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Narrative Review

HIV and Sub-Saharan African Women in the COVID-19 Era and beyond

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Abstract

Young women from Sub-Saharan Africa are at substantial risk of HIV acquisition. Data from UNAIDS suggests that 59% of new HIV infections in 2019 occurred in this population. Despite advances in HIV prevention and care, they remain at substantial risk making them a key population for control. In the present study we discuss the factors that put women from Sub-Saharan Africa at differential risk of HIV acquisition, and the possible impacts of the COVID-19 pandemic on HIV care and prevention on this population. The COVID-19 pandemic has brought unprecedented challenges for healthcare delivery, including HIV care, treatment and prevention. The indirect long-term effects of the pandemic may increase the vulnerability of young women to HIV infection. Statistical modelling studies predict increased HIV-related deaths in excess of 500 000 in the next four years if services for testing and treatment are disrupted. Innovative ways of delivering prevention messages, HIV care, treatment and reducing new infections during and beyond the COVID-19 pandemic are warranted to protect young women from Sub-Saharan Africa.

Keywords: COVID-19, HIV, Prevention, Sub-Saharan African Women

Introduction

Since March 2020, the world has been battling to overcome COVID-19, an infectious disease caused by a novel coronavirus known as the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2).[1,2] The pandemic has brought unprecedented challenges for healthcare delivery. The low-to-middle income countries (LMICs) of Sub-Saharan Africa (SSA) may be disproportionately affected by the collateral damage stemming indirectly from the pandemic.[3] The pandemic could negatively influence supply chains of generic anti-retroviral (ARV) medicines used in the treatment of people living with HIV/AIDS (PLWHA) that are imported from India and other countries beyond SSA.[4]

Recent UNAIDS estimates approximately 38.0 million (95% CI 31.6-44.5 million) individuals to be living with HIV/AIDS globally.[4] Actually, 1.7 million (95% CI 1.2-22 million) infections were reported in 2019 alone.[4] The developing world, particularly SSA, carries the greatest burden of HIV disease.[3] In SSA, women and girls constituted an estimated 59% of new HIV infections in 2019.[4] Despite a marked reduction in the incidence of HIV infections by 40% since the peak in 1998, SSA women remain at substantial risk of HIV acquisition.[4] An estimated 5500 young women between 15 and 24 years of age acquire HIV infection weekly.[4] In SSA, five in every six new infections among adolescents aged 15-19 years occur among girls, and young women aged 15-24 years are twice more likely to be living with HIV than men.[4] Weaker reporting and surveillance systems may confound statistics for developing countries. Young women remain a driving factor for the HIV epidemic and are a key population for control.[5,6]

Targeted interventions require an understanding of contributory factors. The COVID-19 pandemic may aggravate some of the factors that place SSA at substantial risk of HIV acquisition. Therefore, in the present study some of the factors that put women at risk are reviewed and possible mitigating responses are suggested.

Factors Predisposing Sub-Saharan Africa Women to Greater Risk of HIV Acquisition

Heterosexual transmission remains the greatest factor in HIV transmission, accounting for over 90% of cases.[7] Male-female transmission is inefficient, with a transmission rate per coital act of 1/700-3000

heterosexual acts.[8,9] However, several factors place women at substantial risk of acquisition. A greater mucosal surface area in the female genital tract is exposed to infectious material for longer during coitus, and may sustain injuries permissive to infection.[8,10] Reports of increasing intimate partner violence (IPV) during COVID-19 lockdowns could mean more women being exposed to violent and harmful sexual acts. Cervical ectopy is frequent in the younger women, catalysing more exposure of target cells to injury and infectious material in the vagina.[11] A literature review by Fleming and Wasserheit reflected an increased risk of HIV acquisition in women with ulcerative and non-ulcerative sexually transmitted infections (STIs), relative risk (RR) 2.0-23.5.[12]

A higher frequency of bacterial vaginosis (BV), attributed to intra-vaginal practices, use of vaginal tightening products and intravaginal cleaning with soap is frequent among young African women.[13] In a meta-analysis by Atashili *et al*., BV was associated with a statistically significant increase in the risk of HIV acquisition (RR 1.6, 95% CI 1.2-2.1).[14] This meta-analysis of observational studies however did not have adequate control for bias and confounding and had higher heterogeneity owing to a mixture of observational study designs. Evidence from observational studies suggested an increased risk of HIV acquisition with hormonal contraception, particularly depo medroxyprogesterone acetate (DMPA).[15-17] However, a subsequent individual participant data meta-analysis (IPD) of 18 studies from SSA by Morrison *et al*. did not substantiate this risk.[18] The ECHO study, a large randomised controlled trial (RCT), further failed to substantiate claims of increased risk of HIV acquisition with hormonal contraception.[19] There is evidence to suggest that pregnancy may increase the risk of HIV acquisition,[20,21] and that the potential for viral infectivity in the female genital tract increases after ovulation, owing to hormonal suppression of defence mechanisms.[22]

Patriarchy has persisted in Africa over centuries. In ethnographic studies, women's oppression through gender inequality is a recurring theme and a major determinant of uptake of health promotion uptake including HIV prevention.[23] In many parts of Africa, women are still regarded inferior, socioeconomically dependent on men, and are not allowed to express sexuality freely or make decisions regarding sex and reproduction.[7] During the COVID-19 lockdown, coupled with pre-existing high unemployment rates, IPV or domestic violence could have increased. A cross-sectional study from 29 countries observed a high frequency of unprotected coitus, marrying much older husbands, being junior wives in polygamous unions, and reduced access to education and health promotion information as frequent occurrences among married female adolescents.[24]

In another study in South Africa by Wand and Ramjee, women who commenced sexual activity at a younger age were more likely to engage in high-risk sexual behaviour, have multiple sexual partners and had higher HIV prevalence and incidence.[25] Pettifor *et al*. in a cross-sectional analysis of screening data from a cohort study in Zimbabwe noted similar findings for increased risk of HIV acquisition (RR 1.30 95% CI 1.13-1.50).[26] Refusal or taking sexual initiatives or suggesting condom use may precipitate violent reactions.[23] The price of brides complicates the situation, with some men thinking they own their wives. The society expects young women to comply with unprotected conjugation in polygamous marriages.[23] Due to economic vulnerabilities, younger women may marry much older men, increasing their risk of being infected.[24] Evidence suggests that those married to their age counterparts are at a less risk of HIV acquisition.[11] Some girls drop out of school early, prematurely enter marriages, are less exposed to HIV prevention messages and have immature genital tracts, exposing them to a higher risk of HIV acquisition.[27]

Increased poverty and unemployment rates resulting from the economic decline experienced in SSA have led to reduced provision of such social services as health and education.[7] Opportunities for HIV prevention and health promotion may thus be lost. Poverty leads to earlier sexual debut, reduced condom use, concurrent multiple partnerships and transactional or non-consensual sex.[28] Female sex workers are a high-risk population, with an HIV prevalence of 13.5 times higher than other women.[11] They frequently engage in dry and anal sex, compounding their risk of infection. Migration, cross-border trading and GBV are additional risk factors.[11] Sexual violence is associated with substance misuse, multiple concurrent partnerships, transactional sex and reduced contraceptive use.[11]

The Effects of the COVID-19 Pandemic on HIV Care, Treatment and Prevention Services

Evidence from observational studies and RCTs is still lacking; however, the COVID-19 pandemic may have several indirect effects on HIV care, treatment and prevention services for women in SSA. Unfortunately, the related damages may persist for years after the COVID-19 pandemic ends.

Short-term Impacts

Travel restrictions may imply that women and girls are unable to reach health facilities timeously for ARV prescription refills, emergency contraception and post-exposure prophylaxis (PEP) in cases of sexual assault. Disrupted supply chains owing to international travel restrictions and reduced pharmaceutical production of essential generic ARVs may result in shortage and increased costs, leading to disruptions in treatment. This can potentially result in viral rebounds and emergence of resistance to current ARV regimens. The final cost of importing generic ARVs from India could increase by 10-25%.[4] From a recent statistical model, a six month total disruption in HIV care could lead to an excess of 500 000 (95% CI 471 000-673 000) fatalities over the next 4 years.[4,29] Similarly, disruption in prevention of mother-to-child transmission (PMTCT) services for six months could increase vertical transmission significantly in SSA.[29] International partners who support with the distribution of condoms may face similar challenges, resulting in a shortage of these essential products for HIV and STI prevention.

In some countries, for example Zimbabwe, HIV testing, counselling and treatment services at public institutions and municipal clinics were considered non-essential and were stopped or disrupted with the announcement of lockdowns. Similarly, health promotion messages aimed at prevention were disrupted as Risk Communication and Community Engagement (RCCE) efforts were directed at COVID-19, and Information, Education and Communication (IEC) material at health facilities was overshadowed by COVID-19 IEC material. Closure of schools and colleges could potentially expose adolescent girls to unsafe sexual encounters as they spend more time in the community with male counterparts. There have been reports of increasing IPV associated with lockdowns in several settings, increasing the vulnerability of young women and girls to HIV infection. Dealing with this effectively entails dealing with patriarchy as times of adversities may leave vulnerable women at the mercy of more powerful beings in the society.

Long-term Impacts

Biological Impacts: Disruption of HIV care, treatment and prevention services has the potential to increase incident infections, increase rate of vertical transmissions, and lead to the re-emergence of HIV and AIDS related opportunistic infections and cancers that have been on the decline. The past decade has seen a marked decline in the incidence of *Pneumocystis pneumonia, Cryptococcal meningitis* and tuberculosis among other related infections. This could then potentially mean increased expenditure on treatment, further straining economies. Cervical cancer is an HIV-related malignancy, and many countries utilise opportunistic screening as women present for HIV treatment services, thus a disruption in HIV care also negatively influences cervical cancer screening.

Socioeconomic Impacts: The pandemic may have longstanding adverse socio-economic consequences. These include economic recessions, which could be worse in LMICs. The rates of unemployment and dropping out of school may increase substantially. The result could be increased child and early marriages, resorting to commercial sex work and multiple concurrent sexual relations, exposing women to a higher risk of HIV acquisition. Women have been taken to cross-border trading and menial jobs that expose them to unsafe sexual practices and sexual exploitation in times of adversities.

The loss of young, reproductive women from HIV/AIDS disrupts family stability, leaving many orphaned and vulnerable children, who also suffer in the end as they fail to fully attend school and establish careers. A vicious cycle of early marriages, dropping out from school and economic instability has proven difficult to break in a number of SSA settings, with poverty persisting into future generations.

Psychological Impacts: Failure to access HIV care, prevention and treatment services could have devastating psychological consequences on woman, including stress, anxiety and depression that could affect their physical wellbeing as well. Stress and

anxiety stem from failing to access treatment, which results in fear of treatment failure, viral resistance and emergence of opportunistic infections. Victims of sexual violence who fail to access preventive medicines may fear of having contracted the HIV virus, and those who engage in unprotected coitus after failing to access condoms may also experience the same fears. The psychological consequences of the direct and indirect impacts of disasters are often neglected. This is while, they may unfortunately leave individuals with long-standing consequences.

Government Responses So Far

The countries across SSA have responded to the pandemic in different ways. Some totally disrupted services at the beginning of the pandemic, whilst some continued. However, taking heed of calls from the World Health Organisation (WHO) and other supporting developmental partners, most countries are gradually restoring normalcy to HIV Care, Treatment and Prevention services. Documenting the different experiences will draw some important lessons, which may help pave the way forward, but also inform responses to future global health challenges.

Table 1. Suggestions for Preventing HIV acquisition in the COVID-19 era and beyond

ITEM	COMMENT
Information, Education and Communication (IEC)	• Promote dissemination of information through all different accessible forms including social media. • Attractive, colourful educational material with key messages for prevention in local languages distributed at strategic community points such as boreholes, schools, shops, grinding mills. • Make use of pre-existing community structures such as village health workers to disseminate messages. • Involve the political and religious areas to sensitise women on HIV prevention messages. • Integrate COVID-19 prevention messages with key messages for HIV prevention.
Behaviour Change	• Continue to disseminate messages regarding abstinence for unmarried girls, and delaying of sexual activity onset and marriage. • Groups that support girls and vulnerable women must take a proactive approach to foster behaviour change.
Safe Sexual Practices	• Place free condoms at all strategic points in the community. • Even in curfew and lockdown times, there are hotspots for commercial sex in communities. Identification of these areas and placing free condoms is critical. • Place condoms in quarantine centres around the country, with relevant prevention messages for both HIV and COVID-19. Whilst it is undesirable for adults to indulge during quarantine, numerous reports of condoms running out were noted.
Intimate Partner Violence	• Availability of centres and toll-free numbers to assist victims of IPV. Counsellors and health practitioners to be on standby for teleconsultations with victims. • Ensure availability of post-exposure prophylaxis (PEP) ARVs for women who may be sexually abused, as well as STI prevention packages and emergency contraception.
Continued ARV supplies	• Communities and healthcare providers must define ways of ensuring continued access to ARVs, including the use of Community Art Refill Groups, and longer supplies of ARV regimens. • To consider PrEP for women in sero-discordant relationships.
Community Kiosks	• Community kiosks with adequate COVID-19 infection prevention and control measures, can serve as points for distributing condoms and regular and emergency contraception. • Relevant IEC material can also be placed at these points.
Online Education	• Whilst lockdowns and school closures continue, facilities for online learning must be set-up urgently to ensure young girls continue to access and be occupied with educational activities.

Recommendations

An efficacious HIV vaccine has remained highly elusive,[30] and the concept of pre-exposure prophylaxis (PrEP) using ARVs has not yet widely been accepted in the general population. Adherence to PrEP regimens was poor in previous trials testing tenofovir-based regimens [31] and ARV-containing vaginal rings,[32] despite promising results in studies among sero-discordant couples,[33] and in men who have sex with men (MSM).[34] Thus, prevention messages must continue to focus on behaviour change, safer sexual practices, dealing with IPV, and ensuring continuity of ARV availability and uptake for those on treatment. Innovative ways of delivering these interventions in the COVID-19 pandemic setting are urgently required to prevent an explosion of HIV infections and ensure continuity of care for those already on treatment. Some approaches for HIV prevention in the COVID-19 era and beyond are presented in Table 1.

Conclusion

Women from SSA remain at substantial risk of HIV acquisition, especially the younger ones between 15 and 24 years of age. Factors that predispose them to an increased risk of HIV infection may be aggravated by the COVID-19 pandemic. Therefore, innovative ways of preventing new infections among this population is required. A multi-stakeholder approach encompassing public health experts, the community and development partners is critical for better results.

Author Contributions

The author developed the concept, reviewed the literature, drafted the primary manuscript, edited, and finalised the manuscript.

Conflict of Interest

The author declares no conflicts of interest.

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