Available online at www.ujpronline.com
Universal Journal of Pharmaceutical Research
An International Peer Reviewed Journal
ISSN: 2831-5235 (Print); 2456-8058 (Electronic)
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REVIEW ARTICLE

ECHOES OF A PANDEMIC: HOW HIV CONTINUES TO BESIEGE THE GLOBE

Jucimary Vieira dos Santos*
PhD in Pharmaceutical Technology, Center for Pharmaceutical Studies (CEF), Galenic and Pharmaceutical Technology Laboratory, Faculty of Pharmacy, University of Coimbra, Coimbra, Portugal.

Article Info:

Article History:
Received: 25 July 2026
Reviewed: 3 September 2026
Accepted: 8 October 2026
Published: 15 November 2026

Cite this article:
Santos JVD. HIV/AIDS is an important public health problem run rings around the globe. Universal Journal of Pharmaceutical Research 2026; 11(5): 97-104.
http://doi.org/10.22270/ujpr.v11i5.1672

***Address for Correspondence:**
Dr. Jucimary Vieira dos Santos, Rua da Lagosta, 466 – apto 1702 A, Ponta Negra, Natal, RN - Brazil. Tel: +55-849970889 80. E-mail: *jucimaryvieira@yahoo.com.br*

Abstract

The progression from initial HIV contraction to a formal AIDS classification can span two decades-a prolonged incubation window identified when the disease was first classified before evolving into a major worldwide health crisis. Patient populations exhibit significant variance in how the infection manifests clinically. Historically, this protracted, symptom-free phase triggered widespread psychological trauma, burdening both marginalized communities and healthcare systems. In the early years of the outbreak, the foremost priority for individuals and advocacy groups was securing cost-effective medical treatment and mental health resources amid profound social ostracization. Today, despite disparities in international distribution, dozens of antiretroviral therapies have been authorized, with many more in developmental pipelines. Even so, an absolute cure or preventative vaccine is still unavailable, and secondary opportunistic mycoses still result in thousands of annual fatalities. Deeper insights into the immunopathogenic mechanisms of the virus are vital for optimizing specialized testing and therapeutic management. Accordingly, this study examines how demographic variables, community literacy, and cultural attitudes intersect regarding HIV/AIDS, alongside an assessment of changing healthcare models and targeted epidemiological strategies.

Keywords: AIDS, demographics, economic conditions, HIV, stigma.

INTRODUCTION

During the early 1980s, the arrival of the HIV crisis unexpectedly escalated into a worldwide catastrophe, altering human life spans on a massive scale[1]. Consequently, humanity faced a lethal and contagious pathogen that exposed the vulnerabilities of an otherwise technologically advanced and scientifically capable generation. Widely recognized by epidemiologists as one of history's most severe public health emergencies, HIV/AIDS functions as a profound developmental obstacle rather than a strictly medical issue. Consequently, this study aims to assess how individuals perceive risk, alongside their prevailing attitudes and actions[2].

Despite its structurally uncomplicated nature, HIV functions as a retrovirus with distinct and challenging mechanisms, primarily specializing in the invasion of human immune cells[3]. This retroviral behavior poses unique difficulties for clinical treatment due to its selective host cell targeting. Paralleling these biological challenges, the 1980s marked a global resurgence in immunological research, representing the most substantial advancement in the discipline since the early eras of immunization breakthroughs[4-6]. This pivotal decade saw the Nobel Prize in Physiology or Medicine awarded to a trio of researchers who deciphered the genetic framework governing immunity. Their findings demonstrated that histocompatibility antigens, frequently designated as H-factors, are genetically regulated by the complex interplay of numerous cellular components driving the immune response[7-11].

To address the aforementioned context, the objective of this investigation is twofold: to satisfy the aims established in the abstract and to bolster current therapeutic developments aimed at a swift cure.

OVERALL FACTORS

Demographics

In accordance with recent UNAIDS data compiled from 172 nations for 2025, human immunodeficiency virus (HIV) remains a paramount global health crisis. Since the outbreak first began, an estimated 92.0 million (70.2-123.5 million) individuals have been infected worldwide. The epidemic claimed approximately 570,000 (430,000-780,000) lives globally in

2025 alone. By the end of that year, the global population of people living with HIV reached 41.0 million (35.3-47.5 million). This demographic comprised 39.7 million (34.1-46.0 million) adults aged 15 and above, alongside 1.3 million (1.0-1.7 million) children under the age of 15, with females accounting for 53% of the total cases. Regionally, Sub-Saharan Africa bears the heaviest burden, harboring more than 25.0 million residents living with the virus and driving roughly 70% of all novel infections globally[9,12,13].

Scholarly discussions surrounding global development and population health regularly employ the paradigms of health, epidemiological, and demographic transitions. Nevertheless, academic debate persists regarding how accurately these theoretical models reflect the actual experiences of developing countries. Assessing these frameworks becomes crucial when evaluating public health benchmarks, particularly in relation to the institutional structures and execution of pre-exposure prophylaxis (PrEP) trials. This contextual analysis is vital for Africa-especially the sub-Saharan region-where modern health and population trajectories differ fundamentally from the historical precedents set by Western Europe and North America[14-16].

This prospective cohort study reveals that hospitalized adults suffering from acute Clade Ib mpox in Uganda exhibit elevated lesion viral loads, recurrent co-infections with multidrug-resistant bacteria, and marked inflammatory hematological shifts-particularly among individuals co-infected with HIV-1. Consequently, merging lesion-specific virological metrics, microbiological data, antibiotic resistance patterns, and standard laboratory markers is essential. Such data highlights the critical importance of embedding diagnostic microbiology, HIV evaluation, and antimicrobial stewardship directly into routine mpox management within endemic areas[17].

Latin America surpasses global benchmarks in antiretroviral therapy distribution, a trend prominently demonstrated by Brazil's timely and strategic programs that have effectively curbed the epidemic's momentum[10,11,18,19]. Conversely, while nations like Mexico have instituted cost-free antiretroviral (ARV) frameworks for disadvantaged groups via public and social welfare systems, critical gaps in community outreach persist. Elevating public literacy on preventative measures and accessible care remains imperative to dismantle the deep-rooted perception of HIV/AIDS as merely a precursor to opportunistic conditions and neurological decline[19-21]. Furthermore, regional dynamics vary; South America exhibits a markedly higher prevalence than Central America-a divergence frequently attributed to disparate educational levels, premature sexual initiation among youth, distinct sociocultural elements, and the growth of commercial sex industries[19].

According to 2024 projections, Ethiopia's HIV-positive population reached roughly 601,039 individuals**,** with a pronounced prevalence among females (64%) and minors under 20 years old (11%)[22]. Situated in the Horn of Africa, this investigation relies on a secondary assessment of the 2016 Ethiopian Demographic and Health Survey (EDHS). The framework of the EDHS ensures that the derived indicators are statistically representative on a national scale, accounting for geographic variations across rural and urban sectors, alongside the country's eleven distinct administrative territories[23].

Data from 3,584,203 individuals were extracted to assess HIV viral suppression longevity within a South African retrospective cohort. Eligible participants included those aged 15 to 59 years enrolled in the national HIV framework who demonstrated viral loads below 200 copies/mL during the 12-month period starting July 1, 2021. The demographic distribution was 72.2% female and 27.8% male. These records originated from routine diagnostic assessments conducted by the National Health Laboratory Service (NHLS). The final data matrix was restricted to anonymized identifiers, age, sex, longitudinal viral load parameters, and institutional characteristics such as facility type and geographic province[24].

The objective of this research is to characterize the population of seropositive individuals fleeing the war in Ukraine who applied for temporary refuge in the Slovak Republic. Sharing a land border with Ukraine, which faces one of Europe's most significant HIV crises, Slovakia stands at a critical juncture for healthcare management. The resulting empirical data serves as a foundational resource for clinicians to establish comprehensive medical protocols. Based on these observations and current epidemiological research, optimizing prevention models for displaced populations from high-burden areas remains paramount. Furthermore, resource allocation should be directed toward tailored programs for high-risk cohorts, specifically MSM and people who inject drugs (PWID)[25].

This research utilized the extended Pushing Immunogenetics into the Next Generation (PING) pipeline to examine human leukocyte antigen (HLA) class I and killer-cell immunoglobulin like receptor (KIR) genotypes and alleles. The retrospective cohort investigation involved 312 pediatric subjects (246 from Uganda and 66 from Botswana) registered in the Collaborative African Genomics Network (CAfGEN). Ultimately, this work offers a pioneering, high-resolution analysis of KIR allelic variation among children living with HIV in these specific African nations[26].

Advanced HIV disease remains a critical challenge in sub-Saharan Africa, where high mortality rates persist among affected individuals. To quantify this survival outlook, a meta-analysis synthesized data from 36 distinct studies, encompassing a total cohort of 313,362 subjects**.** Within this pooled population, the weighted median age was 35 years, with a female majority of 64%, and an overwhelming 98.9% of participants being naive to antiretroviral therapy (ART). The findings underscore that fatalities among this demographic are disproportionately elevated, especially during the initial phases of clinical management. Consequently, prospective investigations must prioritize elucidating precise etiologies of death, testing novel therapeutic protocols, reducing clinical attrition, and expanding

cohorts to encompass pediatric and adolescent demographics[27].

In Eswatini, widespread access to antiretroviral therapy (ART) and diagnostic testing has not fully eliminated disparities in treatment uptake and status awareness. A recent study investigated these persistent shortcomings by evaluating cross-sectional data from a nationwide sample of 5,803 HIV-positive participants. The research mapped out how a combination of geographic, clinical, behavioral, and sociodemographic variables contribute to undiagnosed infections and low ART utilization. To bridge these gaps, the findings advocate for region-specific, targeted programs designed to improve testing, clinical linkage, and retention. These efforts should specifically prioritize younger demographics, women, and less-educated groups who remain disproportionately affected[28].

Spanning six nations across Eastern and Southern Africa-most notably Eswatini, Lesotho, Malawi, Namibia, and Zimbabwe-the eleven selected studies primarily centered on the southern continent. Adhering to the guidelines of the Cochrane Handbook for Systematic Reviews of Interventions, the methodology of this review followed a protocol formally registered in PROSPERO. Regarding the population of interest, youth aged 10 to 19 who are HIV-positive encounter ongoing difficulties at every stage of the care continuum, which often translates into inferior clinical outcomes compared to adults. Their long-term retention in treatment is obstructed by structural and social obstacles, such as extended delays in overcrowded clinics, unaffordable travel expenses, and the dual burden of social and self-inflicted stigma[29].

The Indian HIV-1 subtype C epidemic, which impacts 2.6 million people, exhibits distinct geographic variations that shape unique viral evolution and host immunity, making localized medical strategies essential. To explore these mechanisms, this study examined a cohort of Indian patients, analyzing T-cell reservoirs to assess immune failure, proviral concentrations, drug-resistant variants, and sensitivity to neutralizing antibodies. Our findings indicate that regional differences in immune impairment are driven primarily by treatment history, persisting even in patients with fully suppressed viral loads on stable therapy. Furthermore, while this immunological decline runs parallel to a stable reservoir mostly nested within memory CD4+ T cells, the two phenomena remain statistically independent[30].

Over a three-month duration, this cross-sectional investigation monitored outpatients within a hospital setting. Researchers enrolled participants via consecutive sampling, gathering clinical, behavioral, and socio-demographic data during the initial intake. To determine the primary outcome-the point prevalence of opportunistic infections (OIs)-the team combined direct clinical examinations with thorough audits of medical charts. Demographic analysis revealed a predominant 41-46 age bracket (53.4%), an average age of 45, and a 3:1 female-to-male distribution. The diagnostic evaluation established an overall OI prevalence of 36.8%. Furthermore, first-line antiretroviral therapy (ART) regimens, alcohol intake, and a medical history of previous OIs emerged as critical predictors of infection. Ultimately, these data underscore a high burden of OIs and highlight specific risk factors among HIV-positive individuals undergoing highly active antiretroviral therapy (HAART) in this cohort[31].

The delivery of prevention of mother-to-child transmission (PMTCT) services is severely hindered by inadequate institutional laboratory capacity for definitive HIV diagnosis. Introducing targeted interventions, particularly standardized PMTCT training for all healthcare cadres, is essential to enhance workforce knowledge and clinical skills. In Fiji, building localized capacity for confirmatory diagnostics and initiating pediatric testing are imperative to facilitating the swift and effective execution of PMTCT protocols[32].

The landmark 1996 Brazilian legislation mandated free, universal access to HIV antiretroviral therapy (ART). This investigation established an overall surveillance drug resistance mutation (SDRM) prevalence of 11.6% across a cohort of 327 participants, who were predominantly male (82.9%). Regional variations emerged, with prevalence maximizing in Rio de Janeiro (16.0%) and minimizing in Salvador (9.0%). Characteristically, identified mutations correlated with legacy antiretroviral agents (e.g., stavudine, indinavir, nelfinavir), underscoring an intricate, active transmission network. In terms of drug classes, resistance was most frequently conferred against NNRTIs (5.2%), followed by NRTIs (3.4%), INSTIs (1.8%), and PIs (1.5%). At baseline, clinical parameters demonstrated a median CD4+ T-lymphocyte count of 325 cells/μL and a median plasma viral load of 71,800 copies/mL[33].

Economic Conditions

From a biological standpoint, these obligate intracellular entities lack the inherent machinery to reproduce independently, necessitating the exploitation of a host's cellular system to multiply. This viral infection cycle ultimately results in profound cellular dysfunction or the absolute lysis of the host. From a demographic perspective, the clustering of the epidemic within the reproductive-age bracket and their immediate households has radically altered the population architecture of developing nations, shifting it from a traditional pyramid to a narrow, cylindrical structure. Substantial mortality within pediatric and young adult demographics, paired with diminishing birth rates, has progressively weakened the foundation of this demographic framework. Additionally, individuals aged 15 to 24 contracts HIV and perish from opportunistic illnesses before entering adulthood, consequently draining the mature workforce sector[34-36].

Data from a newly designed mathematical model suggests that while privileged sectors show a more pronounced visible prevalence of HIV/AIDS, the actual velocity of viral propagation is substantially higher among marginalized communities. This framework, which accounts for inconsistent demographic volumes and deficient medical infrastructure, demonstrates that the basic reproduction number surpasses unity ($R_0 > 1$) even among individuals with only one sexual partner.

A sensitivity analysis underscores that the root catalyst for this continuous secondary spread is not individual behavior, but rather the systemic vulnerabilities within the healthcare environment itself[24,35,36].

To address the critical challenge of high HIV incidence within the 14-24 Nigerian demographic, implementing expanded youth-led self-testing frameworks emerges as a viable path toward significant therapeutic improve ments and long-term fiscal sustainability. While final strategic selection remains contingent upon specific cost-effectiveness thresholds, this research delivers crucial, contemporary data. These parameters are essential for refining resource prioritization and tailoring adolescent-centric testing methodologies in low-resource regions[37].

Over the past twenty years, substantial investments have been directed toward strengthening national health systems, with a primary focus on HIV programs. Although Haiti has participated in assessments evaluating structural and procedural quality indicators, empirical evidence regarding patient and provider perceptions of quality within longitudinal interactions remains limited. This qualitative study identifies modifiable aspects of safety, patient-centeredness, accessibility, and equity within the patient education, counseling, and psychosocial support services of Haiti's antiretroviral therapy (ART) program. Optimizing key dimensions of care quality-specifically by fostering a respectful and welcoming environment, ensuring timely service delivery, maintaining confi-dentiality, and promoting perceived equity in support distribution-could significantly enhance patient satisfaction and retention in care. Concurrently, improving health worker labor conditions constitutes a critical prerequisite for achieving sustainable quality improvements[38].

Epidemiological trends from 2010 to 2024 reveal a 13% surge in new HIV cases across Latin America, which diverges from the stalling prevention efforts observed in the Caribbean. This study establishes that HIV transmission is highly localized yet evolving within five specific nations in the region. To achieve meaningful drops in incidence, stakeholders must reallocate funding toward tailored interventions for vulnerable demographics. However, maximizing this impact depends on improving surveillance frameworks, dismantling structural obstacles, and protecting preventive budgets during fiscal downturns. Over time, reducing long-term clinical care costs will free up fiscal space, allowing governments to finance targeted services that eliminate prevention disparities and promote health equity[39].

The genetic fabric of Latin American populations is exceptionally diverse, shaped by centuries of ancestral blending among European, Indigenous, African, and Asian lineages. This profound admixture has produced a unique genomic landscape rich in novel genetic variants. Consequently, the region's immunological profile-molded by historical colonization, distinct pathogen exposure, and rapid urbanization-cannot be accurately evaluated using analytical frameworks designed for high-income nations. These complex dynamics are reflected in recent health trends: between 2010 and 2024, annual new HIV infections escalated by 13% across Latin America, while progress in the Caribbean stagnated. However, allocative efficiency models applied to five regional nations indicate that strategic resource reallocation and targeted inter-ventions for high-risk demographics can effectively mitigate these shifting transmission patterns. Realizing these health outcomes depends on strengthening epidemiological surveillance, executing structural reforms, and securing sustainable funding. Ultimately, reducing treatment expenditures will provide the fiscal leeway required to eliminate healthcare disparities and foster regional health equity[40].

Essential support mechanisms-most notably local, community-led initiatives that engage vulnerable populations-alongside screening and prophylaxis, have faced severe disruptions due to HIV/AIDS budget suspensions documented worldwide by UNAIDS. To mitigate these shortfalls, various governments shifted their focus toward mobilizing urgent internal resources to protect core medical interventions, which serves as a vital preliminary measure for national crisis manage-ment. Nevertheless, the true extent of how these fiscal reductions have impacted global eradi-cation efforts will remain unquantifiable until newly allocated funds revitalize upcoming operations[41].

Funding allocated for international HIV initiatives within developing economies experienced a period of stagnation leading up to 2024, which subsequently triggered a severe decline in financial support.

Fear of stigma and discrimination

As qualitative overviews of a psychological target, attitudes manifest through opposing dimensional axes, such as supportive-unsupportive or rewarding-punitive. Crucially, the foundational hypothesis dictates that these constituent judgments serve as the primary drivers of conduct[31,42-46]. In the industrialized globe, the initial plagues were between men who have sex with men, intravenous drug consumers and receivers of HIV-contaminated blood components such as Factor VIII. Notwithstanding, where needle interchange programs, provision of not dangerous blood derivatives and 'safer sex' education have been instituted, there has been a quick decay in diffusion, which has been more or less sustained[25,27]. Scientific and medical advancements have profoundly reshaped our understanding of transmission dynamics. Categori-zations based on high-risk populations have given way to individualized risk factors, enhanced blood safety protocols, and potent biomedical interventions such as pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP). Furthermore, individuals under-going consistent antiretroviral therapy who achieve an undetectable viral load present zero risk of sexual transmission[14,16].

Research from Senegal indicates that dominant cultural traditions and institutional practices severely compromise fundamental healthcare tenets like freedom, equity, mutual support, and public involve-ment, particularly within the context of HIV/AIDS transmission dynamics[34]. The accessibility and continuity of therapeutic interventions for individuals diagnosed with HIV are severely undermined by

prevailing social prejudices. Current research demonstrates that clinical staff members' tendencies to withhold care or exhibit negative behaviors are heavily driven by disparities in professional training alongside anxieties regarding transmission. Empathy is essential for clinical professionals to ensure the delivery of evidence-based, compassionate attention. Studies further highlight that enhanced empathetic inclinations cultivate superior communication skills, refined professional attitudes, and an elevated standard of patient care[38].

A rigorous and insightful evaluation is presented in this methodological outline. Grounded in data from Medline, CINAHL, and PsycINFO, the abstract aligns seamlessly with standard systematic review protocols. It successfully highlights that while digital decision aids are broadly successful, nuanced psychometric and behavioral variables demand closer attention. Thus, notwithstanding the strength of the current eligible evidence, the literature would benefit from deeper exploration into how these tools impact patient risk comprehension, value alignment, active involvement, and self-belief[39-42].

As the pharmaceutical industry produced increasingly sophisticated drugs, a new emphasis emerged in healthcare: preventative treatment. Although innovative medicines were continuously being developed, medical focus shifted toward preventing infection rather than merely attempting to restore health after an illness had already established itself[43-45].

The connection between physical exercise, diet, and health dates back 4,000 years or more. More recently, medical and pharmacological texts from the 19th and 20th centuries have consistently documented that physically active patients maintain significantly better health[46-49].

The methodology governing disease prevention has undergone a core transformation, moving away from detecting undetected cases toward predicting hereditary and ecological susceptibilities. While historical public health initiatives focused on identifying existing conditions within seemingly healthy populations-resembling traditional containment models-the contemporary paradigm operates under a broader premise. It posits that every individual possesses baseline biological vulnerabilities, thereby converting public health monitoring into a continuous, all-inclusive requirement[50]. During the final decades of the twentieth century, the public health sector experienced a major reallocation of attention, as the sudden rise of the HIV/AIDS crisis in the 1980s overshadowed existing concerns regarding malignant neoplasms, such as breast, colorectal, and prostate malignancies. The resulting societal and political controversies surrounding contagion, human sexuality, and preventative measures subsequently catalyzed the establishment of structured government interventions and therapeutic initiatives in the ensuing decade[51-55].

Developing safe environments for youth remains critical, as international data proves that early-life violence triggers severe, lifelong medical and psychiatric conditions. In Eswatini, recent strategic frameworks aim to combat youth sexual abuse through the systematic analysis of population data, prior victimization, and the support-seeking habits of adolescent girls. Universal declines in violence have been achieved, yet deep-seated disparities remain unaddressed. Consequently, policy execution must emphasize protection for those assaulted by family members or during their teenage years, paired with a systemic expansion of accessible, survivor-oriented institutional networks[56].

MEDICAL TECHNOLOGY

Against this backdrop, the emergence of advanced, highly potent therapeutic strategies grew essential. This transition relied heavily on combinatorial chemistry-a paradigm established during the late 1980s. The technique optimized the isolation of original formulations through the structured pairing of starting materials followed by rigorous screening of their medicinal efficacy. Eventually, the maturation of this field mandated the integration of computational models, giving rise to tailored software capable of orchestrating chemical selection and filtering dense arrays of drug candidates[57].

So profound was the impact of the World Health Organization's (WHO) live-attenuated vaccinia virus vaccine campaign that smallpox became the first-and remains the sole-human affliction to be entirely eradicated by global cooperation. As mass immunization and rigorous surveillance-containment proved decisively effective, the requirement for therapeutic interventions like methisazone, a short-term prophylaxis for exposed individuals, vanished. The drug ultimately endured as a historical footnote: the pioneering antiviral that lost its clinical relevance before the modern era of antiviral development had genuinely blossomed[11,50,57-59]. Susceptibility to severe fungal diseases is markedly elevated in patients diagnosed with HIV/AIDS. Current scientific endeavors have yet to eliminate the substantial annual death toll caused by these secondary complications. Consequently, clarifying the underlying immunopathogenesis is an absolute priority to enhance diagnostic precision and therapeutic outcomes for these vulnerable cohorts[60-6263].

Longevity trends have driven up the consumption of preventive pharmaceuticals, yet therapeutic adherence remains consistently deficient for numerous reasons. This ongoing investigation systematically reviews established databases to analyze evidence-based research aimed at improving patient conformity to medical prescriptions[62-63].

Based on national statistics from the Centers for Disease Control and Prevention (CDC) and HIV surveillance entities, this report evaluates six indicator outcomes within the HIV continuum of care that align with the National HIV/AIDS Strategy (NHAS) priorities. This analysis offers a vital framework to assess independent state progress, cross-state comparisons, national benchmarks, and 2025 targets. To meet these 2025 national goals, accelerated progress is urgently required across both federal and local jurisdictions. These metrics further illustrate the

historical trajectory, current challenges, and methodologies driving pharmaceutical research, public health initiatives, and clinical care management[64].
Regulatory science entails the development and application of scientific tools, standards, and innovative approaches to evaluate the safety, efficacy, quality, and performance of regulated products-including pharmaceuticals, medical devices, and biotechnology-throughout their entire lifecycle. Experts manage laboratory, medical and arithmetical investigation to proactively discourse information openings produced by improvements in medicine progress and healthcare skills, or to report security requests that occur throughout post-market medicine checking. Recognized as supervisory knowledge, this investigation utilizes innovative diagnostic tools and techniques to response interrogations that apply straightly to the assessment of product security, effectiveness and excellence.

STRATEGIC FRAMEWORK FOR FUTURE

The progression of HIV exhibits substantial inter-patient variability. Although most individuals experience an asymptomatic phase lasting between six and ten years, an exceptional cohort of patients demonstrates long-term non-progression extending beyond twenty-five years. Despite encouraging trends in modern epidemiology, depending entirely on current trajectories to fulfill international milestones is ill-advised. The primary barrier to outreach involves marginalized communities with limited access to diagnostic and antiretroviral frameworks, which underscores the urgent need for novel interventions to sustain and drive forward public health gains[65].
To understand the core factors driving the HIV/AIDS epidemic, researchers have frequently relied on epidemicological models. Over time, these frameworks have incorporated distinct programmatic updates to address targeted clinical questions. In particular, classifying the disease before the onset of AIDS using biological markers-specifically CD4+ T-lymphocyte counts and viral load-requires precise quantitative evidence. This includes detailed data on how transmission dynamics shift over time, as well as how viral concentration changes within host fluids throughout the extended and unpredictable incubation period[66,67].
Mobile health (mHealth) is steadily transforming the delivery of medical care globally. In Mozambique-a nation characterized by a high prevalence of human immunodeficiency virus (HIV), an antiretroviral therapy (ART) coverage rate of 77%, and a 67% retention rate - mHealth technologies offer a promising avenue to optimize treatment. Utilizing such innovative technologies is imperative to achieving the United Nations' 95-95-95 targets by 2030. This article details the design, development, implementation, and evaluation of Infomóvel, a mobile health platform. Operated in collaboration with community health workers, Infomóvel aims to enhance healthcare access, treatment adherence, and retention among patients living with HIV[68].
This study aims to clarify the inconsistent patterns of HIV advancement**,** establishing that effective outreach to underserved populations depends on integrating predictive models with precise patient metrics to refine both clinical tracking and healthcare strategies.

CONCLUSIONS

In tandem with international objectives to ensure universal availability of HIV prevention, care, and therapy, the initiative's strategic roadmap acted as a crucial guide, transforming the lives of countless individuals through its "Getting to Zero" campaign. Although the outstanding success of antiretroviral therapy (ART) has sparked debates about the feasibility of eliminating AIDS, significant obstacles persist. Current treatments do not completely rejuvenate the immune system; consequently, non-AIDS-defining disorders-such as cardiovascular conditions and malignancies fueled by persistent inflammation or residual immunodeficiency-are on the rise.
Furthermore, addressing a chronic illness that spans several decades introduces distinct hurdles, highlighting the necessity for a unified global approach to discover a permanent cure. While the AIDS pandemic remains a severe public health hazard, ongoing dedication from medical researchers and scientists has produced major milestones. Nonetheless, HIV remains a uniquely formidable adversary owing to its complex replication and survival strategies inside human T lymphocytes. Even after thirty years of rigorous study, notable strides have been made toward an effective vaccine. Modern research reveals that certain experimental formulations have shown promise in blocking viral transmission. Together, these medical breakthroughs indicate that eradicating the virus for good may eventually be achievable.

CONFLICT OF INTEREST

The author confirms that this article contents have no conflict of interest.

ACKNOWLEDGEMENTS

The author would like to thank the Faculty of Pharmacy of the University of Coimbra, Pharmaceutical Technology Laboratory, “Molecular Physical-Chemistry” Unit, Department of Chemistry, Faculty of Science and Technology, Department of Life Sciences, Centro de Estudos Farmacêuticos (CEF) and Foundation for Science and Technology, (FCT).

AUTHOR’S CONTRIBUTION

Santos JV: conceptualization, methodology, literature survey, data organisation, writing original draft.

DATA AVAILABILITY

The related author can provide the empirical data supporting the study's conclusions upon request.

CONFLICT OF INTEREST

There are no conflicts of interest in regard to this project.

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