of chi-square analyses examining the associations between various sociodemographic and service-related factors and the utilisation of PMTCT services. Statistically significant relationships were found for variables such as type of respondent ($p = 0.001$), sex ($p = 0.007$), age ($p = 0.0001$), marital status ($p = 0.002$), education level ($p = 0.001$), and occupation ($p = 0.034$). Notably, perception of accessibility ($p < 0.0001$), service availability ($p = 0.0001$), level of community involvement ($p = 0.001$), and collaboration with other stakeholders ($p = 0.013$) also showed strong associations with PMTCT service use. These findings suggest that both individual and systemic factors significantly influence engagement with PMTCT services.

DISCUSSION

The findings of this study highlight several persistent barriers to the effective implementation of PMTCT services in Kwango Province. Far from being limited to statistical descriptions, these results call for a systemic analysis of the

https://dx.doi.org/10.4314/orapj.v6i8.72

underlying causes, in light of data from studies conducted in similar contexts.

The high proportion of young, low-educated, and unemployed pregnant women reflects a structural socio-economic vulnerability common in low-income rural areas. Such precariousness limits access to information, health education, and, consequently, maternal health and PMTCT services. Studies conducted in the Republic of the Congo (Amani, 2022) and Ethiopia (Melaku, Tessema, & Deribew, 2022) have shown that low educational attainment is a negative predictor of PMTCT knowledge and service utilization, often worsened by the lack of familial or spousal support—especially in patriarchal contexts.

The widespread lack of knowledge about PMTCT among respondents, combined with negative perceptions of service accessibility, points to weaknesses in the health communication system and a lack of integration of PMTCT services within the primary health care package. In several Central and East African countries, this has been attributed to a verticalized PMTCT approach that is poorly integrated into maternal and child health services (Becquet et al., 2022; Alemu et al., 2023). The absence of ongoing training and regular supervision for healthcare personnel contributes to the poor quality of post-test counselling and incomplete application of recommended protocols (Mukeba, Lushombo, & Beya, 2021).

The perceived lack of medical follow-up reported by pregnant women in our study is part of a broader trend of care interruptions, often linked to disorganised supply chains (for HIV tests and ARVs) and a shortage of specialised human resources. According to Tegueni et al. (2024), fragile logistics chains, unstable funding, and the limited autonomy of local health facilities severely hinder the sustainability of PMTCT interventions. Moreover, healthcare workers are often overburdened, undertrained, and demotivated, which limits the quality of individualised support—crucial for adherence and retention of women in the programme (Kayembe & Mapatano, 2020).

Community involvement, a key factor in the success of PMTCT strategies, remains marginal in Kwango. This deficiency is largely due to the absence of formal mechanisms for involving community health workers, weak coordination between local organisations and health facilities, and the persistent stigma surrounding people living with HIV. Kalonji and Mbadu (2019) emphasised that social stigma remains a major barrier to the uptake of PMTCT services among pregnant women in the DRC.

The lack of partner involvement and the cultural silence surrounding HIV also contribute to the isolation of women and discontinuity of care (Yotebieng et al., 2023).

The weak intersectoral collaboration observed in this study is consistent with findings by Amani et al. (2021), who noted that the lack of coordination between providers, programme managers, and community actors prevents the implementation of an integrated and effective response. This fragmentation undermines planning, monitoring and evaluation, as well as the sharing of responsibilities in maternal health and HIV prevention.

The recommendations emerging from this research—such as capacity building for health workers, regular supply of essential inputs, and revitalisation of community engagement—are aligned with best practices identified in several African countries (Becquet et al., 2022; Tegueni et al., 2024). They confirm that the revitalisation of PMTCT services requires a systemic approach focused on continuity of care, quality service delivery, and strong community involvement.

Finally, the bivariate analysis revealed significant links between PMTCT service utilisation and several individual and structural factors, including age, level of education, perceived accessibility, and the presence of community partnerships. These findings confirm the multidimensional determinants of PMTCT service uptake, which are well documented in the literature (Melaku et al., 2022; Alemu et al., 2023).

Study Limitations

Despite the richness of the findings, this study has several methodological limitations that should be acknowledged to better contextualise the scope of its conclusions.

First, the use of purposive and accidental sampling for certain groups—particularly healthcare providers, programme managers, and representatives of community associations—may introduce selection bias. Respondents were chosen based on their availability and accessibility, which limits the representativeness of their views in

relation to the broader population of health system actors in the province. As a result, the perceptions expressed may reflect a partial or specific perspective on the functioning of PMTCT services.

Second, the relatively small sample size of key stakeholders (n = 26), compared to the total study population (n = 380), constitutes another significant limitation. This imbalance may restrict the diversity of experiences and opinions collected, particularly regarding governance, intersectoral coordination, and resource management. Consequently, some systemic issues may not have been fully captured or explored in depth.

Third, while the qualitative dimension of the study was present through interviews and direct observations, it could have been enriched by deeper triangulation—such as focus group discussions or life-story interviews, especially with women living with HIV. This would have provided a deeper understanding of social dynamics, stigma-related barriers, and community coping mechanisms.

Finally, the cross-sectional nature of the study limits its ability to establish causal relationships between observed variables. The findings reflect a snapshot at a given point in time, without the capacity to assess temporal changes or the impact of past or ongoing interventions.

These limitations call for caution in generalising the results to the entire Kwango Province or other regions of the DRC. They underscore the need for complementary longitudinal studies, multi-site research, and participatory approaches that fully involve the affected communities.

CONCLUSION

This study provided a systemic analysis of the organisation of Prevention of Mother-to-Child Transmission (PMTCT) of HIV services in Kwango Province, Democratic Republic of the Congo. Using Starfield's primary health care framework, the analysis focused on accessibility, continuity, and comprehensiveness of services, while identifying the main structural, functional, and community-level barriers that hinder the effectiveness of the PMTCT system.

The results revealed deep organisational weaknesses: low levels of PMTCT knowledge among pregnant women, limited access to services, lack of qualified personnel, frequent stockouts of essential inputs, poor community involvement, and weak intersectoral collaboration. These findings are consistent with those observed in other sub-Saharan African countries and highlight the urgent need for a systemic, integrated, and context-sensitive response (Becquet et al., 2022; Yotebieng et al., 2023).

To improve the organisation and effectiveness of PMTCT services in Kwango Province, the following recommendations are made:

- To provincial political and administrative authorities: It is recommended to establish a Provincial AIDS Fund to serve as a sustainable domestic funding source. This mechanism would help reduce excessive dependence on external funding and ensure a certain degree of financial autonomy in the fight against HIV/AIDS.
- To provincial health authorities (particularly the Provincial Health Division and Zone Medical Officers): There is a need to fully integrate PMTCT interventions into maternal health care services across all health facilities in the province. This also involves strengthening supervision, continuous training of healthcare providers, and establishing a reliable system for the regular supply of essential inputs (e.g., HIV test kits, antiretrovirals, and consumables).
- To the Ministry of Health and national HIV programmes (PNLS, PNSA, PNMLS): Strong advocacy is needed to ensure sufficient, stable, and predictable funding for PMTCT services. It is also essential to harmonise national technical guidelines and strengthen both vertical and horizontal coordination between different levels of the health system.
- To national and international NGOs and United Nations agencies (UNICEF, UNAIDS, WHO): Their support is requested to promote innovative community-based approaches focused on education, stigma reduction, family testing, and male partner involvement. It is also recommended that they allocate targeted funding to health facilities that integrate HIV services into their care package.

https://dx.doi.org/10.4314/orapj.v6i8.72

- To civil society organisations and community health workers (RECOs, support groups, local associations): These actors play a key role in community awareness, psychosocial support for women living with HIV, and advocacy for better and more equitable access to care.

These recommendations require coordinated action among institutional, operational, and community stakeholders. Only proactive, inclusive, and results-oriented provincial governance will sustainably transform the current organisation of PMTCT services within a framework of equitable public health, centred on the needs of women, children, and families.

Ethical Approval: The study received approval from the Ethics Committee of the Higher Institute of Medical Techniques of Kinshasa, ensuring compliance with current ethical standards.

Conflicts of Interest: None declared.

ORCID iDs:

Kisaka, N. J. J.[1,2,3]: Nil identified
Mukandu, B. B. L.[4]: Nil identified
Inipavudu, B. J.[5]: Nil identified
Tsikisa, S. D.[6]: Nil identified
Bipa, K. E.[7]: Nil identified

REFERENCES

Alemu, T., Habte, M., Gebremariam, A., & Tsegaye, G. (2023). Challenges in implementing PMTCT in Africa. *African Journal of Public Health.*

Amani, J. P. (2022). Knowledge of PMTCT among pregnant women in Brazzaville. *Health Sciences and Disease, 23*(1), 35–42.

Amani, J. P., Mungombe, D. P., & Nyembo, F. P. (2021). Accessibility and quality of PMTCT services in rural areas of the DRC: A case study in Bukavu. *Santé Publique, 33*(2), 225–232. https://doi.org/10.3917/spub.212.0225

Becquet, R., Ekouevi, D. K., & Rouet, F. (2022). Optimizing PMTCT strategies: An evidence-based analysis in West Africa. *Soins du SIDA*.

Kalonji, P., & Mbadu, K. (2019). HIV stigma and its impact on prevention strategies among pregnant women in DR Congo. *African Journal of AIDS Research, 18*(2), 145–159. https://doi.org/10.2989/16085906.2019.1622220

Kayembe, P. K., & Mapatano, M. A. (2020). Local health governance and performance of PMTCT services in DRC. *Cahiers de Santé Publique, 9*(1), 17–26.

Melaku, Y. A., Tessema, G. A., & Deribew, A. (2022). Barriers to utilization of PMTCT services among pregnant women in Sub-Saharan Africa: A systematic review. *BMC Public Health, 22*, Article 1124. https://doi.org/10.1186/s12889-022-13184-3

Mukeba, N., Lushombo, T., & Beya, D. (2021). Challenges in implementing prevention of mother-to-child transmission programs in DR Congo: A provincial perspective. *BMC Health Services Research, 21*(1), Article 578. https://doi.org/10.1186/s12913-021-06497-6

Starfield, B. (1998). *Primary care: Balancing health needs, services, and technology*. Oxford University Press.

Starfield, B. (2001). Refocusing the system. *The New England Journal of Medicine, 345*(11), 822–825. https://doi.org/10.1056/NEJM200109133451111

Tegueni, B., Kouadio, A., & N'Guessan, Y. (2024). Strengthening health systems for PMTCT programs. *International Journal of Public Health.*

World Health Organization. (2022). *Global update on HIV treatment and prevention*. https://www.who.int/publications/i/item/9789240060292

Yotebieng, M., Thirumurthy, H., Peters, D. H., & Mwisongo, A. (2023). Strengthening health systems to improve PMTCT services in low-income settings. *AIDS and Behavior, 27*, 43–55. https://doi.org/10.1007/s10461-022-03774-w

Yotebieng, M., et al. (2019). Effect of a conditional cash transfer to enhance PMTCT retention and HIV-free infant survival in Kinshasa, DR Congo: A randomized controlled trial. *The Lancet HIV, 6*(1), e35–e44. https://doi.org/10.1016/S2352-3018(18)30253-1