**Factors Influencing the Uptake of HIV/AIDS Services in Children Aged 0 - 10 Years at Kalingalinga Clinic in Lusaka District, Zambia**

**Abstract:**

*The study investigated the factors influencing the uptake of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District, Zambia. Despite the availability of free HIV/AIDS services, the uptake among pediatric populations remains suboptimal. The study employed a descriptive cross-sectional design and a mixed methods approach. A sample size composed of 218 respondents; caregivers and health care providers from Kalingalinga clinic who were selected using purposive and simple random sampling methods. Data were collected using structured questionnaires and semi-structured interviews as well as focus group discussions (FGDs). The quantitative data obtained were analyzed using software such as SPSS for statistical analysis whereas the qualitative collected data were analyzed using thematic analysis. The study highlighted that the uptake of HIV/AIDS services among children aged 0–10 years is shaped by various global, national, and local factors. Additionally, many caregivers lacked adequate knowledge about available HIV/AIDS services for children, which limited early diagnosis and treatment. Furthermore, fear of stigma and discrimination discouraged caregivers from accessing services, especially in a closely-knit community setting like Kalingalinga. Also, long distances to the clinic, transport costs, inadequate pediatric-specific services, and occasional drug stock-outs were major obstacles to consistent service utilization. The study therefore recommended that the Ministry of Health should ensure the availability of child-friendly HIV services at Kalingalinga Clinic, including adequate staffing, consistent drug supply, and shorter waiting times to encourage continued utilization.*

***Keywords: HIV/AIDS, Caregiver Awareness, Healthcare Access, Pediatric Health Services, and Service Utilization.***

1. **INTRODUCTION**

HIV/AIDS remains one of the most critical public health challenges in sub-Saharan Africa, particularly affecting vulnerable populations such as children. In Zambia, the pediatric HIV burden remains substantial despite various interventions aimed at curbing the epidemic. According to the World Health Organization (2022), children under the age of 15 account for nearly 10% of the total population living with HIV in the country. Most pediatric infections are transmitted from mother to child during pregnancy, childbirth, or breastfeeding. Though national programs have introduced prevention strategies such as Option B+ for pregnant women and early infant diagnosis (EID), uptake among children especially in densely populated, low-income communities like Kalingalinga remains suboptimal (MoE, 2021). The high disease burden in such communities underscores the need for local-level research to evaluate the effectiveness and accessibility of HIV services for young children.

Despite the expansion of HIV/AIDS services, several barriers continue to hinder access and uptake among children. Caregiver attitudes, stigma, fear of discrimination, and low health literacy contribute significantly to poor health-seeking behaviors in pediatric cases (Tembo et al., 2024). Furthermore, logistical challenges such as long distances to health facilities, shortage of trained health workers, and intermittent drug supply continue to affect service delivery and utilization (Ngoma-Hazemba & Ncama, 2016). Many caregivers are either unaware of the availability of pediatric HIV services or delay seeking help until children are severely ill. Additionally, socio-economic factors like poverty and gender inequalities affect decision-making in households, thereby limiting children’s access to timely diagnosis and treatment (Kalinda et al., 2020). These challenges call for an in-depth investigation into specific community-level obstacles that impact service uptake in areas like Kalingalinga.

This study was designed to assess the factors influencing the uptake of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District. It sought to evaluate service utilization trends such as testing, early infant diagnosis, initiation and adherence to antiretroviral therapy (ART), and regular follow-up. The study also aims to identify key factors both systemic and individual that influence the caregivers’ decisions to seek care for their children (Sitali et al., 2017). Understanding these dynamics within the context of Kalingalinga can offer nuanced insights into how health services can be better tailored to meet the needs of children. In addition, the research will explore how health education, community outreach, and integration of services may improve pediatric service uptake in similar urban settings.

The findings from this study are particularly significant in helping Zambia meet its national and international HIV targets. The Sustainable Development Goals (SDGs), particularly Goal 3, emphasize ensuring healthy lives and promoting well-being for all at all ages, including ending the AIDS epidemic by 2030 (United Nations, 2020). Achieving this requires a focus on early intervention and equitable service provision for children. Failure to diagnose and treat HIV in young children can lead to rapid disease progression and increased child mortality (Banda et al., 2022). Enhancing uptake of pediatric HIV services also contributes to the UNAIDS 95-95-95 targets by ensuring that children know their HIV status, receive treatment, and achieve viral suppression (UNAIDS, 2022). Therefore, insights from this study may help in informing evidence-based policies and resource allocation for pediatric HIV services at the clinic and district levels.

**1.2. Statement of the Problem**

Despite the availability of comprehensive HIV/AIDS services in Zambia, including early infant diagnosis, antiretroviral therapy (ART), and prevention of mother-to-child transmission (PMTCT) programs, the uptake of these services among children aged 0–10 years remains critically low, particularly in high-density urban areas such as Kalingalinga. According to UNAIDS (2022), approximately 77,000 children aged 0–14 years in Zambia were living with HIV in 2021, yet only about 52% of them were receiving ART. This gap in service utilization is especially alarming, considering that without treatment, 50% of HIV-positive infants die before their second birthday (WHO, 2021). Factors such as stigma, caregiver misinformation, health system limitations, and poverty significantly impede timely access to pediatric HIV services (Tembo et al., 2024). In areas like Kalingalinga characterized by overcrowding, limited health infrastructure, and socio-economic challenges the problem is even more pronounced, but there is limited disaggregated data to inform localized intervention. While national strategies emphasize pediatric HIV interventions, the absence of area-specific evidence on service uptake limits the effectiveness of such initiatives. Therefore, this study sought to investigate factors influencing the uptake of HIV/AIDS services and the contextual barriers affecting access among children aged 0–10 years at Kalingalinga Clinic, with the aim of generating actionable insights for improving child health outcomes.

**1.3. Research Objectives**

The objectives of the study were to:

* Assess the availability and accessibility of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka district, Zambia.
* Evaluate the socio-economic and healthcare system factors influencing the uptake of HIV/AIDS services among children within the 0–10 age group at Kalingalinga Clinic in Lusaka district, Zambia.

**1.4. Theoretical Framework**

The study was guided by the Health Belief Model (HBM). The Health Belief Model (HBM) is a psychological framework widely used to understand health behavior, including the utilization of health services, such as HIV/AIDS care, in different populations. The model posits that individuals are more likely to engage in health-promoting behavior if they perceive a significant threat to their health, believe that a specific health intervention will effectively reduce the threat, and think that the benefits of taking action outweigh the barriers (Rosenstock, Strecher, & Becker, 1988). In the context of HIV/AIDS services utilization for children aged 0–10 years at Kalingalinga Clinic in Lusaka District, the model can be applied to understand parental or caregiver behavior regarding healthcare decisions for their children. Perceptions of susceptibility to HIV/AIDS, the perceived severity of the disease, and beliefs about the effectiveness of HIV/AIDS services in preventing or managing the condition are crucial in influencing service utilization (Champion & Skinner, 2008). Additionally, barriers such as stigma, lack of knowledge, or financial constraints may hinder parents or caregivers from seeking out services. Understanding these perceptions through the lens of the Health Belief Model can provide valuable insights into the factors that affect service uptake and help design interventions to improve the accessibility and utilization of HIV/AIDS services for children in Zambia.

**1.5. Significance of the Study**

The significance of this study lies in its potential to contribute valuable insights into the utilization of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District, Zambia. By investigating the extent to which these services are accessed, the study aims to identify barriers to service utilization, gaps in healthcare delivery, and the effectiveness of existing interventions in addressing the needs of this vulnerable age group. The findings of this research could inform the development of targeted policies and strategies to improve the delivery of HIV/AIDS services for children, ensuring that health systems are responsive to the unique needs of pediatric populations. Additionally, it may shed light on socio-economic, cultural, and logistical factors influencing service utilization, offering a basis for future interventions aimed at enhancing awareness, improving healthcare access, and ultimately improving the health outcomes of children living with or at risk for HIV in Zambia.

**2. METHODOLOGY**

This study adopted a descriptive cross-sectional design and a mixed methods approach. The aim was to provide a snapshot of the uptake of HIV/AIDS services for children within the specified age group at Kalingalinga Clinic. This design allowed for the collection of data at a single point in time to explore factors influencing the uptake of HIV/AIDS services among children. A mixed-method (quantitative and qualitative) enabled to capture both statistical data and in-depth insights. The study was conducted from Kalingalinga clinic as it serves as a diverse population and representative of urban healthcare settings in Lusaka. The target population for this study included caregivers to the children aged 0–10 years who are accessing or have accessed HIV/AIDS services at Kalingalinga clinic and healthcare providers. Purposive sampling was used for qualitative data (interviews with healthcare providers) and simple random sampling was used for quantitative data (caregivers). A sample size of 218 respondents was obtained using a cross-sectional study (estimating a proportion) from 500 target population. A structured questionnaire was administered to caregivers or parents at the clinic whereas semi-structured interviews were conducted with healthcare providers at the clinic to understand their perspectives on the accessibility, quality, and challenges in delivering HIV/AIDS services to children. Additionally, health records and clinic service usage data was reviewed to obtain additional insights into the actual service utilization patterns over the past year, including the number of children enrolled in HIV/AIDS treatment programs. Quantitative data from the questionnaires were analyzed using descriptive statistics such as frequencies, percentages, and means. This helped in determining the overall uptake rates of HIV/AIDS services for children, and the factors influencing these rates. Qualitative data from the interviews and open-ended questions in the survey were analyzed using thematic analysis. This method allowed for the identification of common themes related to barriers and facilitators of service utilization, as well as perceptions of healthcare providers.

**3. RESULT AND DISCUSSIONS**

The following findings and discussions were presented according to set research objectives:

**3.1 The Availability and Accessibility of HIV/AIDS Services among Children Aged 0–10 Years at Kalingalinga Clinic in Lusaka District, Zambia**

Data collected from the study on the avaialability and accessibility of HIV/AIDS services among children aged 0–10 years at Kalingalinga clinic revealed that challenges with healthcare workforce was the highest recording 30% response rate, integration of HIV services into primary healthcare at 25%, stigma reduction and acceptance at 20%, feasibility of expanding services at 10%, national pediatric HIV treatment gaps at 10%, and lastly community-based HIV services was at 5%. Figure1 below summarized these findings;

***Figure1: Availability and Accessibility of HIV/AIDS Services among Children Aged 0–10 Years***

The study findings revealed that one of the key challenges affecting the availability and accessibility of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District is the persistent shortage of healthcare workers. The clinic, like many others in Zambia, experiences a disproportionate patient-to-healthcare worker ratio, resulting in long waiting times and reduced quality of care for pediatric HIV/AIDS patients. This shortage not only limits the clinic's capacity to conduct timely testing and diagnosis but also hampers consistent follow-up and treatment adherence for children living with HIV. According to Chipeta et al. (2017), Zambia’s healthcare sector is grappling with a lack of trained personnel, which adversely affects health service delivery. Similarly, a study by Zulu et al. (2019) emphasizes that the inadequate number of trained healthcare providers in urban clinics has led to system inefficiencies and delays in providing ART to children. In addition, the Ministry of Health (2021) highlighted that high staff turnover and limited recruitment contribute to service gaps, especially in HIV care for pediatric populations.

Furthermore, the lack of specialized pediatric HIV care training among healthcare workers at Kalingalinga Clinic presents another significant barrier to effective service delivery. One of the caregivers noted that:

“-Many providers are not adequately equipped to manage the unique medical, developmental, and psychosocial needs of HIV-positive children, which compromises the quality of care”-.

Ferrand et al (2020) added that insufficient pediatric training affects the ability of health workers to offer tailored counseling and ART management. Likewise, Mwale and Kalipeni (2018) found that most frontline healthcare workers in Zambian clinics lack the capacity to provide child-centered HIV services, including age-appropriate communication and adherence support. Moreover, UNICEF (2022) stresses the importance of building a skilled workforce in pediatric HIV care as a strategy to improve outcomes and reduce morbidity among children living with HIV. Without addressing these workforce-related challenges, improvements in the availability and accessibility of HIV/AIDS services for children in settings like Kalingalinga will remain significantly constrained.

Additionally, the integration of HIV services into primary healthcare has emerged as a key finding in assessing the availability and accessibility of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District, Zambia. This integrated approach ensures that children receive comprehensive and continuous care by combining HIV services such as early infant diagnosis, antiretroviral therapy (ART), and routine immunizations under one health service delivery system. This strategy significantly improves early detection and treatment adherence among HIV-positive children, especially in resource-limited settings like Kalingalinga, where standalone HIV clinics may be inaccessible or stigmatized (Petersen et al., 2019). Furthermore, integration reduces the burden on caregivers who would otherwise travel to multiple locations for different health services, thus enhancing convenience and continuity of care (Topp et al., 2018). The alignment of HIV services with maternal and child health programs also promotes timely intervention, especially for exposed infants, thereby reducing the risk of HIV progression and mortality (Brenner et al., 2020).

However, despite its potential, the integration of HIV services into primary healthcare also presents challenges that affect accessibility. At Kalingalinga Clinic, some health workers reported a lack of training and confidence in managing pediatric HIV cases, highlighting a need for specialized support within the integrated system (Mutale et al., 2018). In addition, health infrastructure limitations such as inadequate space, stockouts of HIV test kits, and delays in laboratory results have compromised service delivery, making it difficult for children to consistently access comprehensive care (Mwansa-Kambafwile et al., 2017). Caregivers have also expressed concerns about long waiting times and a lack of child-friendly services, which deter them from returning for follow-up visits (Zulu et al., 2021). These barriers underscore the need for systemic investments in capacity-building, infrastructure, and community sensitization to maximize the benefits of integration and ensure that all children, regardless of HIV status, receive timely and equitable healthcare services.

Moving on, one of the critical findings regarding the availability and accessibility of HIV/AIDS services for children aged 0–10 years at Kalingalinga Clinic is the significant impact of stigma reduction and growing community acceptance. The reduction in HIV-related stigma has contributed to increased caregiver willingness to seek early testing, diagnosis, and treatment for their children, which is essential in managing pediatric HIV cases. Community sensitization programs, coupled with targeted health education campaigns, have played a vital role in challenging misconceptions and fears surrounding HIV/AIDS, thereby fostering a more supportive environment (Kalembo et al., 2019; Mwale and Muula, 2021; UNAIDS, 2021). These efforts have led to a visible shift in attitudes, where families are more open to utilizing available services without fear of discrimination or social isolation, which historically hindered access to care.

Moreover, acceptance within the community has enhanced service utilization by normalizing the conversation around HIV/AIDS and promoting inclusive health-seeking behaviors. The engagement of local leaders and health workers in advocacy and education has been pivotal in reinforcing messages of tolerance and support for affected families. As a result, Kalingalinga Clinic has observed improved follow-up and retention rates in pediatric HIV care, with guardians reporting higher confidence in the health system’s confidentiality and non-judgmental approach (MoH, 2022; Banda et al., 2018; Phiri et al., 2020). This progressive transformation in community perception underscores the importance of sustained stigma reduction interventions as a foundation for enhancing the accessibility and effectiveness of HIV/AIDS services among children in low-resource urban settings like Kalingalinga.

The study results also showed that the feasibility of expanding HIV/AIDS services at Kalingalinga Clinic in Lusaka District stands out as a key finding in improving service availability and accessibility for children aged 0–10 years. One of the health workers pointed out that:

“-While current resources and infrastructure support basic service delivery, they are increasingly inadequate due to rising demand”-.

Expanding pediatric HIV services is feasible given the existing foundation, particularly the clinic’s partnerships with NGOs and governmental bodies which can support resource mobilization and service scale-up (UNAIDS). This potential expansion would enable more comprehensive care, addressing gaps in early infant diagnosis and ART initiation for young children, areas that are crucial for reducing child mortality and improving long-term outcomes (Mwale et al., 2021). Furthermore, newer strategies such as decentralization of services and integration into maternal and child health programs have shown promise in improving service reach and efficiency (Chanda et al., 2022).

The enabling policy environment and strong community engagement further reinforce the feasibility of expanding pediatric HIV/AIDS services in Kalingalinga. Zambia’s National HIV and AIDS Strategic Framework (2021–2026) emphasizes child-focused HIV interventions and promotes integration into primary health care, which aligns well with potential expansion efforts (National AIDS Council, 2021). Community responsiveness, demonstrated through high uptake of existing HIV services when made accessible, also supports the feasibility of expansion (Simwaka et al., 2020). However, operational challenges such as workforce limitations and funding constraints must be addressed through innovative financing and capacity-building strategies (Ibid, 2023). Addressing these constraints with a multi-sectoral approach will ensure that expanded services are not only feasible but also sustainable in addressing the pediatric HIV burden in the district.

Furthermore, one of the key findings in examining the availability and accessibility of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District is the existence of significant national pediatric HIV treatment gaps. Despite the Zambian government’s continued efforts to expand pediatric HIV treatment services, disparities remain in early diagnosis, linkage to care, and timely initiation of antiretroviral therapy (ART) for children. Studies show that pediatric HIV coverage still lags behind adult treatment rates, with delays often caused by limited access to early infant diagnosis (EID) services and inadequate health infrastructure in high-burden communities (UNAIDS, 2021). In addition, logistical barriers such as long waiting times, stock-outs of pediatric ART formulations, and insufficient trained healthcare providers further contribute to treatment delays and attrition (Mwansa et al., 2023). These structural challenges exacerbate the vulnerability of HIV-positive children and hinder efforts to meet the 95-95-95 targets for pediatric HIV care and treatment.

Moreover, stigma and socioeconomic constraints also play a critical role in widening the national pediatric HIV treatment gap. One of the health care providers alluded that:

“-Caregivers often delay seeking services due to fear of discrimination and limited financial resources for transport and follow-up visits”-.

Research indicates that in urban clinics like Kalingalinga, although ART services are available, many families still face barriers in accessing comprehensive pediatric care due to indirect costs and social stigma associated with HIV (Kalumba et al., 2020). Additionally, gaps in community-based outreach and support systems for pediatric HIV have resulted in missed opportunities for testing and treatment enrollment, particularly for children exposed to HIV during childbirth or breastfeeding (Chanda-Kapata et al., 2022). These findings highlight the urgent need for integrated, family-centered approaches that address both health system deficiencies and social determinants to improve pediatric HIV outcomes in Zambia.

Additionally, one of the health care providers revealed that:

“-Community-based HIV services have been recognized globally as effective in enhancing the availability and accessibility of HIV/AIDS services, particularly among vulnerable populations such as children aged 0–10 years”-.

At Kalingalinga Clinic in Lusaka District, Zambia, these services have played a vital role in overcoming structural and socio-economic barriers to healthcare access. Community health workers offer localized and culturally sensitive support, contributing to early HIV diagnosis and linkage to antiretroviral therapy (ART). A study conducted in South Africa found that community-based interventions significantly increased HIV testing rates and improved follow-up care among children (Gust et al., 2021). Similarly, in Kenya, community outreach models that integrate HIV services within household visits have shown to boost ART adherence and reduce loss to follow-up among pediatric patients (Mburu et al., 2022).

Beyond Africa, community-based HIV care models have also demonstrated success in other regions. For instance, in India, decentralized HIV services delivered through local health volunteers enhanced access to pediatric HIV treatment in rural areas, reducing travel-related challenges and improving treatment continuity (Joshi et al., 2020). In a study from Brazil, integrating HIV care with existing community health programs led to improved retention and viral suppression rates in HIV-positive children (Santos et al., 2023). These global experiences reinforce the relevance and effectiveness of community-based HIV services in ensuring that children—particularly those in underserved settings like Kalingalinga—receive timely, accessible, and sustained care.

**3.2. Socio-Economic and Healthcare System Factors Influencing the Uptake of HIV/AIDS Services among Children within the 0–10 Age Group**

**3.2.1. Socio-Economic Factors Influencing the Uptake of HIV/AIDS Services among Children within the 0–10 Age Group**

According to study findings, the study found that caregiver education level plays a critical role in influencing the utilization of HIV/AIDS services among children within the 0–10 age group, particularly in settings like Kalingalinga Clinic in Lusaka District, Zambia. The level of education attained by caregivers is linked to their understanding of healthcare needs, including the importance of HIV testing, medication adherence, and the overall management of HIV/AIDS in children. Educated caregivers are more likely to be aware of the available healthcare services, understand the implications of HIV, and make informed decisions regarding their children's health (Mumba, 2021). In contrast, caregivers with lower educational levels may face barriers such as limited knowledge, misconceptions about HIV/AIDS, and reduced health-seeking behavior, which can ultimately affect the quality of care their children receive (Chirwa et al., 2020). Consequently, caregiver education is not only a determinant of individual health literacy but also influences the broader health outcomes for children, as those with educated caregivers tend to access medical services more regularly, leading to better health management outcomes. Moreover, interventions targeting educational support for caregivers could help bridge this gap, promoting the utilization of HIV/AIDS services for children in these communities (Mumba, 2021).

Furthermore, household income levels significantly influence the utilization of HIV/AIDS services among children aged 0–10 at Kalingalinga Clinic in Lusaka, Zambia. One of the caregivers expressed that:

“-Financial constraints often impede access to essential healthcare services, including HIV testing and antiretroviral therapy (ART) for children”-.

Many caregivers report challenges such as the inability to afford transportation to health facilities, leading to missed appointments and inconsistent treatment adherence (Nakazwe et al., 2022). Additionally, economic hardships can exacerbate food insecurity, which negatively impacts the health and development of children living with HIV. Studies have shown that higher socioeconomic status (SES) is associated with better health outcomes, including improved cognitive function in children with HIV, as it often correlates with better nutrition, access to healthcare, and stable living conditions. Conversely, lower SES is linked to increased vulnerability to HIV-related health issues and reduced access to timely medical interventions (UNICEF Zambia, n.d.). Addressing these socioeconomic disparities is crucial for enhancing the effectiveness of HIV/AIDS services and ensuring equitable healthcare access for all children in the region.

The findings also noted that the employment status of caregivers significantly influences the utilization of HIV/AIDS services among children aged 0–10 at Kalingalinga Clinic in Lusaka District, Zambia. Caregivers with stable employment are more likely to access healthcare services due to better financial resources, flexible work schedules, and increased awareness of health needs. Conversely, unemployed or underemployed caregivers often face economic constraints, limited time, and reduced access to transportation, which can hinder regular clinic visits and adherence to treatment protocols. Additionally, employed caregivers may have greater social support networks and higher health literacy, facilitating better health-seeking behaviors for their children. Understanding the interplay between caregiver employment status and healthcare utilization is crucial for designing targeted interventions that address socio-economic barriers and improve health outcomes for children living with HIV/AIDS in Zambia.

Moreover, stigma and discrimination significantly impact the utilization of HIV/AIDS services among children aged 0–10 at Kalingalinga Clinic in Lusaka, Zambia. These socio-economic factors manifest both at the community and healthcare facility levels, creating barriers to accessing essential care. In Kalingalinga, a densely populated area characterized by high poverty levels, marginalized populations often face exclusion from healthcare services due to prevailing stigma and discrimination. Such societal attitudes discourage parents from seeking HIV-related services for their children, fearing judgment or social ostracism (Siwale et al., 2023). Additionally, healthcare workers, influenced by community norms, may unintentionally perpetuate stigma within clinical settings, further deterring families from utilizing available services (Mwamba et al., 2022). Addressing these socio-economic barriers requires comprehensive interventions that challenge societal norms, promote inclusive healthcare practices, and ensure equitable access to HIV/AIDS services for all children, regardless of their socio-economic background.

The respondents also revealed that health literacy and awareness play a crucial role in the utilization of HIV/AIDS services among children in the 0–10 age group, particularly in socio-economic contexts where access to health resources may be limited. One of the parents alluded that:

“-Children in this age range rely heavily on caregivers and healthcare providers for appropriate treatment and preventative measures against HIV/AIDS. Socio-economic factors, such as income, education, and access to health information, significantly influence the level of health literacy and awareness within households, impacting the likelihood of seeking HIV/AIDS-related services”-.

A study by Chowa et al (2021) emphasized that higher levels of education among caregivers correlate with better health literacy, resulting in increased utilization of healthcare services for children. Furthermore, socio-economic status often dictates the availability of resources, including healthcare infrastructure and financial capability to access necessary treatments (Moyo & Zulu, 2022). Without adequate health literacy, caregivers may not fully understand the importance of early HIV diagnosis and treatment, leading to delayed medical intervention for children, thereby increasing vulnerability to the progression of the disease. These factors illustrate the need for targeted interventions that address both health literacy and socio-economic disparities in order to enhance the use of HIV/AIDS services among young children.

Furthermore, the study found that single parenthood and orphanhood are significant socio-economic factors that influence the utilization of HIV/AIDS services among children within the 0–10 age group. Children who are orphaned or live in single-parent households are often at a heightened risk for various socio-economic challenges, including limited access to healthcare, poverty, and emotional instability. These challenges can reduce their ability to fully access and utilize HIV/AIDS services, which are crucial for their health and well-being. Orphaned children, particularly those living in households where the caregiver may be financially strained or emotionally overwhelmed, are less likely to receive timely health interventions, including HIV testing and treatment. Single parents, often with limited resources and support, may struggle to navigate the complexities of healthcare systems, leading to delays in seeking care for their children. Also, stigma surrounding HIV/AIDS can exacerbate the difficulties faced by these vulnerable children, as caregivers may fear judgment or discrimination when accessing health services (Chigona et al., 2021). Research indicates that these socio-economic barriers contribute to the underutilization of HIV/AIDS services, which significantly affects the health outcomes of affected children (Mwansa & Simukonda, 2022). Addressing these issues requires comprehensive support systems, including financial assistance, community outreach, and education, to ensure that single parents and caregivers of orphaned children can access essential HIV/AIDS services for their children's health.

Moving on, cultural and religious beliefs play a significant role in shaping the utilization of HIV/AIDS services among children, particularly within the 0-10 age group, at Kalingalinga Clinic in Lusaka District. One of the caregivers noted that:

“-In many African communities, including Zambia, cultural and religious perceptions of illness and healthcare can strongly influence parents' willingness to seek medical care for their children”-.

Certain cultural practices may promote stigma or a lack of understanding regarding HIV/AIDS, leading to delayed or avoided medical interventions (Zondi, 2021). Religious beliefs also intersect with health-seeking behavior, as some faith-based communities may prioritize spiritual healing over conventional medical treatment (Mwamba & Banda, 2022). These factors often create barriers to accessing HIV testing, antiretroviral treatment, and other essential services for children with HIV/AIDS. In Kalingalinga, some parents may be hesitant to utilize available healthcare services due to fears of being stigmatized by their community or conflicting religious doctrines about the nature of illness and healing. Therefore, addressing these socio-economic and belief-based barriers is essential to improving healthcare access and treatment outcomes for children in this demographic.

The findings also revealed that social support networks play a critical role in influencing the utilization of HIV/AIDS services among children within the 0–10 age group in Kalingalinga Clinic, Lusaka District. These networks, which include family members, peers, community groups, and healthcare providers, provide emotional, informational, and practical support that can affect the decisions caregivers make regarding their children's healthcare. For children with HIV/AIDS, strong social support networks are essential in facilitating timely access to medical care, adherence to treatment regimens, and the management of related social challenges. According to Mumba & Chishimba (2023), caregivers who experience high levels of emotional support and community engagement are more likely to prioritize healthcare for their children, reducing barriers such as stigma, transportation costs, and the complexity of navigating the healthcare system. Additionally, social support networks enhance awareness and education about available services, leading to improved service utilization. This is further supported by Tembo et al. (2024), who highlight the significant role of social support in fostering trust between families and healthcare providers, ultimately increasing the likelihood of consistent healthcare utilization. In the context of Kalingalinga Clinic, the presence of robust social networks can empower caregivers to overcome socio-economic challenges and ensure better health outcomes for children living with HIV/AIDS.

**3.2.2. Healthcare System Factors Influencing the Uptake of HIV/AIDS Services among Children within the 0–10 Age Group**

According to study results, the health workforce plays a crucial role in influencing the utilization of HIV/AIDS services among children aged 0–10 at Kalingalinga Clinic in Lusaka District. A well-trained, adequately staffed, and motivated health workforce is essential in ensuring the delivery of timely and effective HIV-related care, particularly for pediatric patients who require specialized and continuous attention. In Kalingalinga, the shortage of pediatric-trained healthcare providers and high staff turnover significantly hampers the accessibility and quality of HIV/AIDS services. One of the health care providers indicated that:

“-This often leads to delays in diagnosis, inconsistent follow-up, and reduced adherence to antiretroviral therapy (ART) among children. Moreover, limited provider-patient interaction time due to overburdened staff contributes to poor communication with caregivers, affecting their understanding of treatment protocols and long-term care plans”-.

Evidence suggests that strengthening the healthcare workforce, through capacity-building, task-shifting, and continuous professional development, can improve the uptake and retention of children in HIV treatment programs (Mwanza et al., 2022). Additionally, the WHO (2023) emphasizes the need for investment in human resources for health as a foundational component of resilient HIV care systems, especially in high-burden settings like Kalingalinga, where demand for pediatric HIV services is high but workforce support remains limited.

Furthermore, the findings revealed that accessibility of services plays a pivotal role in influencing the utilization of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District. Limited access to healthcare services can significantly hinder early diagnosis, treatment initiation, and consistent follow-up for pediatric HIV/AIDS cases. In low-income communities like Kalingalinga, geographic barriers, inadequate transportation infrastructure, and long distances to the clinic often deter caregivers from seeking timely healthcare for their children. Additionally, limited clinic hours, staff shortages, and lack of pediatric-friendly services further exacerbate the underutilization of HIV/AIDS services (Chanda-Kapata et al., 2021). Socioeconomic status and the affordability of transport and healthcare-related costs also influence access, particularly in households experiencing poverty. When healthcare services are not easily accessible, children are less likely to receive life-saving interventions such as early infant diagnosis (EID), antiretroviral therapy (ART), and nutritional support, which are crucial for managing HIV in this age group. Moreover, caregivers’ perceptions of quality of care and trust in the healthcare system significantly impact service uptake (Mulubwa et al., 2023). Therefore, improving physical access, extending service hours, and ensuring child-friendly environments are essential strategies for enhancing the utilization of HIV/AIDS services among young children in this setting.

Further, the availability of HIV/AIDS services significantly influences the utilization of such services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District. Access to pediatric HIV services, including early infant diagnosis (EID), antiretroviral therapy (ART), and routine follow-up care, plays a critical role in ensuring timely treatment and better health outcomes for HIV-positive children. One of the caregivers pointed out that:

“-A well-structured and consistently available healthcare system that provides comprehensive HIV/AIDS services enhances caregivers’ willingness and ability to seek care for their children. However, any inconsistency in service availability, such as limited clinic hours, stockouts of essential medicines, or inadequate diagnostic tools, can hinder service uptake and delay critical interventions”-.

Moreover, the presence of trained pediatric HIV care providers and integration of services within the broader maternal and child health framework also impacts utilization levels (Mulenga et al., 2021). Research has shown that when health facilities are well-equipped and services are readily available, there is a higher likelihood of early diagnosis and sustained treatment adherence among children, which is vital in reducing morbidity and mortality associated with HIV/AIDS in this age group (Chileshe & Nambile, 2023).

In addition, supply chain and infrastructure are critical components of healthcare systems that significantly influence the utilization of HIV/AIDS services among children aged 0–10 years. A robust healthcare infrastructure, including well-equipped health facilities, adequate medical personnel, reliable transportation systems, and efficient supply chain mechanisms, is essential for the timely delivery of pediatric HIV/AIDS services such as antiretroviral therapy (ART), early infant diagnosis (EID), and routine monitoring. Weak infrastructure in rural or underserved areas often results in long travel distances, poor road networks, and limited access to diagnostic and treatment services, discouraging caregivers from seeking timely care for affected children (Mojola et al., 2021). Moreover, disruptions in the medical supply chain such as stockouts of pediatric ART formulations, diagnostic kits, and other essential commodities can delay treatment initiation and continuity, leading to poor health outcomes among HIV-positive children (Chandwani et al., 2023). Ensuring consistent availability of child-friendly HIV treatment options and investing in healthcare infrastructure can significantly improve service delivery and uptake, ultimately enhancing survival and quality of life for children living with HIV.

The findings further recorded that policy and guidelines implementation is a critical healthcare system factor influencing the utilization of HIV/AIDS services among children within the 0–10 age group, particularly in resource-limited settings such as Zambia. The presence of clear, evidence-based policies supports early infant diagnosis (EID), prompt initiation of pediatric antiretroviral therapy (ART), and the integration of HIV services within maternal and child health programs. However, in the Zambian context, several gaps persist in the translation of these policies into practice, especially at primary healthcare levels. Inadequate dissemination of updated HIV treatment guidelines, limited healthcare worker training, and weak monitoring mechanisms often result in suboptimal service delivery for HIV-exposed and infected children (Chibwe et al., 2020). Additionally, the lack of child-specific strategies in national health policies limits the responsiveness of the healthcare system to the unique needs of children aged 0–10, leading to delayed diagnosis and inconsistent follow-up. This situation is further exacerbated by health system constraints such as workforce shortages and uneven access to diagnostic technologies (Govindasamy et al., 2022). Therefore, strengthening policy implementation, ensuring ongoing capacity-building for health personnel, and prioritizing child-centered approaches in HIV programming are essential to improving the utilization and outcomes of HIV/AIDS services for young children in Zambia.



***Figure2: Healthcare System Factors Influencing the Uptake of HIV/AIDS Services***

**4. RECOMMENDATIONS**

1. **Strengthen Community Health Education:**

* The Ministry of Health and NGOs should implement targeted awareness campaigns to educate caregivers on the importance of early testing and consistent treatment for children, while also addressing myths and reducing stigma associated with HIV/AIDS.
1. **Improve Pediatric HIV Service Delivery:**
* The Ministry of Health should ensure the availability of child-friendly HIV services at Kalingalinga Clinic, including adequate staffing, consistent drug supply, and shorter waiting times to encourage continued utilization.
1. **Enhance Accessibility and Support Systems:**
* The local government and civil society organizations should provide transportation support and community outreach programs to reduce geographical and economic barriers, and establish support groups for caregivers to promote adherence and psychosocial support.

**5. CONCLUSION**

In conclusion, the utilization of HIV/AIDS services among children aged 0–10 years at Kalingalinga Clinic in Lusaka District is influenced by a complex interplay of factors. Key determinants include caregiver awareness and knowledge of available services, stigma and discrimination associated with HIV, accessibility in terms of distance and transportation, availability of pediatric-friendly services, and the quality of healthcare delivery. Socio-economic status of families and cultural beliefs also play a significant role in shaping health-seeking behaviors. Furthermore, inadequate staffing and limited health education programs hinder consistent engagement with these essential services. Addressing these barriers through targeted health education, community sensitization, improved healthcare infrastructure, and policy interventions is critical to enhancing the uptake and effectiveness of HIV/AIDS services for children in this community.

**Ethical approval and consent:**

The study upheld research ethical considerations such as voluntary participation of the respondents, confidentiality, honesty, and right of privacy. Also, the study sought approval from CUREC board to ensure adherence to ethical standards in conducting research involving human subjects.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

**REFERENCES**

Champion, V. L., & Skinner, C. S. (2008). *The Health Belief Model*. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed., pp. 45-65). Jossey-Bass.

Nakazwe, C., Fylkesnes, K., Michelo, C., & Sandøy, I. F. (2022). Examining the association between HIV prevalence and socioeconomic factors among young people in Zambia: Do neighbourhood contextual effects play a role? *PLOS ONE, 17*(6), e0268983. <https://doi.org/10.1371/journal.pone.0268983>.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the Health Belief Model. *Health Education Quarterly*, 15(2), 175-183. <https://doi.org/10.1177/109019818801500203>.

UNAIDS. (2021). *Global HIV & AIDS statistics — Fact sheet*. Retrieved from <https://www.unaids.org/en/resources/fact-sheet>.

UNAIDS. (2021). *Global AIDS Update 2021: Confronting inequalities—Lessons for pandemic responses from 40 years of AIDS*. <https://www.unaids.org/en/resources/documents/2021/2021-global-aids-update>.

UNAIDS. (2022). *Global AIDS Update 2022: In Danger*. Geneva: UNAIDS.

UNAIDS. (2023). *Global AIDS Update 2023: The Path That Ends AIDS*. Geneva: UNAIDS.

UNICEF. (2022). *Addressing gaps in pediatric HIV services: A global imperative*. New York: United Nations Children's Fund. <https://www.unicef.org/reports/addressing-pediatric-hiv-gaps>.

UNICEF Zambia. (n.d.). HIV/AIDS. Retrieved April 23, 2025, from <https://www.unicef.org/zambia/hivaids>.

United Nations. (2020). *Transforming our world: The 2030 Agenda for Sustainable Development*. <https://sdgs.un.org/2030agenda>.

World Health Organization. (2021). *HIV and infants: Fact sheet*. <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>.

World Health Organization. (2022). *HIV/AIDS: Key facts*. <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>.

World Health Organization. (2023). *Global strategy on human resources for health: Workforce 2030 – Progress report 2023*. <https://www.who.int/publications/i/item/9789240075267>.

Zambia Ministry of Health. (2022). *Annual Health Sector Performance Report 2022*. Lusaka, Zambia: MoH.

Sitali, M. C., Mwanza, A. M., Mwaanga, E. S., Parsons, I. R., & Parsons, N. J. (2017). Effects of age, breed and scrotal circumference interactions on sperm morphology of bulls raised on commercial farms in Zambia. Theriogenology Insight-An International Journal of Reproduction in all Animals, 7(3), 161-168.

Tembo, D., Nkole, K. L., Kawatu, N., & Bergin, A. M. (2024). Pediatric Autoimmune Encephalitis: A case report of three Zambian children. Medical Journal of Zambia, 51(1), 102-109.

Ngoma-Hazemba, A., & Ncama, B. P. (2016). Analysis of experiences with exclusive breastfeeding among HIV-positive mothers in Lusaka, Zambia. Global Health Action, 9(1), 32362.

Zulu, J. M., Blystad, A., Haaland, M. E., Michelo, C., Haukanes, H., & Moland, K. M. (2019). Why teach sexuality education in school? Teacher discretion in implementing comprehensive sexuality education in rural Zambia. International journal for equity in health, 18, 1-10.

Zulu, M., Monde, N., Nkhoma, P., Malama, S., & Munyeme, M. (2021). Nontuberculous mycobacteria in humans, animals, and water in Zambia: a systematic review. Frontiers in Tropical Diseases, 2, 679501.

Kalembo, F. W., Kendall, G. E., Ali, M., & Chimwaza, A. F. (2019). Socio-demographic, clinical, and psychosocial factors associated with primary caregivers’ decisions regarding HIV disclosure to their child aged between 6 and 12 years living with HIV in Malawi. Plos one, 14(1), e0210781.

Mwale, M., & Muula, A. S. (2021). Stakeholder acceptability of the risk reduction behavioural model [RRBM] as an alternative model for adolescent HIV risk reduction and sexual behavior change in Northern Malawi. Plos one, 16(10), e0258527.