JBSED, Vol. 1, Issue No. 1, 2026. (62 - 86)
@ Ardhi University, Dar es Salaam, Tanzania

Bridging Family Planning Information Gaps to Improve Reproductive Health Knowledge among Women Living with HIV in Mbagala Peri-Urban Ward, Tanzania

Dafrosa A. Mtui[1] Ephraem E. Silayo[2]

ABSTRACT

This paper presents the findings of a study that assessed the family planning information needs of women living with HIV (WLWHIV) in Peri-urban settings. The study focused on WLWHIV attending the Mbagala Rangitatu Hospital Reproductive and Child Health (RCH) Clinic in the Temeke district of the Dar es Salaam region in Tanzania. Specifically, the paper examines the family planning information needs of WLWHIV, evaluates women's awareness of FPI and services, and determines the sources WLWHIV use to access such FPI. Employing a case study design, the study targeted 30 WLWHIV receiving services at Mbagala Rangitatu Hospital to capture their opinions and experiences regarding family planning information and services, using in-depth interviews with both WLWHIV and hospital healthcare workers. This data collection method was coupled with non-participant observation to study social interactions between WLWHIV and healthcare workers. The study found that WLWHIV have moderate awareness of FPI and services. Despite the availability of various information sources, most respondents relied on interpersonal communication with healthcare providers, friends, and close relatives, as well as on fliers and leaflets. In contrast, WLWHIV rarely used radio programmes and television as sources of family planning information. Implicitly, WLWHIV possess insufficient knowledge to make informed decisions on family planning because of a lack of awareness of basic family planning information tailored to their specific needs, a limited understanding of their family planning information requirements, and inadequate access to effective channels for disseminating information. As such, healthcare providers should establish integrated awareness creation training programmes to empower WLWHIV with knowledge of FP. Moreover, based on the findings, policymakers should consider integrating WLWHIV into the development of comprehensive community participatory plans to determine their information needs and user-friendly information dissemination sources.

Key Words: *Family Planning, Family Planning Information Needs, Sources of Family Planning Information, Reproductive Health, Women Living with HIV.*

[1] Dafrosa Andrea Mtui is working with University of Dar es Salaam Hospital. Her email address is mtuidafrosa5@gmail.com

[2] Ephraem E. Silayo is working with Ardi University. His email address is ephraem.silayo@aru.ac.tz

1. Introduction and Background.

Family planning programs have existed as an empowering tool for women of reproductive age. The programme aims to provide reproductive health information and contraceptive options among women (O'Reilly, 2024). Family planning programs designed to provide women with information and contraceptive Family planning information (FPI), therefore, play a crucial role in enhancing the quality of healthcare and promoting good reproductive health among women (Adeniyi et al. 2018). Empirical evidence from scholars shows that although family planning is the primary strategy to prevent unwanted pregnancies among HIV-infected women, the unmet need for contraception among HIV positive women is high (Kefale et al., 2021). Knowledge and Information Exposure About family planning issues on women of reproductive age shows that the dissemination of FP information among marginalised populations in urban settings is limited (Birabwa, et., al., 2021).

Globally, health authorities have underscored the need for the centrality of efforts to counter misinformation and promote accurate HIV-related information in strategies aimed to prevent new HIV infections and safeguard the well-being of people living with HIV (Garett & Young, 2022). Scholars have established that for women living with HIV (WLWHV), access to accurate and reliable FPI is particularly vital as it informs them about the available family planning (FP) services, their specific FP information needs, and the various information sources for making informed decisions on their reproductive health (Wema and Rupia, 2021). This is because through comprehensive FPI, women get empowered to formulate informed reproductive life plans that help prevent unintended pregnancies, enhance maternal well-being, and reduce adverse pregnancy outcomes associated with limited access to family planning services and information with negative health and socioeconomic consequences, ultimately diminishing the overall quality of life (Aizire 2024). Moreover, family planning information equips individuals and couples with essential knowledge that supports autonomous and informed reproductive decisions, which are fundamental to improving reproductive health outcomes.

Initiatives aimed to reduce HIV prevalence, minimise the impact of the public health threat and improve reproductive health have been spearheaded in Sub-Saharan African countries by the Joint United Nations Programme on HIV/AIDS (Boakye & Adjorlolo, 2023). The programme seeks to ensure that 95 per cent of people living with HIV know their status, 95 per cent of those diagnosed receive sustained antiretroviral therapy (ART), and 95 per cent of those on treatment achieve viral suppression in Ghana. The programme also underlines the need to ensure that women living with HIV (WLWHIV) are intentionally included in HIV-related information dissemination and service delivery mechanisms to enhance their equitable access to accurate, timely, and comprehensive reproductive health information. Despite the initiatives taken, the challenges associated with stigma and discrimination existed and hinder people from accessing the services promptly (Boah et al. 2023)

The study conducted in Kenya, on WLHIV attending comprehensive HIV care clinics, reported inconsistent uptake of postpartum modern contraceptive methods and emphasised the need to reinforce structured counselling and continuous reproductive health education within HIV care settings (Tebagalika et al., 2024). In West Africa, a mixed-method study focusing on adolescents living with perinatal-acquired HIV revealed limited sexual and reproductive health (SRH) knowledge and constrained access to youth-friendly services (Dahourau et al., 2025). The findings

underscore inadequate comprehensive SRH information, which consequently contributes to unintended pregnancies and missed opportunities for preventive interventions. The findings further illustrate that, despite policy frameworks, substantial barriers persist in translating reproductive health information into meaningful awareness and service uptake among WLHIV, reinforcing the need for targeted, context-specific interventions that improve information delivery in integrated health services.

In Tanzania, evidence demonstrates a substantial unmet need for modern contraception among women, including those living with HIV, hence the need to further strengthen reproductive health education and expand access to integrated family planning services to enhance informed choice and reproductive rights (Mkwashapi, 2023). The study has identified women whose demand for contraception has not been met: WLHIV, post-marital women, women with low education and women who were reported to earn money for their families. Family planning interventions should be tailored to these groups of women. The country has implemented plans to minimise the effect of the rising number of new HIV infections through expanding access to pre-exposure prophylaxis (PrEP), safe sex education, and harm reduction programmes for drug users, scaling HIV testing initiatives up, and ensuring widespread availability of ART, which are aligned with UNAIDS targets (URT, 2022). The country also launched Behavioural Change Communication (BCC) through mass media campaigns via radio, TV, and social media to promote safe sexual practices (URT, 2024). These initiatives notwithstanding, family planning information dissemination programmes specific to WLWHIV are still inadequate.

An empirical study conducted by Lee (2021) in Tanzania on barriers to using modern contraceptive methods among rural young married women ascertains that family planning is a safe and effective strategy for regulating fertility, preventing unintended pregnancies, and reducing maternal morbidity and mortality. However, it is further elucidated that sociocultural norms, partner influence, myths and misconceptions, and limited women's autonomy in decision-making continue to constrain consistent contraceptive use despite high awareness levels (Mosha et al., 2022). The study affirms that women who received comprehensive counselling and partner support were significantly more likely to make informed decisions on modern contraceptive methods than those with limited access to accurate information (ibid). Such information can significantly bridge the family planning gap to improve reproductive health.

The study undertaken in Tanzania has indicated that about 1.5 million people are reported to live with HIV/AIDS, while 65,000new infections are recorded annually (UNAIDS, 2019). HIV prevalence ranged from 0.8% in those aged 15-19 years to 13.0% in those aged 45-49 years. For years, Tanzania has been implementing the practice of providing comprehensive healthcare and related social services to people living with HIV as one of the rights directed to this group (URT, 2024). The right also emphasises equitable access to HIV prevention, treatment, care, and reproductive health information as central to improving quality of life among people living with HIV. Moreover, the policy underscores the importance of universal access to reproductive health education and services, which are recognised as critical components of sexual and reproductive health and rights (URT, 2024). Despite the existence of the right, women living with HIV/AIDS continue to face challenges in accessing and effectively utilising family planning information and services for improved reproductive health. Studies indicate that stigma, discrimination, gender power imbalances, limited autonomy in reproductive decision-making, and weak integration of

HIV and family planning services deter women's ability to make informed reproductive choices (WHO, 2023).

Studies undertaken in Tanzania indicated clearly that there is inconsistent access to comprehensive family planning knowledge among people living with HIV, and more specific to women (Timoth et al, 2023). Although some scholars have revealed that more attention has been paid to access and use of HIV/AIDS information and information dissemination, the information needs of women living with HIV as a specific social group are inconsistently met (Wema & Rupia, 2021; Ndumbaro & Ocheing, 2021). The situation constrains informed decision-making on matters pertaining to family planning for improved reproductive health. The constraint persists between policy frameworks and lived realities, consequently underscoring the need for empirical investigation. Therefore, this study is grounded in the rationale that ensuring effective access to and utilisation of family planning information and services among women living with HIV/AIDS is both a public health priority and a matter of fulfilling their right to comprehensive healthcare. Such access is decisive for adherence to informed reproductive decision-making, promoting safer sexual practices, reducing unintended pregnancies, and improving maternal and child health outcomes among women living with HIV (Timoth et al., 2023).

Notably, the relatively low adherence to FP information practices among women living with HIV in Tanzania may accelerate maternal death by complications of pregnancy and delivery (Mtui & Silayo, 2022). This persistent issue raises concerns about the level of awareness of family planning options and the extent to which specific groups, such as WLWHIV, can access family planning information and services. Besides insufficient awareness of FPI, the information needs of WLWHIV, as a unique group, are also inadequately met (Sanga et al., 2024). This paper, therefore, intends to bridge the FPI needs among WLWHIV in Peri-urban settings, for improved reproductive health, with a specific focus on women attending the RCH clinic at Mbagala Rangitatu Hospital in Temeke district, Dar es Salaam region, Tanzania. Specifically, the paper assesses the awareness of FPI among WLWHIV, establishes the FP information needs of WLWHIV and determines the sources WLWHIV use to access FPI.

2. Conceptual Framework

In Tanzania, family planning is predominantly a problem among women living with HIV/AIDS (URT, 2019). Despite the availability of family planning services all over the country, incidences of unintended pregnancies, morbidity, and mortality, among women living with HIV continue unabated, a problem extant literature has not adequately explained, hence this study. Consequently, understanding information needs and sources of accessing family planning information to inform decisions that are decisive in improving reproductive health has hitherto attracted little attention. This study seeks to fill this gap.

This study is grounded in the Information Motivation Behavioural (IMB) Skills Model developed by Fisher & William (2023). The model posits that three interrelated elements (accurate information, personal and social motivation, and behavioural skills) determine health behaviours. This model conceptualises family planning behaviour and reproductive health outcomes among women living with HIV (WLWHIV) as the product of the dynamic interaction between family planning information (FPI), motivational influences, and behavioural competencies that operate within structural and socio-cultural contexts.

The IMB model treats the informational deficiencies as foundational barriers to optimal family planning uptake. In this study, information components drawn from the IMB model guide the assessment of WLWHIV's knowledge of contraceptive methods, safer conception strategies, prevention of mother-to-child transmission (PMTCT), viral suppression, and possible interactions between antiretroviral therapy (ART) and contraceptives. Under the IMB's motivation element, the critical determinants of health behaviour are both personal and social motivation. This element aligns with the current study, as the motivation element informs and guides the study in exploring the perceived health risks, stigma, and partner disclosure or provider influence on reproductive choices. The contraceptive behaviour under the IMB's behavioural skills element guides the study in exploring the influence of self-efficacy in negotiating contraceptive use, communicating with partners and providers, and navigating integrated HIV family planning services. Collectively, the framework explains why service availability alone does not guarantee improved outcomes and positions information needs and access pathways as central mechanisms for further strengthening informed and autonomous reproductive decision-making among WLWHIV in Tanzania.

The framework also acknowledges structural and contextual moderators that shape the interaction among information, motivation, and behavioural skills. These include the degree of integration between HIV and family planning services, community engagement initiatives, the broader policy environment, sociocultural norms, gender dynamics, and economic and digital access. These factors may either facilitate or hinder the effective translation of FPI into improved reproductive health outcomes. The dependent variable in this study is improved reproductive health outcomes among WLWHIV, operationalised through increased informed contraceptive uptake, reduced unintended pregnancies, improved ART adherence during pregnancy, reduced maternal morbidity and mortality, and enhanced reproductive autonomy.

Conceptually, the framework proposes a sequential yet interactive pathway: access to accurate and WLWHIV-sensitive FPI enhances motivation by shaping informed fertility intentions and reducing stigma; strengthened motivation, in turn, supports the development and application of behavioural skills; and the effective interplay of these three constructs leads to improved reproductive health outcomes. Conversely, informational deficiencies, motivational barriers, and limited behavioural competencies disrupt this pathway, contributing to persistent unintended pregnancies and suboptimal reproductive health outcomes despite national policy expansion of HIV and family planning services.

Applying the IMB model to WLWHIV in Peri-urban Tanzania permits this study to address a critical knowledge gap. Although service availability has expanded nationally, limited empirical attention has been paid to understanding how family planning information needs interact with psychosocial and behavioural determinants to influence reproductive outcomes. This integrated framework, therefore, provides both explanatory clarity and practical direction for improving family planning information delivery and reproductive health among WLWHIV attending RCH services at Mbagala in Temeke district.

3. Empirical studies on FPI and WLWHIV

Various scholars have conducted studies and contributed to fostering knowledge on FP, FPI, and HIV among women. This section covers the empirical contributions of the scholarly work of various researchers on FPI and services among people living with HIV, FP Information Needs,

awareness among women of FPI, and access to FPI and services among women living with HIV. The section also reviews the Policy on People living with HIV, and finally, it establishes the existing knowledge gap.

3.1 Family planning information and services among people living with HIV

Family planning (FP) is one of the most cost-effective and powerful strategies for empowering women and improving their lives, as it can transform lives. The results from the survey undertaken on FP use among women living with HIV in Malawi ascertain that family planning information creates awareness among women living with HIV on the means for avoiding unplanned pregnancies and reducing the number of children exposed to HIV (Habte & Namasasu, 2015). The study further explains that the delivery of quality FP services among women living with HIV will also rescue them from many risks, including unplanned pregnancy. As such, communities ought to utilise relevant family planning knowledge to make informed decisions on their health, as ignoring such information can occasion harm and deteriorate their lives. Studies showed that having information or knowledge of FP, knowledge of HIV-positive status and attitude held by women toward modern FP are determinants of modern FP use by women (Simegn et al 2024; Habte& Namasasu, 2015).

3.2 Family Planning Information Needs

Studies over time have confirmed that the extent to which WLWHIV meet their family planning information needs has largely remained unchanged; consequently, women have unmet family planning information and knowledge (Birabwa et al., 2021). Other scholars acknowledge that women in many developing nations lack information about family planning in various areas, including spacing and contraceptives (Adamsu et al., 2025). The study explains that inadequate access to FPI among women can expose women to serious health and social challenges, including unintended pregnancies, unsafe abortions, and the risk of maternal death. In this vein, Oyinlola et. al. (2024) view that understanding changes in unmet need for family planning among women and their associated contextual factors is crucial for designing appropriate interventions.

The analysis made in the Malawi Demographic and Health Survey indicates that Women's knowledge of their HIV-positive status was found to be a significant predictor of their FP practice (Habte & Namasasu, 2015). The scholars further indicated that these women are facing various FP challenges, including unintended pregnancies with a concomitant risk of mother-to-child transmission of HIV infection. Likewise, the study conducted in Nigeria clearly elucidates that there is a significant unmet need for family planning among married women, which has remained a serious public health concern (Oyinlola et al., al (2024). The study ascertains that a good number of women who desire to use family planning fail to use it, as they lack significant information that could illuminate their informed decisions on the matter. The study suggested that policies and interventions should focus on improving women's socio-economic status at the individual and community levels to improve the extent of unmet need for family planning. Relatively, a study conducted in Ethiopia found that 53 per cent of women who were diagnosed to have HIV at voluntary counselling and testing (VCT) centres had unmet needs for family planning (Yedemie et al., 2020). The contributory factors include misinformation, little or incorrect knowledge of contraceptive options, and limited access to family planning services (Renee & Sean, 2022).

3.3 Awareness of women on family planning

Awareness of FP can empower women on various reproductive health matters, including the number of children a woman should have and the age at which to have them (Chukwuji et al., 2018; Adeniyi et al., 2018). Studies have indicated that a lack of awareness of MTCT is among the factors that limit women living with HIV from deciding to have children. This is because they face a lack of awareness on FP information and services, such as the wise use of contraceptives and other measures to control the reproduction timing (Menichil et. al., 2023). Such awareness exposes women to matters regarding sex education, prevention and management of sexually-transmitted infections, pre-conception counselling and management, and infertility management.

The study conducted by Chukwuji et. al. (2018) on awareness, access and utilisation of FPI in Zamfara State in Nigeria found that a very small number of respondents were aware of the benefits of family planning due to inadequate information that could guide their informed decision-making on matters of family. The study further explains that many women are not aware of the various methods of contraception, and they lack awareness and common misconceptions about the side effects and efficacy of FP among women in Nigeria. Other scholars have demonstrated that HIV-infected women who are informed of their status have a lower fertility desire and better use of contraceptives as compared to their HIV-negative counterparts (Habte & Namasasu, 2015). This will not only prevent unintended pregnancy among HIV-infected women but also is one of the strategies in the prevention of new HIV infections (Tenkorang, 2020).

Studies further show that awareness of matters about FP is helpful as it prevents women who are at risk of unintended pregnancies, low CD4 count, and mother-to-child transmission of HIV and high rates of unwanted pregnancy (51–90%), as studies in Sub-Saharan Africa reveal (Habte & Namasasu, 2015). Timoth et al. (2018) study further found that awareness of family planning methods creates awareness of women living with HIV on the means to avoid unplanned pregnancies and reduce the number of children exposed to HIV. Expanding the delivery of quality FP services among women living with HIV can, therefore, rescue them from many risks, including unplanned pregnancies (Kefale et al., 2021). It has been a practice that although the majority knew about some modern contraceptive methods, the overall contraceptive use was very low, as knowledge and use of contraceptive methods were particularly low (Ghulam et al., 2015).

3.4 Access to FP information and services among WLWHIV

Family planning information is the right information that every citizen who is of age should have access to. Recent studies in sub-Saharan Africa continue to demonstrate persistent gaps in access to family planning information (FPI) among women living with HIV (WLWHIV), including inadequate or incorrect knowledge of contraceptive options, limited service accessibility, and weak integration between HIV and family planning services (Mutalemwa et al., 2013). Social stigma and fear of discrimination also remain significant barriers that prevent WLWHIV from seeking family planning services (Mbabazi et al., 2022).

For broad-based information dissemination, behaviour change communication delivered through multiple information channels remains a critical strategy for improving reproductive health outcomes among WLWHIV (WHO, 2025). Evidence indicates that access to FPI sources depends on sociocultural context, educational background, and individual circumstances (Bolarinwa et al., 2021), hence the inevitable variations. Family planning information is disseminated through

diverse channels, including health talks, faith-based institutions, community outreach programmes, posters, radio, television, and digital media platforms (Kilugwe & Ruheza, 2018). The study further elucidates that access to radio, television, printed media, and mobile phones was observed more among women with tertiary education, women in urban areas and among those within a high wealth index.

Understanding the primary sources through which women access FPI can inform the design of targeted reproductive health interventions. In many developing countries, especially across sub-Saharan Africa, the range of FPI delivery channels continues to expand for both public and private sector providers (Wema & Rupia, 2021). The scholars explain further that public sector sources include government health facilities, reproductive health clinics, mobile outreach services, and community health workers. Despite these dissemination efforts, recent global and regional reports highlight limited integration of services and gaps in comprehensive counselling that compromise the intended impact of FPI programmes. In consequence, unmet contraceptive needs among WLWHIV continue to contribute to unintended pregnancies, increased risks of mother-to-child transmission (MTCT), infant morbidity, and maternal mortality in sub-Saharan Africa (Koray, 2024).

3.5 Literature Gap.

The gap this study intends to fill is that extant studies have demonstrated the use of family planning as one of the initiatives to improve reproductive health. While such studies provide valuable insights, they largely overlook the specific reproductive information needs of women living with HIV (WLWHIV), particularly in relation to unmet family planning demands. Moreover, there is limited empirical evidence examining information gaps that deter the ability of WLWHIV to make informed reproductive health decisions. Consequently, the extent to which targeted information interventions can address unmet family planning needs among this population remains underexplored. This is the family planning information gap this paper intends to fill with specific attention to women living with HIV WLWHIV in Mbagala Peri-Urban in Temeke District in Tanzania.

4. Materials and Methods

This study was conducted at Mbagala Rangitatu Hospital in Mbagala Ward, Temeke district, Dar es Salaam region, Tanzania. The study purposively selected Tanzania Mainland because, according to the Nationally representative 2016-2017 Tanzania Impact Survey [THS] (2022), women aged 15-39 are more than twice as likely to be living with HIV as their male counterparts. The survey further shows that the country's highest prevalence rate of HIV is 4.6%, compared to Zanzibar, where the prevalence rate is less than one per cent (THIS, 2022). The study purposively selected the Dar es Salaam region from the existing 30 regions in the country because it is the most populous, with a population of approximately 5.4 million (URT, 2022). Moreover, it is the country's commercial hub, attracting migrants from other countries and regions. Furthermore, the region has the highest number of people living with HIV. Temeke District was selected because it is the most populous district in the region, and most of its residents have moderate to low incomes and low to moderate educational levels.

Similarly, Mbagala ward was purposively selected because it is where Mbagala Rangitatu Hospital is located. Most people in Mbagala ward access medical services at Mbagala Rangitatu

Hospital. The hospital has the highest number of CTC and PMTCT clients compared with other health facilities in the district (Site Enrolment Register Data, 2021). In particular, the hospital has enrolled more than 6,573 people living with HIV attending the clinic (Site Enrolment register data, 2021) compared to other health facilities in the district. Most women in the ward attend the clinic at Mbagala Rangitatu Hospital because of its proximity and the level of care provided. The hospital serves not only the residents of the ward, but also people from nearby wards, as it is located on Kilwa Road and receives referrals from surrounding health facilities.

The study employed a case study design integrated with a qualitative approach to capture the opinions and experiences of women living with HIV regarding the problem under investigation. The design is appropriate considering the exploratory and context-specific nature of the study. The design empowers the researcher to obtain rich, contextualised and complex insight into social phenomena in their real-life as it addresses 'how' and 'why' questions, allowing for an in-depth examination of the phenomenon under review, as has also been established by Yin (2018) and Creswell and Creswell (2017). Essentially, the design clearly aligned the phenomenon (family planning information gaps) and the context (health service delivery environment) as interdependent components. Significantly, the case study supports the generation of rich, contextualised data, the exploration of lived experiences and perceptions, and the understanding of institutional practices affecting information access and use for improved reproductive health among WLWHIV.

A purposive sample of 30 women living with HIV (WLWHIV) was drawn from clients receiving family planning services at Mbagala Rangitatu Hospital. In addition, five key informants comprising three nurses, one medical doctor, and one social worker were also purposively selected. Purposive sampling enables the deliberate selection of participants who possess relevant characteristics and direct experience with the phenomenon under investigation. Only women living with HIV and receiving family planning services were eligible to provide first-hand insights into the challenges and information gaps affecting their reproductive health knowledge. Subject to their responsibilities, the three participants were involved in providing services that support reproductive and child health (RCH) services and/or the prevention of mother-to-child transmission of HIV (PMTCT) in the study area. This selection aligns with Yin (2018), who emphasises that the selection of participants for the study should consider the inclusion of respondents who have direct experiential knowledge of the issue under study in order to enhance construct validity and ensure that data are grounded in real-world contexts.

Primary data were collected using in-depth interviews with WLWHIV and health workers, supplemented by non-participant observation within the study setting. Secondary data were obtained through a document review of relevant published books, government reports, HIV policies and guidelines, and research reports. The collected data were subjected to thematic and content analyses. Thematic analysis involved identifying, organising, and interpreting patterns of meaning within the data. During the analysis process, the researcher carefully reviewed the transcripts and field notes to identify recurring themes, categories, and patterns. Findings from different sources were compared through the triangulation of data collected. As advocated by Denzin & Lincoln (2017), triangulation of data enhances the credibility and validity of the results. Relationships between categories were also examined, and emerging patterns were systematically

explored. The final interpretations were developed by relating the findings to the research themes and objectives, ensuring a coherent explanation of the phenomenon under investigation.

To ensure rigour, triangulation in data collection was employed, combining interview, observation, and document review data to enhance the credibility of the findings. Trustworthiness was further strengthened through corroborated evidence, careful interpretation of meanings, and the establishment of clear linkages during analysis and discussion. Transferability was supported by the use of well-developed and pre-tested data collection instruments, including interview and observation guides.

The study strictly adhered to ethical standards. Participants were fully informed about the purpose and scope of the study, assured of their voluntary participation, and guaranteed confidentiality and anonymity for the information they provided. The necessary permissions were obtained from the relevant authorities before data collection. Furthermore, a pilot study was conducted to test the validity and reliability of the research instruments before the commencement of the main data collection.

5. Results and Discussion

5.1 Demographic and Social Characteristics of the Participants

In this study, age, gender, education, marital status, and the number of children were key variables. These variables served as the primary basis for determining the characteristics of the respondents, as the needs and services in any given population depend on them. Ahinkorah et. al. (2020) examined the Association between demographic factors and unmet need for FPI needs among young women in sub-Saharan Africa (SSA), and found that unmet need for contraception is predominant among young women. Further, findings of a qualitative study conducted in Tanzania by Carroll and Kapillashrami (2020) on barriers to uptake of reproductive information and contraceptives in rural areas, women users of contraceptives and healthcare workers establish that individual characteristics (age, marital status and geography) contribute significantly towards shaping women's reproductive choices and preventing uptake of contraceptives. The demographic categories included in the current study are as presented hereunder.

5.2.1 Age of respondents

Most respondents were aged 26–35 years, which represents the peak reproductive age. Age significantly influences reproductive intentions, contraceptive behaviour, and service utilisation among women living with HIV (WLWHIV). Women in this age group reported higher exposure to Family Planning Information (FPI), largely through regular contact with Care and Treatment Clinics (CTCs), antenatal services, and PMTCT programmes. However, knowledge gaps persisted for long-term contraceptive methods, dual protection, and safer conception practices. Recent studies in sub-Saharan Africa emphasise the need for age-responsive, integrated HIV and family planning counselling to strengthen informed reproductive decision-making (Tolentino, 2020). Thus, age shaped both awareness levels and specific FPI needs.

5.2.2 Respondents' level of education

Most of the respondents had primary or secondary education, with a few attaining post-secondary education. Educational attainment significantly influences health literacy and comprehension of reproductive health information. Women with secondary education demonstrated better understanding of contraceptive options and clearer reproductive intentions, whereas those with lower education reported limited knowledge of side effects, long-term methods, and method switching. Evidence from sub-Saharan Africa shows that education strongly predicts contraceptive knowledge and utilisation among WLWHIV. Collectively, these findings suggest that strengthening facility-based education and expanding inclusive community outreach strategies remain critical for promoting equitable access to family planning information, as elucidated by Ahinkorah et. al. (2020). Women with lower literacy relied mainly on provider-counselling, while those with higher education used diverse sources such as media and printed materials. Therefore, education level shaped both awareness and preferred information channels.

5.2.3 Marital status

Most respondents were married, with marital status significantly influencing fertility intentions and contraceptive negotiation. Married WLWHIV prioritised child spacing, limiting births, and safer conception within sero-concordant or sero-discordant relationships, often relying on CTC counselling and spousal communication. In contrast, there were also single women who participated in the study. Findings of this study correspond to a comparative analysis from the HIV Impact survey conducted in Tanzania in 2016/17, which uphold that marital status affects reproductive autonomy and contraceptive uptake among women, hence determining both the type and depth of FPI required (Timothy et al., 2023). In view of this, it is clear that marital status in reproductive histories has potential confounders associated with family planning issues as well as contraceptive use.

5.2.4 Number of Children

All the respondents had children, with most having three or more. Higher parity was associated with a greater preference for long-term or permanent contraceptive methods. Research from sub-Saharan Africa indicates that WLWHIV with larger families are more likely to seek reliable contraception to prevent unintended pregnancies and minimise HIV-related health risks (Mbabazi et al., 2022). Having multiple children heightened awareness of the economic and health implications of further pregnancies, reinforcing demand for comprehensive FPI.

5.2.5 Relationship between demographic characteristics and FPI

Overall, demographic characteristics significantly influenced awareness, information needs, and sources of FPI. Age determined service exposure; education shaped health literacy; marital status influenced fertility decision-making; and parity affected contraceptive preferences. CTCs remained the primary source of information, supplemented by peer groups, community health workers, and media platforms. Women with higher education accessed more diverse channels, whereas those with lower education depended mainly on interpersonal counselling. These findings correspond to Ahinkorah et. al. (2020), who examined the Association between socio-economic and demographic factors and unmet need for contraception among young women in sub-Saharan Africa (SSA) and found that unmet need for contraception is predominant among young women of reproductive age.

5.3 Family Planning Information Needs of Women Living with HIV

Respondents also indicated their Family Planning Information (FPI) needs that are essential for them to make informed choices about their reproductive health while managing their HIV status. Respondents mentioned having information needs related to contraceptive Options. Some mentioned information on safe and effective contraceptive methods, including potential drug interactions with antiretroviral therapy (ART). They also mentioned how they need information on HIV effects on fertility and pregnancy outcomes. Regarding the importance of such information to WLWHIV, she said:

> *I always keep doctors' advice, but sometimes I am worried that continuously taking ART for a long time may endanger the functionality of my kidneys and liver, as the drugs are so powerful* (Respondent No. 27).

Implicitly, women living with HIV have inadequate ART-related information. Based on respondents' views, although women living with HIV trust and follow medical advice, they still experience gaps in clear, continuous, and reassuring communication regarding the safety, side effects, and monitoring of ART. In other words, WLWHIV require more comprehensive and understandable ART-related information to feel confident and secure in managing both their treatment and reproductive health decisions.

Furthermore, the study found that WLWHIV had inadequate information on the impact of HIV on Fertility and Pregnancy, potential side effects of contraceptives and ART interactions and guidance on managing side effects and when to seek medical advice. When they were probed to mention the specific area where they felt information gaps, they mentioned risk and management of mother-to-child transmission, and Information on safer conception methods at the time they desire children. In this, one of the respondents had the following to say on the requirements of such information:

> *It is hard to understand how my child can be HIV negative while I really know that I am living with HIV. I am aware that the foetus gets nutrients through the mother's blood, which passes via the umbilical cord to nourish the baby in the mother's womb with infected blood…It isn't easy to understand*. (Respondent No. 2)

Another respondent said:

> *We always save our lives through using contraceptives, and sometimes we do not access proper information regularly due to various reasons, including when we fail to follow the appropriate instructions on contraceptives and ART drugs, we experience discomfort.* (Respondent No.15)

These evidential statements illustrate that WLWHIV require adequate information to meet their family planning needs. The respondents elucidate that WLWHIV inadequately understand how prevention of mother-to-child transmission works. They highlight the need for simple, continuous education on safer conception and proper use of contraceptives and ART. Overall, the quotation underscores the value of consistent, accessible, and context-sensitive family planning information to support informed and confident reproductive decisions.

Respondents further reported that information on integrated HIV and family planning services through community media to reduce clinic visits and improve comprehensive care could enable them to access counselling services and essential guidance while at their respective homes. Although the method reduces costs to the WLWHIV, it also integrates some significant constraints, as communication challenges between health workers and clients may interfere with its functionality. In this regard, one respondent said:

> *Although opting for integrated HIV family planning services has advantages in terms of saving time and income, the method is coupled with a challenge that many women have low income, which would limit their capability to have access to communication devices that can retrieve WhatsApp, internet, YouTube and other social media…I can afford bus transport to and from the health facility, but the cost of modern communication devices and recharging expenses prevents me from meeting my information needs* (Respondent No. 13).

This statement illustrates the lived realities of many women living with HIV (WLWHIV) in Peri-urban settings, where financial hardship significantly constrains their ability to access family planning information (PFI). Limited economic resources often prevent them from owning internet-enabled mobile devices, thereby excluding them from digital platforms such as WhatsApp, YouTube, and other online health information channels. As a result, these women tend to depend predominantly on face-to-face interpersonal communication, particularly from healthcare providers, peers, and community networks, as their principal source of reproductive health information. The findings are congruent with the empirical studies conducted in the region, which demonstrate that women have limited digital connectivity associated with reduced exposure to timely and comprehensive sexual and reproductive health information (Gupta et al., 2015). The scholars further clarified that digital platforms can also empower sexual health education professionals to reach a broader audience and address specific family planning information needs. The findings are also consistent with IMB's Model (Fisher & William, 2023). Structural factors such as income disparities, gendered power relations, and unpaid care responsibilities have been shown to restrict women's digital participation. Other scholars elaborated on the mentioned factors that contribute towards reinforcing the existing inequities in reproductive health knowledge and service utilisation (Ouedraogo et al., 2021). These findings collectively suggest that, although digital platforms hold promise for expanding access to family planning information, equitable

implementation must address the socioeconomic realities that shape women's everyday lives in peri-urban and resource-constrained settings.

On the other hand, interviews with health workers (doctors and Nurses) on the critical areas of information needs of WLWHIV reveal that a majority in this group have uncertain information on issues about dietary management for improved health, prevention of communicable diseases, and early detection of HIV. The respondents contended that WLWHIV have information needs on the strategies to prevent HIV transmission to HIV-negative partners and information based on counselling on sero-discordant relationships and safe conception techniques. Throughout the respondent's explanation, it was noted that WLWHIV had several unmet information needs that required immediate attention. However, respondents believed that meeting such information needs would significantly contribute towards improved reproductive health. The respondents also expressed their concerns that such information needs could successfully be addressed in a culturally-sensitive, respectful, and empowering manner, tailored to each woman's unique circumstances and desires. These results align with scholarly work by Mbabazi et al. (2022), who recommended a strong need for clear information on viral suppression, ART, and safer conception for the women in sero-discordant relationships reported.

Interview findings from health workers corroborate the study conducted by Ahinkorah (2020) on fertility desire and intention of people living with HIV/AIDS in Southern Saharan Africa. The study indicates that WLWHIV often lack comprehensive and context-specific information related to nutrition, infection prevention, and reproductive decision-making. Indeed, the findings align with the IMB Model, which explains that accurate and relevant health information is a prerequisite for the development of behavioural skills and sustained preventive behaviours. Based on the theory, inadequate information, particularly concerning diet, disease prevention, and safe conception, may weaken women's capacity to make informed reproductive health decisions.

Regarding dietary management and prevention of communicable diseases, studies in sub-Saharan Africa show that WLWHIV frequently receive limited or inconsistent counselling on nutrition and infection prevention, despite the critical role of adequate nutrition in immune function and treatment adherence. Research conducted in South Africa and Uganda demonstrates that insufficient nutritional knowledge contributes to poor health outcomes and reduced quality of life among WLWHIV (Alemu et al., 2018). In Tanzania, Sunguya et al. (2014) found that nutrition training for healthcare providers significantly improved the quality of counselling they in turn offered to people living with HIV. Such observation may reflect broader systemic gaps in training and continuing professional development.

The interviews also highlighted the need for information on the prevention of HIV transmission to HIV-negative partners. The findings look similar to the study in Tanzania by Mmbaga et al. (2017), which reported that WLWHIV desire childbearing but often lack comprehensive information on strategies such as treatment as prevention (TasP), pre-exposure prophylaxis (PrEP) for HIV-negative partners, and timed unprotected intercourse during periods of viral suppression. The findings ascertain that the absence of clear guidance may increase anxiety, stigma, and the risk of horizontal transmission.

Furthermore, the need for early detection of HIV-related complications and improved counselling reflects findings from broader sub-Saharan African contexts, where gaps in provider-client communication and limited time for counselling sessions undermine effective information exchange (Turan et al., 2015). In Tanzania, qualitative studies have shown that WLWHIV often rely on informal sources of information due to inadequate counselling during clinical visits, thereby increasing the risk of misinformation (Mshana et al., 2006). Importantly, respondents in the present study emphasised that addressing these information needs must be culturally sensitive, respectful, and empowering. This perspective is supported by Zhang et al (2020), who highlight the importance of rights-based and woman-centred approaches in HIV care. Further, WHO guidelines stress that reproductive counselling for WLWHIV should be non-judgmental and tailored to individual fertility intentions, cultural context, and relational dynamics (URT, 2019). Culturally attuned counselling enhances trust, improves adherence to ART, and supports safer reproductive choices. It is therefore clear that addressing the unmet information needs of WLWHIV through structured, evidence-based, and culturally responsive counselling interventions will likely improve their reproductive health outcomes, strengthen behavioural skills and overall wellbeing.

5.4 Awareness of FPI and Services by WLWH

Respondents also reported awareness of FPI and services. Almost every respondent was aware of what constitutes family planning. Most of their answers reflected the education they received from healthcare providers (HCPs) in health facilities regarding methods of birth control. A few respondents reflected on the use of condoms to protect women from conceiving a pregnancy. For example, one respondent said:

> *Family planning information, such as the skills women get from reproductive Health Clinics (RHC) on ways they can use to prevent unwanted pregnancy and get children by choice as opposed to by chance* (Respondent No. 3).

Another respondent said:

> *FPI can be a message, data and ideas on ways through which women can acquire skills and knowledge about reproductive health of the mothers aimed to ensure that one conceives at the required time and avoid unintended pregnancy. Soon, it is the knowledge on how to plan for the number of children one wishes to have, in line with the interval of spacing them, to enable people to have a child whenever they want* (Respondent No. 1).

In addition, another respondent (No. 18) said:

> *Family Planning is all about an understanding of issues related to maternal and child Health in a view to prevent the mother and her newborn from getting complications* (Respondent No. 6).

Similarly, another respondent answered:

> *FPI is an orientation to women of childbearing age on ways they can apply to avoid unintended pregnancy* (Respondent No. 7).

These evidential statements from the respondents affirm that almost all respondents have specific knowledge of what constitutes FPI. The responses on understanding FPA were limited, as the answers focused on knowledge of family planning methods, child spacing, unintended pregnancies and the number of children one should have. Potentially, WLWH are aware that FPI has something to do with all necessary skills and knowledge on reproductive health, including maternal and child health in general, that could enable them to stay healthy regardless of their HIV positive status. Issues about knowledge on sexually transmitted diseases (STDs), general infections, and social and health consequences were not considered to have an effective part in the knowledge pattern related to their understanding of FPI.

Although health centres provide health services and relevant information on health matters, most women attending the CTC clinic are unaware of critical family planning information that is often disseminated there. Many women living with HIV are not aware due to little attention during seminars administered in clinic sessions, despite such knowledge being communicated in the health facilities such as hospitals and health centres. During KII with a nurse officer in the study area, it was revealed that most of the clients did not attend CTC sessions regularly. For example, one of the health officials at Rangitatu hospital said:

> *Usually, most women attend clinic in late hours while the health education session has already been administered, so they miss out on some crucial FP knowledge disseminated during seminar sessions, Also, some other women do not attend clinic in regular basis; as a result, they lack consistent knowledge on various FPI that could enable them to understand HIV-related health problems that health officials disseminate* (Respondent No. 9).

Respondents provided the information on FP methods, with some of them saying that they had specifically utilised natural methods, barriers specifically the use of the condom, intra-uterine contraceptive devices (IUCD), hormonal methods such as injections, oral contraceptives, Norplant, and the sterilisation method. However, most respondents reported having poor knowledge and receiving inadequate information about family planning services. Primarily, they rely on the barrier method. Further probing into their attendance at RHC and CTC revealed that this information is generally provided at the hospital amid overcrowding, making it difficult for HCP to attend to the clients equally. During a KII with a nurse officer, it emerged that some WLWH attend CTC and RCH irregularly, resulting in inconsistent knowledge of their FP.

Concerning FP services, some respondents stated that they were aware of the FP services provided to the WLWH at Mbagala Rangitatu Hospital. The services mentioned were education and counselling on FP methods, including their advantages and challenges, and screening clients to determine risk factors such as hypertension, diabetes and other STIs. Despite this awareness, the women's utilisation of family planning services remains moderately low. Of the 20 participants, almost half reported utilising modern FP methods. They attributed this matter to a misconception about some family planning methods and associated side-effects such as irregular menstruation, obesity and failure to conceive on time when one wishes to have a child.

The study findings further confirm the growing contemporary evidence that awareness of essential reproductive and HIV-related health information remains fundamental to the well-being of women living with HIV. The findings align with the Information component of the IMB model (Fisher &

William, 2023), which posits that accurate and comprehensive knowledge is essential for initiating and sustaining preventive health behaviours. For women living with HIV (WLWHIV), reproductive and HIV-related information empowers them towards making informed and safe decisions. The findings also comply with those of the empirical study undertaken in Northwest Ethiopia, which links improved contraceptive knowledge with reduced unplanned pregnancies and better maternal and child health outcomes (Mekonnen et al., 2021). The study further presents that there is limited information on the knowledge and associated factors of postpartum contraceptive use among women. Overall, it is certain that accessible and structured information in the study area remains a central problem to effective reproductive health interventions for WLWHIV.

5.5 Sources WLWH Use to Access FPI

For this subsection, the respondents indicated the sources they used to access family planning information in the 12 months preceding this study. In this regard, the respondents mentioned health centres, healthcare providers, neighbours, friends, and close relatives, as well as radio and television, social media, brochures and flyers, and women's meetings. Of these sources, interpersonal communication with neighbours, friends and close relatives emerged as the most utilised by the respondents. Indeed, women's meetings, radio, television and social media were not mentioned by the minority. During KIIs, one of the respondents said:

> *Most of the time, I get FPI from HCP from a nearby health facility. When I attend the CTC clinic, the provider typically begins with a health education session before providing the service. They also educate us on various health issues, such as balanced diet, immunisation, HIV issues, and FP methods, including their types, advantages, and consequences. They provide alternatives for making a choice. For those who arrive late, it is difficult for them to receive this information. Although sometimes TV and radio have specific sessions for FPI, it is too hard for me to adhere to this session due to a lack of money to pay for subscription costs, and inadequate time to watch TV."* (Respondent No. 3)

In other words, healthcare providers at nearby health facilities, particularly during CTC clinic visits, serve as her primary and most reliable source of family planning information (FPI). She values the structured health education sessions delivered before clinical services, where providers explain various health issues, including balanced diet, immunisation, HIV-related care, and detailed descriptions of family planning methods, their advantages, and possible side effects, allowing informed choice. However, the quotation also highlights structural and socio-economic constraints: women who arrive late may miss critical information, and access to television and radio-based FP programmes is limited by subscription costs and time constraints linked to financial hardship and domestic responsibilities. This participant, therefore, underscores both the centrality of provider-led interpersonal communication and the practical barriers to accessing media-based information.

These findings reinforce the importance of interpersonal communication in disseminating reproductive health information, particularly in low-resource settings where healthcare professionals are widely regarded as credible and trusted sources. The findings further illustrate that socio-economic inequalities continue to diminish women's access to digital and broadcast media, thereby limiting their effective use of subscription-based platforms such as television and internet-based platforms as primary channels for reproductive health information due to economic hardship. The issue was also emphasised by Gahungu & Regmi. (2021) in their systematic review on unmet reproductive health needs and socio-economic inequalities among women in sub-Saharan Africa.

Another respondent reported that after she began attending CTC, she was able to work with FPI, access available services, and manage her children's care, all while having sufficient time for other income-generating activities. When asked about the sources she had been using to access FPI other than the health facility, she said:

> *In my home, I have a radio and a TV, but we do not watch TV programmes due to the inability to meet subscription costs. I sometimes hear FP programmes on the radio, but not regularly, due to my livelihood-earning activities and household responsibilities. Sometimes, I gain access to FPI through healthcare providers when I take my baby for CTC at the health facility, where I can receive clarification that empowers me to identify the FP method I am currently using. Sometimes I communicate some FP matters with my friends, but only once, when the problem arises.* (Respondent No. 27)

The findings indicate that face-to-face interpersonal communication remains the most trusted source of family planning information, particularly when delivered by well-trained healthcare professionals. Although WLWH were expected to have access to adequate printed materials for independent reference, this was not evident in practice. Electronic media such as radio, television, and social media appear to contribute minimally to FPI dissemination in this context due to socio-economic barriers, including subscription costs, limited device ownership, and women's constrained time resulting from domestic and livelihood responsibilities. These findings align with the study conducted in South Africa, which suggests that information dissemination through radios is not always beneficial to women in rural settings (Fombad & Jiyane, 2016). The study further ascertains that media exposure alone does not guarantee equitable access to reproductive health information, particularly among low-income and marginalised women in sub-Saharan Africa. Moreover, scholarly work by Nirmani (2025) also shows that television and other subscription-based media platforms are less accessible and less influential among economically disadvantaged groups, thereby limiting their effectiveness as primary channels for disseminating family planning information.

Conclusion

Overall, this study has revealed that women living with HIV in the study area have unmet family planning needs that require targeted attention to improve their reproductive health. Notably, their awareness levels were moderately low due to limited access to information. This lack of access is attributed to inconsistent FP knowledge for informed decision-making, stemming from insufficient access to diverse sources of family planning information and services. Based on the study findings and the conclusion, this paper recommends that healthcare providers develop integrated awareness

and training programmes to strengthen women living with HIV's knowledge of family planning information through clinic services, outreach activities, and support groups. Also, the paper recommends that policymakers and local authorities should meaningfully involve WLWHIV in participatory and sustainable community planning processes to ensure that their information needs are identified and addressed through accessible and user-friendly dissemination channels. In addition, Community-Based Organisations and Health Officers in health facilities should encourage the use of diverse and reliable information sources, while healthcare professionals adopt tailored, culturally sensitive communication strategies suited to women's literacy and socio-economic contexts. Furthermore, government agencies and development partners should promote entrepreneurial and livelihood empowerment information to enable WLWHIV to access stable income-generating activities and actively engage in such initiatives. Strengthening women's economic capacity not only reduces the risk of overdependence on male partners but also enhances their autonomy and freedom to make informed decisions about family planning.

References:

Adeniyi O., Ajayi A., Moyaki M., Goon, D., Avramovic G., Lambert, J. (2018). High rate of unplanned pregnancy in the context of integrated family planning and HIV care services in South Africa. BMC Health Services Research 140. https://doi.org/10.1186/s12913-018-2942-z

Admasu, F. T., Getahun, A. E., & Worku, M. G. (2025). The role of family planning information exposure on contraceptive utilization and maternal health outcomes in sub-Saharan Africa. *BMC Women's Health, 25*, Article 3895. https://doi.org/10.1186/s12905-025-03895-w

Ahinkorah B, Ameyaw E and Abdul-Aziz S. (2020). Socio-economic and demographic predictors of unmet need for contraception among young women in sub-Saharan Africa: evidence from cross-sectional surveys. Reprod Health (2020) 17:163 https://doi.org/10.1186/s12978-020-01018-2

Aizire J., Yende-Zuma N., Hanley S., Nematadzira T., Mandisa M. Nyati M., Dadabhai S., Chinula L., Nakaye C., Fowler M & Taha T**. (2024).** Unintended pregnancy and contraception use among African women living with HIV: Baseline analysis of the multi-country US PEPFAR PROMOTE cohort. https://doi.org/10.1371/journal.pone.0290285

Alemu, Y. M., Habtewold, T. D., & Alemu, S. M. (2018). *Mother's knowledge on prevention of mother-to-child transmission of HIV, Ethiopia: A cross-sectional study*. PLoS ONE, **13**(9), e0203043. https://doi.org/10.1371/journal.pone.0203043

Birabwa C, Chemonges D, Tetui M, Baroudi M, Namatovu F, Akuze J, Makumbi F, Ssekamatte T, Atuyambe L, Hernandez A and Sewe MO (2021). Knowledge and Information Exposure About Family Planning Among Women of Reproductive Age in Informal Settlements of Kira Municipality, Wakiso District, Uganda Front. Glob. Women's Health 2:650538. Volume 2 - 2021 https://doi.org/10.3389/fgwh.2021.650538.

Boah, M., Yeboah, D., Kpordoxah, M. R., Issah, A. N., & Adokiya, M. N. (2023). Temporal trend analysis of the HIV/AIDS burden before and after the implementation of antiretroviral therapy at the population level from 1990 to 2020 in Ghana. *BMC Public Health*, *23*(1), https://doi.org/10.1186/s12889-023-16321-3

Boakye, D.S., & Adjorlolo, S. (2023). Achieving the UNAIDS 95-95-95treatment target by 2025 in Ghana: a myth or a reality? Global Health Action. 16(1) https://doi.org/10.1080/16549716.2023.2271708

Carroll A & Kapillashrami, A. (2020). Barriers to uptake of reproductive information and contraceptives in rural Tanzania: an intersectionality informed qualitative enquiry. BMJ Publishing Group Ltd. https://bmjopen.bmj.com/content/10/10/e036600

Chukwuji, C., Tsafe, A., Sayudi, S., Yusuf, Z., & Ja'afar Z. (2018). Awareness, Access and Utilization of Family Planning Information in Zamfara State, Nigeria. Library Philosophy and Practice (e-journal) https://l1nq.com/geu28kx

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Dahourou, D, Tisseron C., Yonaba C., Djaha I., N'gbeche M., Moh C., Kouadio, D., Nindjin P., Eboua F & Bouah B., et al. (2025). Incidence of unintended pregnancies and pregnancy experience among adolescents living with perinatally-acquired HIV in West Africa: a mixed-method study. PMCID: PMC11783697. https://doi.org/10.1186/s12889-025-21595-w

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2017**).** The SAGE handbook of qualitative research *(5th ed.). SAGE Publications.*

Duah D, R., Amuasi, S. A., & Agyekum, M. W. (2022). Exposure to family planning messages and contraceptive use among women of reproductive age in sub-Saharan Africa: A multilevel analysis. *Scientific Reports, 12*, Article 22525. https://doi.org/10.1038/s41598-022-22525-1

Dwomoh, D., Amuasi, S. A., Amoah, E. M., Gborgbortsi, W., & Tetteh, J. (2022). *Exposure to family planning messages and contraceptive use among women of reproductive age in sub-Saharan Africa: A cross-sectional program impact evaluation study*. Scientific Reports, 12, 18941. https://doi.org/10.1038/s41598-022-22525-1

Fagbamigbe, A. F., Afolabi, R. F., & Idemudia, E. S. (2018). Demand and Unmet Needs of Contraception Among Sexually Active In-Union Women in Nigeria: Distribution, Associated Characteristics, Barriers, and Program Implications. *Sage Open*, *8*(1). https://doi.org/10.1177/2158244017754023

Fisher, J. D., & Fisher, W. A. (2023). *An Information-Motivation-Behavioural Skills (IMB) Model of pandemic risk and prevention. Advances in Psychology, 1*, 1–26. https://doi.org/10.56296/aip00004

Fombad, M & Jiyane, G. (2016).The role of community radios in information dissemination to rural women in South Africa. Journal of Librarianship and Information Science, Volume 51, Issue 1. https://doi.org/10.1 177/0961000616668960

Gahungu, J., Vahdaninia, M. & Regmi, P. The unmet needs for modern family planning methods among postpartum women in Sub-Saharan Africa: a systematic review of the literature. *Reprod Health* 18, 35 (2021). https://doi.org/10.1186/s12978-021-01089-9

Garett, R & Young, S. D. (2022). The impact of misinformation and health literacy on HIV prevention and service usage. *Journal of the Association of Nurses in AIDS Care, 33*(1), e1–e5. https://doi.org/10.1097/JNC.0000000000000298

Gupta N, Chandak A, Gilson G, Pelster AK, Schober DJ, Goldsworthy R, Baldwin K, Fortenberry JD, Fisher C. Discovering Sexual Health Conversations between Adolescents and Youth Development Professionals. Am J Sex Educ. 2015 Jan 1;10(1):21-39. https://doi.org/10.1080/15546128.2015.1009596

Habte D and Namasasu, J. (2015). Family planning use among women living with HIV: knowing HIV positive status helps - results from a national survey. Reproductive Health. https://doi.org/10.1186/s12978-015-0035-6

Kefale B, Adane B, Damtie Y, Arefaynie M, Yalew M, Andargie A, Addisu E. (2021). Unmet need for family planning among reproductive-age women living with HIV in Ethiopia: a systematic review and meta-analysis. https://doi.org/10.1371/journal.pone.0327429.

Kilugwe, Z., & Ruheza, S. (2018). Access to Communication Channels and Use of Family Planning among Women in Tanzania: Spatial and Socio-demographic Analysis. *Journal of Social and Development Sciences*, *9*(3), 55-65. https://doi.org/10.22610/jsds.v9i3.2477

Koray M., Mshenga M., Mwanja E, Sulieman S., Augustine A., & Domah-Afari A. (2024).Predictors of Unmet Needs of Family Planning Among Women in Their Reproductive Ages Living with HIV in Sub-Saharan Africa: Analysis of Demographic Health Survey. https://doi.org/10.1101/2024.08.29.24312800

Kiersten J., Ilona Varallyay I., and Ametepi P. (2012). Integration of HIV and Family Planning Health Services in Sub-Saharan Africa: A Review of the Literature, Current Recommendations, and Evidence from the Service Provision Assessment Health Facility Surveys. DHS Analytical Studies No. 30. Calverton, Maryland, USA: ICF International. https://www.dhsprogram.com/pubs/pdf/AS30/AS30.pdf#:~:text=SEPTEMBER%202012%20This%20publication%20was%20produced%20for,Varallyay%2C%20and%20Paul%20Ametepi%20of%20ICF%20International.

Lee, M. (2021). The barriers to using modern contraceptive methods among rural young married women in Moshi Rural District, the Kilimanjaro region, Tanzania. *African Journal of Reproductive Health, 25*(4), 99–107. https://www.ajrh.info/index.php/ajrh/issue/view/112

Mbabazi, L., Nabaggala, M., Kiwanuka, S., Kiguli, J., Laker, E., Kiconco, A., Okoboi, S., [1], Mohammed Lamorde, M., & Barbara C. (2022). Factors associated with uptake of contraceptives among HIV positive women on dolutegravir-based anti-retroviral treatment: a cross-sectional survey in urban Uganda. BMC Women's Health https://doi.org/10.1186/s12905-022-01842-7

Mbotwa, C. H., Kazaura, M. R., Moen, K., Leshabari, M. T., Metta, E., & Mmbaga, E. J. (2023). *Retention in an mHealth app aiming to promote the use of HIV pre-exposure prophylaxis among female sex workers in Dar es Salaam, Tanzania: A prospective cohort study.* JMIR mHealth and uHealth, 11**,** e46853. https://doi.org/10.2196/46853

Mekonnen, B.D., Gelagay A.A & Lakew, A.M. (2021). Knowledge Associated Factors of Postpartum Contraceptive Use Among Women in Extended Postmortum in Gondar City, North West Ethiopia. Open Access J Contracept. https://doi.org/10.2147/OAJC.S290337

Mkwashapi, D., Renju, J., Mahande, M., Wringe, A., Changalucha, J., Urassa, M., & Todd, J. (2023). *Unmet need for modern contraception by HIV status: findings from community-based studies implemented before and after earlier ART initiation program in rural Tanzania.* Reproductive Health, 20**,** 153. https://doi.org/10.1186/s12978-023-01695-9

Menichil, A, Worku, K, Ayalew, M., & Alehegn A. (2023). Contraceptive use and associated factors among women of reproductive age on antiretroviral therapy in Awabel Woreda health centers, Northwest Ethiopia, Sage Publication. https://doi.org/10.1177/20503121231190275

Mosha, I., Ruben, R. and Kakoko, D. (2013) Family Planning Decisions, Perceptions and Gender Dynamics among Couples in Mwanza, Tanzania: A Qualitative Study. BMC Public Health,13, 523. http://dx.doi.org/10.1186/1471-2458-13-523.

Mshana, G., Plummer, M. L., Wamoyi, J., Shigongo, Z. S., Ross, D. A., & Wight, D. (2006). *"She was bewitched and caught an illness similar to AIDS": AIDS and sexually transmitted infection causation beliefs in rural northern Tanzania.* Culture, Health & Sexuality, 8**(1), 45–58.** https://doi.org/10.1080/13691050500469731

Mtui, D. A., & Silayo, E. E. (2022). Utilization of family planning information for improved reproductive health among women living with HIV in Temeke District of Dar es Salaam, Tanzania. *The Journal of Building and Land Development, 23*(2), 26–37. https://journals.aru.ac.tz/index.php/JBLD/article/view/356

Mutalemwa, P. P., Kisinza, W. N., Urassa, J. A., Kibona, S. N., Mwingira, U., Lasway, C., Kilima, S. P., Tenu, F., Mujaya, S., & Kisoka, W. J. (2013). Integrating reproductive, child health, and HIV services in Tanzania: Implication to policy, systems and services. *Tanzania Journal of Health Research*, *15*(2). https://doi.org/10.4314/thrb.v15i2.8

Ndumbaro F & Ochieng, L. (2021). Access to Information on Family Planning (FP) Methods Among Married Women of Reproductive Age in Ilala District, Dar es Salaam, Tanzania. University of Dar es Salaam Library Journal Vol 16, No 1 (2021), pp 98-114ISSN: 0856-1818 https://journals.udsm.ac.tz/index.php/lj/article/view/4302#:~:text=Lucy%20M%20Ochieng-,Abstract,challenges%20in%20accessing%20contraceptive%20information

Nirmani I. (2025). Barriers to digital participation in developing countries: Identifying technological, social, and cultural obstacles to community involvement * Prime Minister's Office, Colombo, Sri Lanka. GSC Advanced Research and Reviews. https://doi.org/10.30574/gscarr.2025.23.2.0130

Ochieng, K. (2023). Efficacy of Social Media for Accessing Sexual and Reproductive Health Information by Youth in Nairobi, Kenya: Case of AMREF Programme, International Journal of Research and Innovation in Social Science. https://dx.doi.org/10.47772/IJRISS.2023.7011086

Ouedraogo L, Habonimana D, Nkurunziza T, Chilanga A, Hayfa E, Fatim T, Kidula N, Conombo G, Muriithi A, Onyiah P. (2021). Towards achieving the family planning targets in the African region: a rapid review of task sharing policies. Reprod Health 23;18(1):22. 22 https://doi.org/10.1186/s12978-020-01038-y

O'Reilly K., · Yeh P., · Kennedy C., · Virginia A. Fonner, V, & M. Sweat. (2024). Substantive Review; Family Planning Counselling for Women Living with HIV in Low- and Middle-Income Countries:

A Systematic Review of the Impact on Contraceptive Uptake, Intention to Use Contraception and Pregnancy Incidence, 2011 to 2022 AIDS and Behaviour (2024) 28:2477–2491 https://doi.org/10.1007/s10461-024-04319-w.

Oyinlola FF., Kupoluyi JA & Adetutu OM. Changes in unmet need for family planning among married women of reproductive age in Nigeria: A multilevel analysis of a ten-year DHS wave. PLoS One. 2024 Aug 2;19(8): PMC11296638 https://doi.org/10.1371/journal.pone.0306768

Renee, G & Sean D. (2022). The Impact of Misinformation and Health Literacy on HIV Prevention and Service Usage *Journal of the Association of Nurses in AIDS Care* 33(1): p. e1-e5, January/February 2022. https://doi.org/10.1097/JNC.0000000000000298

Simegn, W., Hussen, E., Maru, Y. *et al.* Knowledge, attitude, practices and associated factors of family planning among women living with HIV at the University of Gondar specialized hospital: a cross-sectional study. *BMC Women's Health* **24**, 232 (2024). https://doi.org/10.1186/s12905-024-03036-9

Sunguya, B. F., Poudel, K. C., Mlunde, L. B., Urassa, D. P., Yasuoka, J., & Jimba, M. (2014). Poor nutrition status and associated feeding practices among HIV-positive children in a food-secure region in Tanzania: A call for tailored nutrition training. *PLoS ONE,* **9**(5), e98308. https://doi.org/10.1371/journal.pone.0098308

Tebagalika F., Kimuli, D., Walusimbi, D., Nyang'echi, E., and Louisa N. (2024). Postpartum modern family planning among women living with HIV attending care at health facilities in Busia County, Kenya. Contraception and Reproductive Medicine (2024) 9:57. https://doi.org/10.1186/s40834-024-00319-2

Timoth S, Machange J, Karino K, Mtenga S, Mkopi A, Levira F. The impacts of family planning and HIV service integration on contraceptive prevalence among HIV positive women in Tanzania: a comparative analysis from the 2016/17 Tanzania HIV impact survey. Contracept Reprod Med. 2023 Dec 6;8(1):58. doi: 10.1186/s40834-023-00260-w. PMID: 38057924; PMCID: PMC10698873. https://doi.org/10.1186/s40834-023-00260-w

Tolentino, L. (2020). Factors Associated with Type of Method at Contraceptive Debut and Unwanted Pregnancy Among Current Contraceptive Users In Northwest Ethiopia. United States: University of Washington Libraries. https://digital.lib.washington.edu/researchworks/bitstreams/fda331d4-0dad-47c9-80e1-c9afe9410c2e/download

Turan, J. M., Onono, M., Steinfeld, R. L., Shade, S. B., Owuor, K., Washington, S., Bukusi, E. A., Ackers, M. L., Kioko, J., Interis, E. C., & Cohen, C. R. (2015*).* Implementation and operational research: Effects of antenatal care and HIV treatment integration on elements of the PMTCT cascade: Results from the SHAIP cluster-randomized controlled trial in Kenya. *Journal of Acquired Immune Deficiency Syndromes, 69*(5), e172–e181. https://scispace.com/pdf/implementation-and-operational-research-effects-of-antenatal-4pp52hfc8g.pdf.

UNAIDS. (2023). *Global AIDS Update 2023: The path that ends AIDS*. Global AIDS Update https://www.unaids.org/sites/default/files/media_asset/2023-unaids-global-aids-update_en.pdf.

UNAIDS. (2025). United Towards Ending Aids: The Global Aids Strategy for 2026–2031 Unaids Programme Coordinating Board Issue date: 20 November 2025, Brasília, Brazil. https://www.unaids.org/sites/default/files/2025-11/PCB57_Global_AIDS_Strategy_2026-2031_0.pdf

United Republic Of Tanzania. (2019). Community Development, Gender, Elderly, and Children National Aids Control Programme: National Guidelines for the Management of HIV and AIDS, 7 th Edition. Ministry of Health, Tanzania. https://differentiatedservicedelivery.org/wpcontent/uploads/national_guidelines_for_the_management_of_hiv_and_aids_2019.pdf

United Republic of Tanzania. (2001). National policy on HIV/AIDS. Dar es Salaam: Prime Minister's Office. Retrieved from http://www.tzonline.org/pdf/nationalaidspolicy.PDF

United Republic of Tanzania URT. (2008). Trainer's Guide For Management of Sexually Transmitted And Reproductive Tract Infections National AIDS Control Programme (NACP) & Reproductive and Child Health Section https://www.jica.go.jp/Resource/project/tanzania/001/materials/pdf/sti_02.pdf

United Republic of Tanzania URT. (2019). *National Guidelines for the Management of HIV and AIDS.* URT. (2019). National Aids Control Programme; National Guidelines for The Management of HIV and AIDS 7th Edition. https://differentiatedservicedelivery.org/wp-content/uploads/national_guidelines_for_the_management_of_hiv_and_aids_2019.pdf

United Nations Population Fund. (2023, September 27). *Access to contraceptive information is central to achieving gender equality*. https://tanzania.unfpa.org/en/news/access-contraceptive-information-central-achieving-gender-equality

United Republic of Tanzania (URT). (2022). *National multi-sectoral strategic framework on HIV and AIDS 2021/22–2025/26*. Tanzania Commission for AIDS. https://www.tacaids.go.tz/uploads/documents/en-1676620457-NMSF%20V%202021-2026.pdf

Wema E & Rupia J. (2021). HIV/AIDS Information in Tanzania: A guide to Future Research. University of Dar es Salaam Library Journal Vol 16, No 2 (2021), pp 161-172. https://dx.doi.org/10.4314/udslj.v16i2.1

World Health Organization [WHO]. (2025). Social and behavior change interventions for contraception and family planning: Implementation guidance for policymakers and programme managers.Human Reproduction Programme. https://iris.who.int/server/api/core/bitstreams/fe7ca1da-4ece-4a7f-929b-a2c6e48b3fff/content

World Health Organization [WHO]. (2022). Consolidated guidelines on HIV, viral hepatitis and STI prevention, diagnosis, treatment and care for key populations. Guideline https://www.who.int/publications/i/item/9789240052390#:~:text=Consolidated%20guidelines%20on%20HIV%2C%20viral,STI%20for%20key%20populations%20%2D%202022, Retrieved in 7th March, 2026

World Health Organization [WHO]. (2023). *Family planning/contraception: Fact sheet*. https://www.who.int/news-room/fact-sheets/detail/family-planning contraception#:~:text=Infertility%2C%20defined%20as%20the%20inability,methods%20do%20not%20cause%20in fertility

World Health Organization. (2022). *Consolidated guidelines on HIV, viral hepatitis and STI prevention, diagnosis, treatment and care*. Geneva: https://www.who.int/publications/i/item/9789240052390

World health statistics (2025). Monitoring health for the SDGs, Sustainable Development Goals https://iris.who.int/server/api/core/bitstreams/c992fbdc-11ef-43db-a478-7e7a195403ae/content

Yakubu, I., & Salisu, W. J. (2018). Determinants of adolescent pregnancy in sub-Saharan Africa: A systematic review. *Reproductive Health, 15*(1), 15. https://doi.org/10.1186/s12978-018-0460-4

Yedemie, Y. (2020). The need for family planning among female clients of HIV/AIDs Voluntary Counselling and Testing (VCT) centers in northeast Ethiopia: Integration of family planning with VCT PMID: 33383357 https://doi.org/10.1016/j.srhc.2020.100585

Yesuf, K. (2024). Modern contraceptive utilization and associated factors among younger and older married youth women in Ethiopia: Evidence from Ethiopia Mini Demographic and Health Survey 2019 https://doi.org/10.1371/journal.pone.0300151

Yin, R. K. (2018). Case Study Research and Applications: Design and Methods (6th ed.). Thousand Oaks, CA: Sage.

Wanyenze, R. K., Alfvén, T., Ndejjo, R., Viberg, N., Båge, K., Batte, C., Helldén, D., Lindgren, H., Mayega, R. W., Ndeezi, G., Swartling Peterson, S., Nawangwe, B., & Ottersen, O. P. (2023). *Sustainable health—a call to action*. *BMC Global Public Health*, 1, 3. https://doi.org/10.1186/s44263-023-00007-4

World Health Organization. (2020). *Family planning/contraception methods*. https://www.who.int/news-room/fact -sheets/detail/family-planning-contraception