HIV/AIDS Among Women in Sub-Saharan Africa: A Review of The Current Practices and Status

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DOI: https://doi.org/10.51244/IJRSI.2024.1108086

Received: 22 July 2024; Revised: 27 July 2024; Accepted: 01 August 2024; Published: 14 September 2024

ABSTRACT

Background: After HIV was discovered more than three decades ago, Sub-Saharan Africa (SSA) is still disproportionately affected by the epidemic although, the region is only 11% of the global population. Women and young girls bear the HIV burdens due to the interconnectedness of structural, cultural, biological, behavioral, social, and economic vulnerabilities.

Method: As part of the study's methodologies, a desk review of the body of research was done, and materials that included HIV interventions of all kinds were included.

Results: Significant advancements have been made in the fields of biological, behavioral, and structural interventions; nevertheless, the cultures and customs that upheld them—including norms firmly rooted in patriarchal practices—continued to pose a significant obstacle to lowering the prevalence of HIV among women and young girls in Sub-Saharan Africa.

Conclusion: Context-specific intervention efforts should address the linked factors that contributed to the disproportionate number of HIV infections among women and young girls in Sub-Saharan Africa. The region's culture, traditions, and structural interventions that address economic vulnerability and gender inequality laced with patriarchal practices are promising in reducing the risk of HIV infection among women.

Keywords: Sub-Sahara Africa, HIV infections, prevention, adherence, women and teenage girls

INTRODUCTION

The Sub Sahara Africa (SSA) is home to about 11 percent of the world's population but it is the region most affected by HIV/AIDS. There were an estimated 39.0 million [33.1–45.7 million] people living with HIV at the end of 2022, two-thirds of whom are in the WHO African Region [1]. For instance, an estimated 25.6 million people are living with HIV in SSA; 3.8 million in Americas; 3.9 in South-East Asian region; 490,000 Mediterranean region and 2.2 million in the Western Pacific region [2]. Most countries in SSA report the HIV epidemic among the generation and pockets of concentration in the main populations given that activities of the key population are outlawed with consequences of 14 years imprisonment in Nigeria for culprits and perpetrators [3] In 2022, 1.3 million people were newly infected with HIV a juxtaposed to 3.2 million people in 1`995. However, of all these new infections, women and girls accounted for 46% while SSA adolescent girls and women accounted for more than 77% of new infections [2]. Additionally, in SSA, adolescent girls and young women (aged 15-24 years) were more than three times as likely to acquire HIV than their male counterparts and 3100 of 4000 adolescent girls and young women who were infected with HIV globally occurred in SSA. Regrettably, only about 42% of countries in SSA with high HIV incidences had dedicated HIV prevention programs for adolescent girls and young [2].

ISSN No. 2321-2705 | DOI: 10.51244.IJRSI |Volume XI Issue VIII August 2024

The HIV pandemic is most severe in Southern Africa where over 10% of the people who are infected with HIV/AIDS reside within the region. Adult HIV prevalence exceeds 15% in Eswatini, Botswana, and Lesotho, while an additional six countries report adult HIV prevalence of at least 10%. Outside Africa, the highest prevalence rate is found in the Bahamasat 3.3% [3].At the end of 2022, South Africa had the largest number of HIV/AIDS patients in absolute terms, with 7.5 million, followed by Mozambique (2.2 million), India (2.1 million), and Nigeria (1.8 million) [4]. Due to its high disease prevalence (17.3%, among the highest in the world), South Africa has a significant population of HIV-positive individuals; in contrast, Nigeria and Mauritius have lower prevalence rates (1.3% and 1.0%, respectively) (UNAIDS, 2022). UNAIDS classifies nations with high HIV rates over 1% as having generalized HIV epidemics (GHEs), however India's prevalence is well below this cutoff, being lower than that of the US and roughly equal to that of Spain [5]

HIV/AIDS and African Women

In 2022, women and girls made up 46% of all newly HIV-positive cases worldwide, while adolescent girls and women in the South African Sub-Saharan region accounted for over 77% of all new cases [2]. The majority of SSA countries describe the state of the epidemic based mostly on data from their prenatal monitoring programs, which offer limited information on HIV incidence, due to the difficulty of accurately measuring HIV incidence rates. The greatest HIV rates were found in African nations, particularly in South Africa, Lesotho, and Ethiopia. These rates have been linked to issues including gender inequality, poverty, and treatment access barriers [6] revealed that the adult HIV prevalence in South Africa (14%), Zambia (12.5%), Zimbabwe (22.10%), Lesotho (24.10%), Botswana (22.60%), Ghana (1.8%), and South Africa (14%). Among the risk variables linked to an increased chance of HIV infection are being under 25 years old, having experienced one STI in the past, and not being married, among other things Wand & Ramjee (2012). Additionally, Rehle et al. (2013) found that among South African women, being younger and single increased the chance of HIV exposure and acquisition.

Predisposing Factors to HIV Among African Women

There are various factors that contribute to the HIV epidemic's disproportionate effect on women, such as biological, social, behavioral, cultural, economic, and structural aspects. The disproportionate rise in HIV infection rates among women in SSA as compared to men is the result of a confluence of these causes [7].

Factors leading to biological hazards

[8] women are more physiologically vulnerable to HIV infection than men. This is partly because women are more prone to have tissue damage during sexual activity and have larger mucosal surfaces that are exposed to pathogens and infectious fluid for longer periods of time. Cervical ectopy puts young women at elevated risk because it increases target cell exposure to vaginal trauma and infections [9]. Since STIs have a history of increasing HIV exposure and acquisition risk, women's risk is mostly caused by challenges in early STI diagnosis, as STIs often present without symptoms [10].

There is evidence that STIs raise the risk of HIV exposure and acquisition [10]. As a result, women are more vulnerable because it might be challenging to diagnose STIs early in asymptomatic period. The relationship between traditional STIs (which induce mucosal inflammation or ulcers) and HIV emerged early in the epidemic; Plot & Laga [11] were the first to investigate this relationship, which [12] referred to as "epidemiologic synergy." Studies afterward have focused a great deal of effort on biological pathways to explain how STIs facilitate HIV transmission. The enhanced infectiousness of HIV-positive individuals and the increased vulnerability of HIV-negative individuals are two significant roles that STIs may play, according to these study investigations. According to Galvin SR and Cohen MS (2004), increased infectiousness seems to be a result of changes in the viral phenotype of HIV variations that facilitate transmission as well as increases in the concentration of HIV in vaginal secretions. [13] investigated the prevalence of sexually transmitted infections (STIs) at four clinical trial sites: Moshi (Tanzania), Lusaka (Zambia), Durban and Hlabisa (South Africa), and Chlamydia trachomatis, syphilis, and Trichomonas vaginalis. According to the study, participants in Tanzania and Zambia were less likely than women at the South African sites to contract

ISSN No. 2321-2705 | DOI: 10.51244.IJRSI |Volume XI Issue VIII August 2024

a STI by a factor of three. Research on HIV/STI "hot spots" among women in KwaZulu-Natal, South Africa's, greater Durban area suggests that the prevalence and incidence of these infections overlap, raising the possibility of HIV acquisition in these communities' "hot spot" areas [14]

Research conducted in Zimbabwe, Rwanda, and Uganda has revealed that pregnant women are more likely to contract HIV than nursing mothers or other women. This finding may be related to physiological changes that pregnant women experience [15]. High oestrogen and progesterone levels during pregnancy or from external sources may alter the genital mucosa's structure or alter the immune system by increasing mucosal lymphoid aggregates or overexpressing co-receptors linked to HIV infection due to hormone-induced overexpression. [15] elevated oestrogen levels are also linked to cervical ectopy in young women, which raises the risk of HIV infection. There is evidence to support the theory that women are more susceptible to viral infection in the female reproductive tract for a period of that occurs seven to ten days following ovulation in their menstrual cycle. The innate, humoral, and cell-mediated immune systems are all suppressed by sex hormones, which is the reason for this. This occurs in the upper and lower female reproductive tracts and coincides with the recruitment of cells that may be infectious and the overexpression of co-receptors for HIV absorption [16].

HIV's Sexual Variability

The likelihood of HIV exposure, acquisition, and transmission for women in Sub-Saharan Africa (SSA) is affected by various factors, including the male partner's infectiousness based on the disease's stage and the existence of ulcers in the male partner during unprotected sexual relations. Broader societal factors, such as the general prevalence of HIV and STIs, sexual behaviors, marriage, and other cultural norms, as well as structural elements outside of an individual's control, all have an impact on the scope and rate of the epidemic's spread.

The differences in women's health and sentiments of inferiority are made worse by the patriarchal culture and society that predominates throughout Africa. Women's needs and desires are not given much consideration in this situation, and they are regularly denied the ability to express their sexuality and kept out of sexual decision-making processes. [17,18]. In some SSA societies, women are expected to respect their husbands, tolerate polygamous marriages, and carry out household and community duties, whereas men are seen as the heads of the family, decision-makers, and resource and financial managers additionally, the patriarchal belief that wives, partners, and daughters are men's property is reinforced by cultural norms of masculinity, and most husbands demand their marital "rights" [19]. Bride payments, in which the prospective husband gives money to the bride's family, are one cultural custom that upholds the notion that a woman is her husband's property. Many men in partnerships are unable to "pay" for the woman they would like to marry because of the bride payment or "lobola" issue. As a result, many men go from one relationship to another, leaving the woman (probably along with his children) to fend for herself and the children financially.

The patriarchal traditions fostered customs and behaviors that are detrimental to the health and happiness of women in Sub-Saharan Africa. For example, there are those who, among other places, believe that a widow becomes dirty after her late husband's funeral rites in Malawi, Kenya, Zambia, and Botswana [20]. Unprotected sexual acts are said to purify the recipient by allowing the man's semen to enter her body, according to cleansing ceremonies. Women typically have no voice, but the community elders identify a man—someone who has frequently had multiple sexual partners in the process of purifying others—with whom the widow must have intercourse. Widowed women are frequently more vulnerable to HIV and other STI infections as a result of these activities. Additionally, the ritual is also performed in other circumstances [20]. For example, following a miscarriage, a woman has sex with a man who has acquired a boat for fishing in order to drive away evil spirits that could capsize the vessel, and after giving birth, a mother, regardless of marital status, has unprotected sex with a man in the belief that the act will cleanse the baby and encourage health [20].

Accordingly, "dry sex" is a common practice in various southern African nations [20]. To create the necessary

ISSN No. 2321-2705 | DOI: 10.51244.IJRSI |Volume XI Issue VIII August 2024

tight, dry, and "hot" vagina, this procedure entails injecting drying agents—herbs, a dry cloth, or even chemicals—into the vagina [20]. It is thought that this practice gives the male partner more sexual satisfaction. It raises the risk of HIV infection in women by creating friction and perhaps damaging the sensitive mucosal membrane of the vagina. The use of hazardous chemicals can change the pH balance of the vagina naturally, causing inflammation and sores that may raise a woman's risk of HIV infection [20]. However, no research has established the connection between "dry sex" and HIV acquisition within our search limit. Females and women are physically examined to check if their hymens are intact, a procedure known as virginity testing, which is currently commonly considered to violate human rights. In South Africa and Uganda, virginity testing was a customary practice for single girls, but it was not as widespread until recently and this practice is still being observed to encourage girls to delay sex until marriage [19]. Girls and single women participate in dangerous anal sex to pass virginity exams, which puts them at even greater risk of contracting HIV, which is a worry with this "forced abstinence" rule [21] In most Sub-Saharan African countries, young girls are frequently married off at an early age to older males. Because most older males would have had several wives and repeated sexual partnerships promote the transmission and acquisition of HIV by young girls and unmarried women, this practice exposes and increases the vulnerability of women to HIV infection [21]

Economic Vulnerability

Research conducted in South America, Asia, and Africa revealed a stronger correlation between income disparity and a higher incidence of HIV [22]. [23] maintained that lower socioeconomic position has been linked to earlier onset of sexual experience, less usage of condoms during the most recent sex act, having several partners, higher probability of non-consensual first sex act, and higher probability of transactional or physically coerced sex. As a result, many women turn to transactional sex to make ends meet, and teenage girls are frequently forced to engage in sexual relations with older males to survive. Cash transfers among young women in Malawi who were in secondary school demonstrated that these transfers could motivate women to cut back on risky sexual behavior, which in turn led to a decrease in adolescent pregnancies and self-reported sexual activity [19].

Contrary to sex work, transactional sex is more common. In Sub-Sahara African countries, the prevalence of transactional sex among young women and girls varies from 2.1% 1-3 to as high as 52% [24]. There are various connections between HIV and transactional sex. Adolescent females and young women in sub-Saharan Africa who have ever participated in transactional sex are, on average, 50% more likely to be HIV positive than those who have never done so. Women who engage in transactional sex outnumber those who engage in sex work, even though the former entails a greater degree of danger. To differing degrees, several sexual partners and other HIV risk factors, such as alcohol intake, partner aggression, abuse, and inconsistent condom usage, are linked to transactional sex [19]. In reaction to gender-inequality systems in a variety of economic contexts and perceived levels of control over their relationships, women engage in transactional sex. Partners' level of intimacy varies during relationships. Some generalizations about why women engage in transactional sex include trying to elevate their social position, meeting fundamental necessities in low-income environments, and believing that men should support their partners in partnerships [24].

Behaviour Susceptibility

HIV infection will decline with the adoption of behavior changes that are consistent with HIV prevention strategies, such as condom use, safe sex, monogamy, reducing the number of partners, voluntary counseling, and testing, or abstinence or postponing unmarried people's first sexual experience [24]. In most of the Sub-Saharan African countries, abstinence is not a preferred option for younger women. [25] based on the South African House Survey, 7.8% of women aged 15 to 24 had had sex by the age of 14. Similarly, a correlation between early sex and the incidence of HIV was found in African studies. Mah TL & Halperin DT (2010) identified concurrent partnerships as powerful modes of HIV, and this is very common in Africa, where a male has two or more sexual concurrent partnerships. It has been observed that a reduction in sexual partnership and loyalty made up a major component of behavior changes that contributed to the decrease in HIV infection rates in Kenya, Zimbabwe, Côte d'Ivoire, Malawi, and Ethiopia [26].

ISSN No. 2321-2705 | DOI: 10.51244.IJRSI |Volume XI Issue VIII August 2024

In contrast to oral intercourse, women who engage in unprotected anal sex are up to 13 times more vulnerable to HIV transmission, [27]. The number of women in Africa who have heterosexual anal sex is difficult to determine, however research conducted in South Africa suggests that it may range from five to twelve percent of the general population and as high as forty percent of female sex workers (FSWs) (Lane T. et al., 2006). HIV infections will decline with regular monitoring, treatment, and prevention of HIV among FSWs and the wider public (UNAIDS, 2013). Overindulgence in alcohol on weekends is prevalent in Africa; these drinking habits impair and adversely affect sexual decision-making regarding condom negotiation skills and proper use, which can result in HIV acquisition [28].

Structural Susceptibility

Considering that many African nations have patriarchal societies with widespread gender inequality, gender-based violence, domestic abuse, sexual abuse, molestation, and stigma associated with seeking medical attention, these factors contribute to women's structural vulnerability [29]. African women are more financially dependent on men, more likely to engage in transactional sex, less likely to be able to negotiate safe sex or the use of condoms with a partner, and more vulnerable to violence as a result of decades of patriarchal practices that have institutionalized economic inequalities that keep money, land, and other resources out of their reach [30;31]

Having overlapping relationships with multiple sexual partners at the same time is known as "concurrent partnering" [32]. Studies on HIV and sexual partnerships show that patterns of sexual partnering influence HIV infection rates in a variety of ways, including partner age differences, number and type of partners, and economic factors like transactional sex [33]. Sub-Saharan African research has demonstrated that HIV prevalence rises with the number of lifetime partners [34].

Worldwide, HIV infections are fueled by violence. For example, in some nations, more than half of women report experiencing physical abuse at the hands of a close partner, and between one-third and one-half of these women also report experiencing sexual coercion [35]. Particularly vulnerable to intimate partner violence are impoverished women, younger women, and uneducated women [36]. A study of intimate partner violence in South Africa revealed 12% of new HIV infections among women, while a similar study in Uganda showed GBV increased the risk of HIV by 55%[37]. HIV prevention, treatment, and care are not universally accessible due to ongoing discrimination and stigma, particularly in African nations. Since they are sometimes expected to sustain the moral traditions of their communities, women often bear the brunt of HIV stigma and discrimination; being HIV positive is seen as evidence that they have failed in this area [19]. In addition to human rights abuses, HIV-positive women face discrimination and stigma from their families, communities, legal and social agencies, healthcare facilities, and workplaces. Information about HIV prevention and treatment, sexual and reproductive health, and family planning is frequently withheld or given incorrectly in healthcare settings. HIV-positive women have additionally encountered service refusal, breach of confidentiality, harsh and judgmental treatment, and absence of informed consent [19].

METHODS TO ADDRESS HIV SUSCEPTIBILITY FACTORS IN WOMEN

Predisposing factors for HIV infections among women in sub-Saharan Africa (SSA) have been found and deliberated upon in an attempt to identify corrective measures and approaches that may considerably reduce, if not totally eradicate, the menace in the region.

Structural Interventions

The goal of structural interventions is to confront or alter the patriarchal system and societal norms that increase the vulnerability of young girls and women to HIV. To address the structural causes of HIV, such as poverty, inadequate education, and gender-based violence, the Botswana government reorganized and intensified its national poverty programs, which aim to offer social and financial assistance to young women. Additionally, the government coordinated existing structural support and HIV prevention initiatives and

ISSN No. 2321-2705 | DOI: 10.51244.IJRSI |Volume XI Issue VIII August 2024

collaborated with the community to create an environment that supports the needs of women including access to microfinance credits [38].

This diversity of circumstances and reasons for having transactional sex has an impact on programming and policy. Given that not all sexual relationships characterized by or involving exchange are inherently risky. The emphasis should be placed not on eliminating transactional sex but rather on identifying the conditions and circumstances in which transactional sex imparts risk. For interventions, it is important to identify those that are motivated by exchange, and to further address the reasons why transactional sex relationships increase HIV risk. Women working in the sex industry in Kenya received startup funding, training in small company management, and information about HIV and safe sex practices [23].

A great deal of research has been done on the relationship between education and a decline in HIV infections among women, and many studies have shown that education lowers HIV risk.[39] examines the protective role of education, especially for girls, in preventing HIV infections. It describes how education functions as a "social vaccine" by providing people with the knowledge and skills they need to make decisions about their health, including avoidance of HIV. Based on demographic and health surveys from Lesotho, Malawi, and South Africa, [40] looked into a study that examines the relationship between education and HIV incidence. It highlights the significance of education as a protective factor by concluding that greater levels of education are associated with a lower risk of HIV infection. All of these studies point to the importance of education in lowering HIV infection risk in women because it gives them more knowledge, enhances their ability to make decisions, and changes their behavior to safer habits. They emphasize how important it is to keep funding education as a vital part of all-encompassing HIV prevention plans. A South African cohort study investigates the connection between young women's HIV risk and educational attainment. According to the research, having more education appears to be linked to a lower chance of HIV infection, highlighting the importance of education in lowering vulnerability [41]. In a similar vein [42[conducted research in Western Kenya and offers proof that education lowers the risk of HIV infection by reducing risky sexual activity. It focuses on how an HIV prevention program implemented in schools affects the virus's prevalence and concludes that it has a major influence.

The roles of policy in the reduction of HIV transmission and acquisition have been well documented. For instance, in a bid to bring about changes in sexual behavior, societal norms, and HIV prevalence, the Ugandan government dedicated itself to comprehensive trainer training, mass media, health education campaigns, nationwide messaging, and district mobilization. This policy changes implemented by the Ugandan Government demonstrated the link between positive policy changes consistent with HIV prevention measures for structural interventions.

Behavioral Interventions

To determine a person's HIV status and encourage a customized lifestyle and behavior that is in line with HIV prevention for both critical and general audiences, HIV counseling and testing are essential. A multi-country project targeted at lowering HIV infections among adolescent girls and young women was reviewed by [43]. The project, named DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe), addresses structural, social, and behavioral issues through a combination of preventative approach. The Sauti Project in Tanzania aims to improve young women's sexual and reproductive health, including HIV prevention [44]. It covers peer education, community-based interventions, and access to resources related to sexual and reproductive health.

[44] investigated HIV prevention program in Malawi that was implemented in schools with emphases on raising HIV awareness, encouraging safe sexual behavior, and lessening stigma against young women. Interactive exercises and peer education are part of the intervention [43]. investigated the South African SISTA (Sisters Informing Sisters on Topics on AIDS) initiative, which uses a community-based strategy to lower HIV risk among women. It entails peer-led talks and exercises to improve communication skills, risk perception, and HIV knowledge. The Zvandiri initiative aimed at helping young people in Zimbabwe who are

ISSN No. 2321-2705 | DOI: 10.51244.IJRSI |Volume XI Issue VIII August 2024

HIV positive. Peer mentorship, psychosocial support, and community-based interventions are incorporated to enhance treatment adherence and mitigate the stigma associated with HIV [45].

A study conducted in Nigeria on mass media campaigns aimed at increasing the use of family planning,

HIV/AIDS services, and child survival through radio, television, and printed advertisements revealed that individuals who were highly exposed to the program were twice as likely to know that condoms reduce HIV risk and 1.5 times more likely to talk to their partner about HIV [46].

It is acknowledged that concurrent sexual relationships have a major role in the spread of STIs, including heterosexual HIV transmission. Research suggests that simultaneous relationships may amplify the scope of an HIV epidemic, accelerate its rate of population infection, and prolong its persistence in a given community [47].

Biomedical Interventions

HIV biomedical interventions are medical procedures intended to modify or delay the emergence of HIV in humans. Pre-exposure prophylaxis (PrEP), daprivirine vaginal rings, HIV testing and counseling, Treatment as Prevention (TasP), integrating HIV services into sexual and reproductive health programs, microbicides, and voluntary medical male circumcision (VMMC) are a few of these medical interventions [48]. Products that have anti-HIV qualities and have been created in various formulations to prevent HIV are known as microbicides. Originally intended for vaginal administration, microbicides are presently being evaluatedfor rectal application as well [49].

In discordant pair relationships, treatment with ARV for prevention (TasP) is highly effective (96%) in reducing HIV transmission to the negative spouse by treating the positive partner. This is true for both men and women. Therefore, it would seem that an intervention is more likely to be accepted and implemented when both sexual partners are aware of their HIV status and are working toward HIV prevention together [50]. The development of HIV preventive strategies for African women may require a deeper comprehension of their social, cultural, and traditional contexts, according to the lessons learned from these clinical trials.

CONCLUSION

The interconnected reasons that led to the disproportionate number of HIV infections among women and young girls in SSA should be addressed by context-specific intervention efforts. To lower the risk of HIV infection among women in Sub-Saharan Africa, structural interventions that address gender inequality and economic vulnerability laced by patriarchal practices seem promising. There has been evidence that cash transfers among extremely disadvantaged individuals or in extremely deprived environments have an impact on the decreased occurrence of transactional sex. Men's reporting of transactional sex and violence perpetration has been found to decrease in response to interventions that support gender-equitable relationships.

RECOMMENDATIONS

It is advised to use combination intervention designs that combine structural, biological, and behavioral techniques. Programs that target a variety of HIV-risk behaviors in teenage girls and young women, such as combination HIV prevention initiatives, ought to incorporate elements that specifically address transactional sex. ‘ It is important to quickly evaluate the types of economic, social, and gender factors on transactional sex in a particular location. Whenever feasible, these evaluations should be integrated into larger analyses of sexual behavior, the perception of HIV risk, the need for HIV prophylaxis, and associated societal norms.

COMPETING INTERESTS

Authors declared the absence of competing interests in the cause of putting this academic paper together

AUTHORS' CONTRIBUTIONS

All the authors included the article contributed to the writing and proof reading of the paper

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