

CAPSTONE

Disruptions to HIV Care in Africa During the COVID-19 Pandemic: A Literature Review

Abstract

The COVID-19 pandemic significantly disrupted healthcare systems worldwide, with severe consequences for HIV services in resource-limited settings such as Africa. This literature review synthesizes findings on the impact of the pandemic on HIV care across the continent, focusing on testing, antiretroviral therapy (ART) access, supply chain disruptions, and service delivery adaptations. While innovative mitigation strategies, such as multimonth dispensing (MMD) of ART and community-based delivery models, helped sustain some HIV services, the pandemic caused widespread interruptions in testing, ART initiation, and viral load monitoring. These disruptions could reverse progress made in combating HIV/AIDS and underscore the need for more resilient healthcare systems. The review calls for sustained efforts to protect HIV service delivery, especially for marginalized populations, in the face of future global health crises.

Introduction

The COVID-19 pandemic has posed unparalleled challenges to global healthcare systems, disproportionately affecting countries with limited resources and ongoing epidemics of other infectious diseases. In sub-Saharan Africa, where over 25 million people live with HIV, the pandemic's disruptions have threatened to reverse years of progress in HIV care, prevention, and treatment [16+source]. With movement restrictions, resource reallocation, and the strain on already fragile healthcare infrastructures, the pandemic has led to declines in HIV testing, ART initiation, viral load monitoring, and supply chain stability. This review examines the multifaceted disruptions to HIV services in Africa during the COVID-19 pandemic and highlights the strategies employed to mitigate these impacts.

Impact on HIV Testing and Diagnostics

HIV testing, a cornerstone of global HIV prevention efforts, was among the most significantly disrupted services during the pandemic. Across Africa, national lockdowns, social distancing protocols, and clinic closures severely limited access to HIV testing facilities. A study in Western Kenya reported a dramatic reduction in HIV testing and assisted partner notification services (aPS), with clinics forced to reduce operational hours and restrict face-to-face interactions [15+source]. This decline in testing is particularly concerning given the importance of aPS in identifying new HIV cases, as the program had previously achieved partner testing rates as high as 79%, with 41% of partners testing positive [15+source].

Similar trends were observed in key populations such as men who have sex with men (MSM), where HIV testing services were further hindered by stigma, criminalization, and movement restrictions. Community-based organizations in Kenya, working with MSM, reported a significant drop in clinic-based HIV testing during the early months of the pandemic, but adapted by shifting to virtual peer outreach and distributing

HIV self-testing kits 【19+source】. This innovative approach helped mitigate the testing gaps, although challenges remained in ensuring timely linkage to care.

Disruption to ART Initiation and Retention

ART is critical for maintaining viral suppression in people living with HIV (PLHIV), and any disruptions in treatment can lead to serious health consequences. The pandemic caused notable interruptions in ART initiation and retention across Africa. In Nigeria, a regression discontinuity analysis revealed a significant 26% decline in ART initiations following the onset of the pandemic 【17+source】 【18+source】. Other countries, such as Burkina Faso and Côte d'Ivoire, were able to maintain ART initiation rates despite the pandemic, showcasing some resilience within their health systems 【18+source】. However, the overall decline in ART services, coupled with reduced patient visits due to fear of contracting COVID-19 at health facilities, posed a serious threat to HIV care continuity.

In addition to ART initiation, ART retention also suffered during the pandemic. Many PLHIV experienced challenges in accessing their medication due to lockdown measures, movement restrictions, and health facility closures. Clinics reported declines in patient attendance, delays in ART refills, and interruptions in viral load monitoring 【17+source】 【18+source】. This disruption was compounded by the reallocation of healthcare workers to COVID-19 response efforts, leading to further delays in care.

Supply Chain Disruptions and ART Stockouts

The COVID-19 pandemic severely disrupted global supply chains, affecting the availability and affordability of essential medications, including antiretroviral drugs (ARVs). Africa's reliance on imported generic ARVs, primarily from India, made the region particularly vulnerable to supply chain interruptions. A mid-2020 report revealed that lockdowns, border closures, and logistical challenges led to significant delays in the production and transportation of ARVs 【16+source】. These supply chain disruptions threatened the continuity of ART for millions of PLHIV across the continent.

The risk of ART stockouts was particularly high in low-income countries, where supply chain infrastructure is often fragile. A modeling study conducted by the World Health Organization (WHO) and UNAIDS estimated that a six-month disruption in ART could result in more than 500,000 additional AIDS-related deaths in sub-Saharan Africa 【21+source】. Although global health organizations, such as the Global Fund and the United States President's Emergency Plan for AIDS Relief (PEPFAR), took steps to mitigate these risks by implementing multimonth dispensing (MMD) of ART and expanding procurement platforms, challenges persisted 【16+source】 【21+source】.

Service Delivery Adaptations

In response to the challenges posed by the pandemic, many African countries adopted innovative service delivery models to maintain HIV care continuity. Differentiated service delivery (DSD) models, which involve tailoring HIV care to meet the needs of specific populations, became essential during the pandemic. A key component of these models was the MMD of ART, which allowed PLHIV to receive larger supplies of medication at once, reducing the need for frequent clinic visits and minimizing the risk of treatment interruptions 【20+source】.

In West Africa, despite significant reductions in viral load monitoring, clinics in countries such as Burkina Faso and Côte d'Ivoire successfully maintained ART access through community ART pick-up points and other decentralized models of care [18+source] . Telemedicine also emerged as a critical tool in maintaining continuity of care, particularly in urban areas and higher-income settings where digital infrastructure was more developed [20+source] [22+source] . However, the adoption of telemedicine was less widespread in low-income, high-prevalence regions due to limited internet access and digital literacy [20+source] .

Vulnerabilities of Marginalized Populations

Marginalized populations, including MSM, sex workers, and people who inject drugs, were disproportionately affected by the disruptions to HIV services during the pandemic. In many African countries, these groups already faced significant barriers to accessing healthcare due to stigma, discrimination, and criminalization. The pandemic exacerbated these challenges, as mobility restrictions and fear of police harassment further limited access to HIV testing and treatment [19+source] .

In Kenya, community-based organizations working with MSM reported a sharp decline in HIV testing and service delivery during the pandemic. However, these organizations quickly adapted by shifting to virtual outreach and distributing HIV self-testing kits, which helped fill some of the gaps created by clinic closures [19+source] . These efforts underscore the importance of community-led initiatives in reaching marginalized populations during times of crisis.

Long-Term Implications and Future Directions

The long-term implications of the COVID-19 pandemic on HIV care in Africa are still unfolding. While many countries have demonstrated resilience through innovative service delivery adaptations, the pandemic has revealed the fragility of health systems across the continent. Disruptions to ART initiation, retention, and viral load monitoring could have lasting effects on HIV treatment outcomes and hinder progress toward achieving the UNAIDS 90-90-90 targets [20+source] .

The economic fallout from the pandemic may also reduce funding for HIV programs, further jeopardizing the gains made in recent years. To mitigate the long-term effects of the pandemic on HIV care, African governments and global health organizations must continue to invest in building resilient health systems that can withstand future global health crises [21+source] . Expanding DSD models, strengthening supply chains, and increasing the use of telemedicine are critical steps in ensuring the continuity of care for PLHIV in the post-pandemic era.

Conclusion

The COVID-19 pandemic has profoundly disrupted HIV care across Africa, with significant declines in testing, ART initiation, and viral load monitoring. Despite these challenges, the rapid adoption of differentiated service delivery models, multimonth dispensing, and telemedicine helped sustain some level of HIV care continuity. However, the pandemic's impact on supply chains, healthcare workers, and marginalized populations underscores the need for stronger, more resilient healthcare systems. Protecting HIV service delivery in the face of future global health crises will require sustained efforts from governments, international organizations, and community-based initiatives to ensure that progress toward ending the HIV epidemic is not reversed.

References

- [15+source] Lagat, H., Sharma, M., Kariithi, E., et al. Impact of the COVID-19 pandemic on HIV testing and assisted partner notification services, Western Kenya. *AIDS and Behavior* (2020).
- [16+source] UNAIDS. The impact of the COVID-19 response on the supply chain, availability and cost of generic antiretroviral medicines for HIV in low- and middle-income countries. (2020).
- [17+source][18+source] Ben Farhat, J., Tiendrebeogo, T., Malateste, K., et al. Effects of the COVID-19 pandemic on ART initiation and access to HIV viral load monitoring in adults living with HIV in West Africa: A regression discontinuity analysis. (2023).
- [19+source] Odinga, M.M., Kuria, S., Muindi, O., et al. HIV testing amid COVID-19: Community efforts to reach men who have sex with men in three Kenyan counties. *Gates Open Research* (2020).
- [20+source] Brazier, E., Ajeh, R., Maruri, F., et al. Service delivery challenges in HIV care during the first year of the COVID

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- [21+source] Hogan, A.B., Jewell, B.L., Sherrard-Smith, E., et al. Potential impact of the COVID-19 pandemic on HIV, tuberculosis, and malaria in low-income and middle-income countries: A modeling study. *The Lancet Global Health* (2020).
- [22+source] Montaner, J.S., Hogg, R., Wood, E., et al. Maintaining HIV care during the COVID-19 pandemic. *The Lancet HIV* (2020).