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Syndemic convergence of mpox and HIV crisis in the Philippines: implications for integrated and responsive public health action

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Abstract

The Philippines stands at a critical juncture in its public health trajectory, confronting concurrent challenges of a rapidly growing HIV epidemic and the re-emergence of mpox, both of which contribute to a rising burden of disease among vulnerable populations. This article examines the emerging syndemic potential of HIV and mpox in the Philippine context, emphasizing how their convergence magnifies existing health disparities and exposes deep-rooted systemic issues. Recent epidemiological trends reveal critical shortcomings in surveillance, early detection, preventive outreach, and equitable healthcare provision—failures that have been compounded by persistent stigma, under-resourced infrastructure, and fragmented service delivery. By analyzing the current landscape and epidemiological trends, this article underscores the limitations of siloed, disease-specific interventions in addressing the complexity of co-occurring infectious threats. It calls for a paradigm shift toward a syndemic-informed and equity-driven public health framework that includes decentralized care models, community-led responses, stigma reduction, and inclusive policy reforms. Responding to HIV and mpox as intertwined epidemics presents not only an urgent challenge but also a strategic opportunity. An integrated approach can catalyze long-overdue structural transformations, enhance the resilience of the health system, and advance the broader imperatives of health equity and social justice in the Philippines.

Keywords HIV/AIDS, Monkeypox, mpox, Syndemic, Infectious diseases, Zoonotic diseases, Communicable disease, Immunocompromised, Health risks, MSM, Transgenders, Sex workers, Policy reform, Philippines

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Introduction

The convergence of infectious diseases, particularly in resource-constrained settings like the Philippines, is a critical inflection point in global public health. Syndemics, intensified by biological vulnerabilities and influenced by social, structural, and economic inequities, are redefining how health systems must respond to disease threats [1]. In the post-COVID era, the Philippines stands at the forefront of a syndemic threat, as its rapidly escalating HIV crisis coincides with the monkeypox (mpox) upsurge. This convergence amplifies the marginalization of at-risk communities and multiplies the strain on the already burdened public health and healthcare system [2]. The Asia-Pacific region has seen a substantial decline in new HIV infections and related deaths from 2010 to 2022 [2, 3], but the Philippines has emerged as an abrupt outlier. It now holds the record of having the fastest-growing HIV hotspot in the region, predominantly among young men who have sex with men (MSM), transgender individuals, and other key populations [2–4]. Moreover, mpox cases have gained epidemiological traction in the Philippines following its global re-emergence in 2022, disproportionately affecting those same vulnerable groups [5–8]. These biological risks are further compounded by entrenched structural inequities, including pervasive stigma, disjointed service delivery models, and limited access to comprehensive sexual health services [9–11]. Marginalized communities, particularly MSM and transgender persons, continue to face systemic barriers to care, even as disease transmission accelerates in urban and peri-urban centers [2, 12].

Syndemic theory, originally conceptualized by Singer [13], offers a robust framework for understanding how co-occurring epidemics, such as HIV and mpox, synergistically interact within socially and economically marginalized populations. In low- and middle-income countries (LMICs), these interactions are particularly pronounced due to limited health system capacity, enduring inequities, and disintegrated service delivery. The syndemic dynamics of HIV and Mpox in the Philippines are influenced by the high prevalence of HIV among MSM, a group also disproportionately affected by Mpox [14]. The interaction between these two diseases exacerbates public health challenges, as HIV can increase susceptibility to Mpox and complicate its control within the MSM community [15]. Additionally, the presence of HIV in this population may hinder efforts to control Mpox, potentially allowing it to become endemic even when its invasion reproduction number is below one [14]. The syndemic dynamic is neither incidental nor contained; it is the outcome of converging epidemiological and structural vulnerabilities. HIV and mpox share more than just transmission routes like close physical and sexual contact; they also intersect with immunocompromised key populations, increasing susceptibility and severity. Co-infections among immunocompromised individuals, such as PLHIV, not only increase clinical burden but also create cascading repercussions on surveillance systems, diagnostic infrastructures, and treatment pathways [16]. The syndemic perspective underscores the need to move beyond isolated, disease-specific interventions and instead address the intersecting biological, social, and structural determinants that drive vulnerability in LMIC settings like the Philippines [13].

The intersecting threats of HIV and mpox necessitate a paradigm shift from a siloed healthcare approach to integrated and equity-driven strategies. Addressing this dual epidemic requires coordinated interventions across surveillance, treatment, prevention, and education, rooted in community engagement and responsive governance. This paper aims to examine the current epidemiological landscape of HIV and mpox in the Philippines, assess the systemic and socio-political barriers to effective response, and propose a comprehensive public health framework to mitigate their intersecting impacts. Inaction, or fragmented action, risks compounding the human, social, and economic costs of this preventable and addressable public health crisis.

Epidemiological evidence

HIV trends and key population

Historically regarded as one of Asia's countries with the lowest HIV prevalence, the Philippines has witnessed an unprecedented surge in new HIV infections over the past decade, transforming it into the fastest-growing HIV epidemic in the Western Pacific region. This alarming trend reflects a significant shift from a previously contained epidemic to one of urgent public health concern [17, 18]. According to the Department of Health (DOH) report, the average number of new HIV diagnoses per day has increased dramatically, from approximately 13 daily cases in 2013 to between 48 and 57 new cases daily as of early 2023 and 2025 as shown in Fig. 1. This represents more than a 500% increase in newly identified infections within just ten years. The rapid escalation not only signals increased transmission but also points to improved HIV testing and case detection, although significant underdiagnosis remains an issue [19]. By March 2025, the total number of individuals diagnosed with HIV in the Philippines had reached 148,831. These projections indicate that this figure could reach as high as 252,800 by the end of 2025, underscoring a growing epidemic that, without targeted intervention, could potentially double in size by 2030. Likewise, it aligns with global epidemiological models that anticipate continued growth in HIV incidence where prevention, testing, and treatment services are insufficient or poorly accessed.

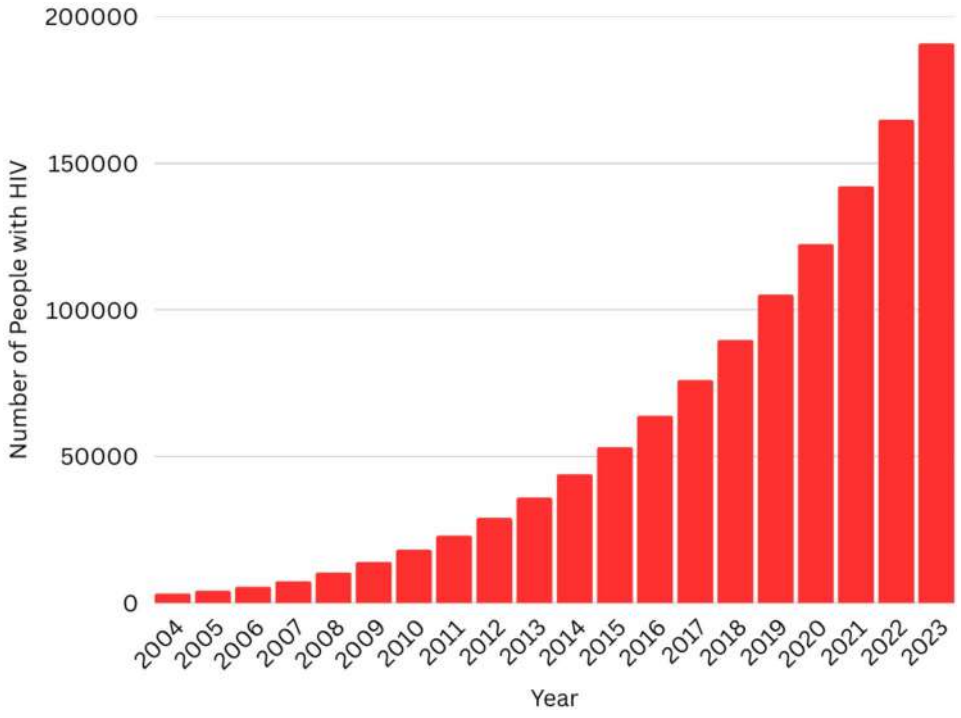

Fig. 1 Number of PLHIV in the Philippines annually, based on UNAIDS (2004–2023)

Demographically, the epidemic in the Philippines is heavily concentrated among males, who represent over 95% of new HIV cases. Most of these cases fall within the sexually active young adult age group of 25 to 34 years, highlighting the vulnerability of this cohort due to behavioral, social, and possibly structural risk factors such as limited access to comprehensive sexual health education, stigma, and barriers to health services [2]. This also aligns with the growth in HIV cases among MSM, as evidenced by the UNAIDS database, illustrated in Fig. 2. Similarly, sex workers also show a general upward trend in terms of HIV cases, but at smaller percentages compared to MSM [3]. Transgender individuals, although a smaller proportion (approximately 3%), also bear a disproportionate burden of infection, reflecting vulnerabilities linked to social marginalization and discrimination [2, 19]. Treatment coverage presents a mixed picture. Approximately 64% of those diagnosed with HIV are currently receiving antiretroviral therapy (ART), a key intervention for viral suppression and transmission prevention. However, viral load monitoring reveals that only around 39,000 of about 88,000 tested individuals achieve viral suppression, indicating challenges in treatment adherence, retention in care, and possible issues with drug resistance or treatment interruption. These gaps in the continuum of care contribute to ongoing transmission and morbidity [2].

One of the most pressing concerns is the increasing incidence of advanced HIV disease (AHD) among newly diagnosed and previously untreated individuals. As of August 2024, 40,934 cases, representing roughly 30% of all historic HIV diagnoses, were classified as AHD. This stage of the disease is characterized by severe immunosuppression, defined by a CD4 count below 200 cells/mm^3 or the presence of World Health Organization (WHO) clinical stage 3 or 4 conditions [19]. Such patients are at elevated risk for opportunistic infections, treatment complications, and mortality. The reported deaths in this group totaled 464 by August 2024, adding to a cumulative 8,246 deaths due to HIV since the epidemic's onset in 1984 [2, 20].

Young males aged 25 to 34 years remain particularly vulnerable to AHD, often presenting late in the course of infection, which is frequently attributed to low rates of early testing and persistent stigma associated with HIV [21]. These delays in diagnosis critically undermine treatment efficacy and increase mortality risk. Apparently, the HIV epidemic in the country is evolving from a relatively contained situation to a full-blown crisis marked by rapid incidence growth, significant late-stage disease, and treatment challenges. The troubling trend underscores the urgent need for enhanced awareness, timely diagnosis, and uninterrupted access to care among high-risk populations [20]. This epidemiological profile reflects a combination of biological, behavioral, social, and systemic factors that require a sustainable multipronged public health response [2, 20].

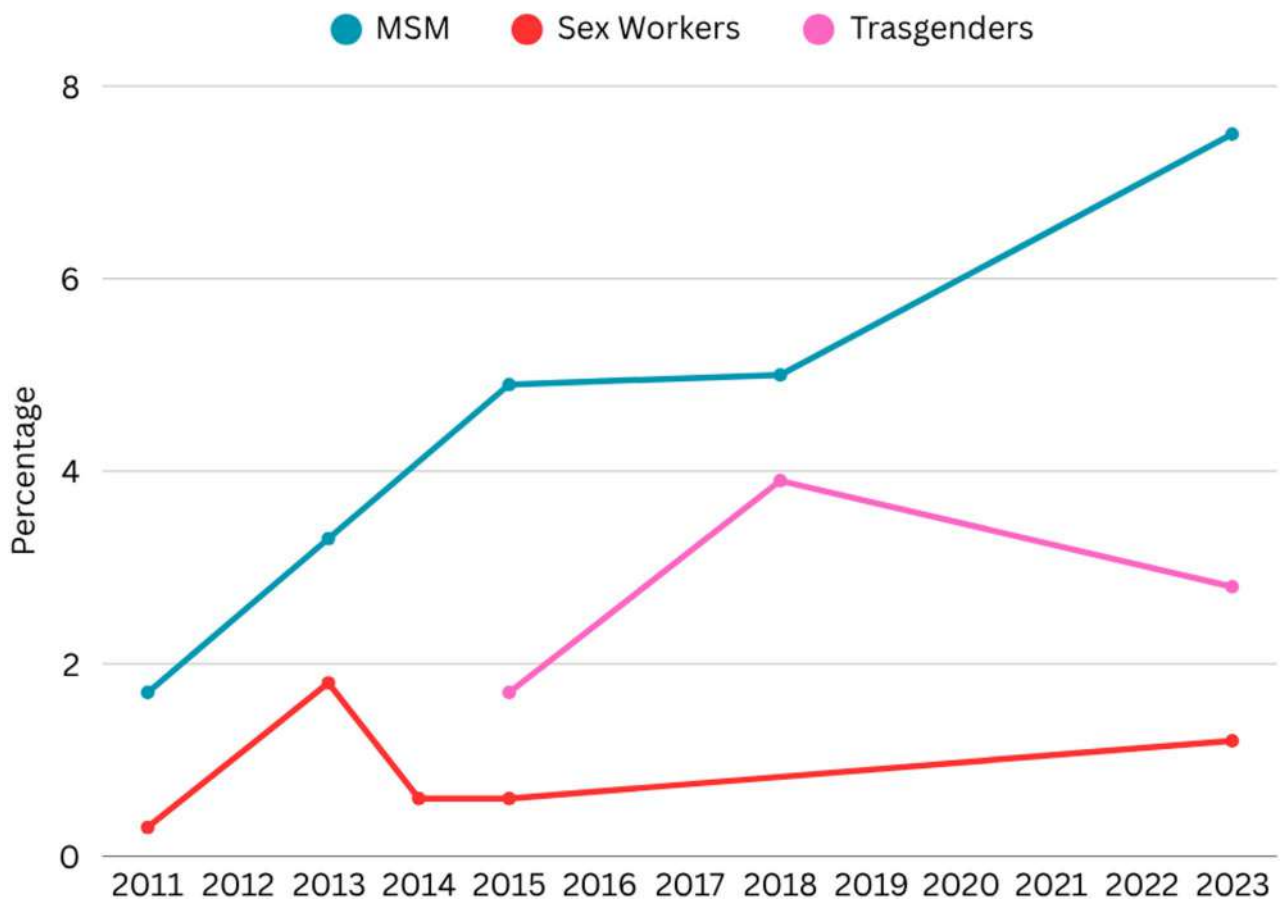

Fig. 2 Percentage distribution of key and vulnerable populations in the Philippines based on UNAIDS (2011–2023)

Mpox incidence and characteristics

The first confirmed case of mpox in the Philippines was in 2022, a 31-year-old male with the Clade IIb variant [22]. The patient is said to have had a travel history in Europe. Similarly, the first travel-related case of possible Mpox-Varicella zoster virus (VZV) co-infection in the Philippines is also attributed to travel in another European country [23]. As of May 2025, the number of mpox cases in the Philippines has reached 911 since 2024 [24]. Despite the high number, the Philippine Department of Health (DOH) iterates that the epidemic curve is the most significant parameter to consider, with general trends leaning towards lessening monthly cases. DOH also highlighted that a significant number of cases turn out negative and only a few cases are classified as positive for mpox, most of which are classified under the mild Clade II variant. Globally, for non-African countries, the number of Mpox cases from January 2022 to May 2025 has reached 102,036, while African countries have reported 41,652 cases [25].

While mpox is not formally classified as a sexually transmitted infection (STI), its primary mode of transmission, through intimate skin-to-skin contact, means that the virus disproportionately affects populations with specific social and sexual networks. Among these, MSM populations have been identified globally and within the Philippines as a key affected demographic. According to the WHO [25], among the international non-African cases that reported sexual behavior, the majority identify as MSM, with 32,216 from May 2024 to May 2025. Monkeypox transmission creates an overlapping risk profile with HIV due to close contact that is often inherent during sexual intercourse, thereby predominantly affecting MSM populations. Concurrently, the WHO confirmed a total of 19,534 mpox cases of individuals with sexual activity identifying themselves as persons living with HIV. This connection between mpox and HIV remarkably intensifies the vulnerability of MSM and other key populations to both infections, creating a compounded public health concern [26].

An elevated risk of severe mpox manifestations is faced by groups of PLHIV, specifically those with immunocompromised systems or advanced HIV disease. A suppressed immune system can aggravate the severity of mpox disease [27]. In addition, recovery is also prolonged by immunosuppression, and the likelihood of complications such as prolonged viral shedding and secondary infections may also worsen. The crucial need

for integrated care approaches that address both mpox prevention and treatment and HIV management is emphasized in connection with this biological susceptibility [26, 28]. Other groups of people that are known to have compromised immune systems like individuals with untreated cancers, groups with chronic illnesses, and persons on immunosuppressive therapies, may correspondingly experience heightened and more severe clinical outcomes following mpox infection [29]. These vulnerable groups urgently need amplified surveillance and tailored health interventions.

Health system response

Policy frameworks

The Philippine health system has made important strides in addressing HIV through legislative and strategic initiatives, but challenges remain in reaching all segments of the population effectively. The Philippine HIV and AIDS Policy Act (RA 11166, enacted in 2018) was a landmark reform that enhanced prevention efforts, expanded access to rapid diagnostic testing, ensured free and confidential ART provision, and introduced PrEP as a preventive option for high-risk individuals [30]. This policy also underscored the importance of protecting the rights of PLHIV and combating discrimination in healthcare and employment settings [21]. However, the reach of these policies into rural and underserved areas remains limited. Many local government units (LGUs) lack the resources or capacity to implement comprehensive HIV services, leading to uneven service availability. Cultural and religious conservatism in some provinces further constraints prevention education and harm reduction strategies [31].

In response to the HIV surge, the DOH has recommended emergency plans since mid-2025 to mobilize resources rapidly and scale up testing and treatment programs. This is indicative of heightened government recognition of HIV as a growing public health crisis. The national health insurance provider, PhilHealth, has increased financial support to cover the essential healthcare of people living with HIV through the comprehensive outpatient HIV/AIDS treatment (OHAT) package. However, an analysis of the actual utilization of the OHAT reimbursement may be needed to show the benefit of this coverage to the HIV program implementation [32]. In addition, people who have been diagnosed with mpox are eligible for assistance from PhilHealth, covering a range of medical services, such as hospitalization, treatment, and diagnostic tests. Notably, the Philippines has also demonstrated capacity for rapid response through past Code Blue activations during infectious disease outbreaks like measles and pertussis, reflecting an organizational framework that can be adapted to address HIV and mpox [33]. Regarding mpox, the government has issued case alerts and conducted genomic sequencing confirming Clade II virus circulation since 2022, but a comprehensive national vaccination strategy is yet to be operationalized. Current policies lack clear guidelines on mpox vaccination prioritization, contact tracing protocols, and integration with existing HIV programs [34].

Service delivery

Substantial improvements in HIV service delivery include the decentralization of rapid HIV testing, allowing testing to be conducted at community clinics and pharmacies, thereby increasing accessibility. The adoption of Dolutegravir-based antiretroviral therapy (ART) regimens, which are more tolerable and effective, has improved treatment outcomes for many patients. The 2017 launch of Programme PrEPPY marked a significant step forward in offering PrEP to at-risk populations, mainly concentrated in urban centers such as Metro Manila [2].

Nevertheless, barriers persist in the widespread adoption of post-exposure prophylaxis (PEP) and mpox vaccination. Community reports highlight that PEP is rarely accessible outside a few metropolitan centers, with some patients forced to rely solely on non-government organizations (NGOs) or informal networks for medication. Mpox vaccines remain scarce, and public awareness is limited, impeding prevention efforts among vulnerable groups [3, 35]. The fragmentation between HIV and mpox services leads to missed opportunities for co-testing, counseling, and treatment. Integrating mpox vaccination campaigns with existing HIV clinics could leverage existing trust networks and efficiently improve coverage [31].

Surveillance and outreach

Surveillance efforts for HIV rely primarily on the HIV/AIDS Registry Program (HARP) and the Integrated HIV Behavioral and Serologic Surveillance (IHBSS) systems, which collect data on incidence, prevalence, and risk behaviors. Despite these, underreporting is widespread, especially among youth, transient populations, and individuals in geographically isolated and disadvantaged areas. Social stigma and confidentiality concerns contribute to reluctance in seeking testing, thus masking the true epidemiological picture [2, 35, 36].

Mpox surveillance has ramped up with prompt case detection, laboratory confirmation, and genomic sequencing confirming Clade II virus strains circulating locally as of August 2024. However, data systems are still adapting to include comprehensive mpox monitoring and contact tracing. Improving surveillance interoperability between HIV and mpox programs would facilitate timely outbreak responses and targeted interventions [31, 32, 37].

Community mobilization

Civil society organizations (CSOs), particularly those led by and serving LGBTQIA + populations, have been at the forefront of HIV and mpox outreach, often filling gaps left by government programs. These organizations provide critical services such as HIV and mpox testing, counseling, treatment referrals, and health education [8, 22].

From the digital space perspective, Reddit users and community advocates report that NGO clinics serve as the primary or sole accessible providers of PEP and mpox-related care in many rural and provincial areas, particularly where government clinics either lack capacity or deny services due to stigma or policy ambiguity. These groups also engage in peer-to-peer education and stigma reduction, which are essential to encouraging early health-seeking behavior [33, 34]. Despite these efforts, funding constraints and regulatory barriers often limit the scale and sustainability of community mobilization. Greater government support and inclusion of CSOs in policy formulation and implementation could amplify their impact [38–41].

Syndemic convergence dynamics

The Southern Philippines Medical Center (SPMC) in Davao City has reported that 11 out of 14 identified cases of mpox occurred in individuals with HIV, a condition which, due to its chronic nature, compromises one's immune system. Among the seven remaining inpatients, most are men who have not traveled recently and are likely to have contracted the disease through sexual or skin-to-skin contact. SPMC has full capabilities in terms of trained personnel and isolation units, so there is no need to panic, as mpox is not transmitted through the air. The DOH has expressed concern about the worrying rate of 500% increase in HIV infections, especially with the alarming rise in cases within Generation Z. Davao City appears to be a regional leader in the rising HIV case trend. The figure now exceeds 148,000 active cases, with some experts warning it may require a national public health emergency response [42].

The overlapping threat of mpox and HIV in the Philippines presents a complex public health concern driven by intersecting and interconnecting determinants, including biological, social and behavioral factors. Biologically, a weakened immune system is evident in PLHIV even if they are not virally suppressed [29, 43]. This tendency increases their susceptibility to opportunistic pathogens like mpox. Mpox manifests more severely in hosts with compromised immune systems, according to studies. This leads to secondary bacterial infections, prolonged disease, and in some cases, systemic involvement. Comprehensive treatment strategies and screening are critical to subdue this biological interplay [44].

The social and behavioral environments play crucial interconnected roles in the spread of HIV and mpox. Discrimination, sexual network, and social stigma suppress open communication about disease risks, leading to limited access to preventive services, including vaccination for mpox and pre-exposure prophylaxis (PrEP) for HIV. These socio-behavioral issues also contribute to underreporting. Timely diagnosis and treatment are also obstructed by the stigma surrounding these conditions, that is, social prejudice for HIV-affected individuals and global interconnection to sexual minorities for mpox-affected groups. This stigma exacerbates social isolation, which in turn fuels transmission by pushing high-risk behaviors underground [44, 45]. Socially and structurally, entrenched stigma around homosexuality, HIV, and emerging diseases like mpox continue to inhibit health-seeking behavior. A significant portion of MSM and transgender persons in the Philippines avoid public health facilities for fear of discrimination and established social stigma [46, 47]. In Manila for instance, in 2017, interviews were conducted among MSM living with HIV and community-based organization workers and found that the stigma towards homosexuality have significantly affected delays in HIV testing and avoidance of HIV health services [48]. Similarly, in an online cross-sectional survey among Filipinx trans-WSM and cis-MSM, conducted between 2018 and 2019, it was found that among the 87% HIV-positive respondents less likely to identify as straight, 63% of them were more likely to avoid HIV health services due to a lack of anti-LGBT discrimination policies and laws [49]. Compared to MSM, trans people in the Philippines, Indonesia, Timor Leste, and Malaysia experience greater stigma and discrimination [50]. The heightened stigma and discrimination against transgenders in the Philippines, and some of its ASEAN neighbors also includes outright refusal to access to healthcare services and physical maltreatment, which may further health service avoidance among this subset of the Filipino population [50].

Despite the clear epidemiological synergy, the Philippines' public health response has remained largely siloed. HIV programs focus heavily on ART scale-up and PrEP, whereas the mpox response is nascent, with limited vaccination and educational outreach (see Section "Health System Response" - Health System Response, for a detailed discussion). Fragmentation extends beyond programmatic divisions into health education, service delivery, and surveillance systems, with inconsistent messaging that confuses rather than empowers affected communities. Without coordinated and culturally competent outreach, both HIV and mpox continue to propagate within vulnerable populations. The health system calls for adopting a holistic framework that recognizes the

syndemic nature of HIV and mpox, rather than treating them as isolated phenomena [51].

Currently, there are only a few published studies that document and focus primarily on the poorer mpox outcomes for PLHIV specifically in the context of the Philippines. Most of the existing data on mpox and its relationship with HIV comes from international research, especially in Europe, North America, and parts of Africa. Nevertheless, these findings provide a useful foundation for understanding the syndemic dynamics of HIV and mpox in the Philippines.

Syndemic interplay between HIV and mpox

The syndemic interplay of HIV and mpox involves complex biological, behavioral, and policy dimensions that exacerbate the health outcomes of affected populations. Biologically, individuals with HIV are more susceptible to Mpox due to their compromised immune systems. Co-infections with other sexually transmitted infections (STIs) and bacterial superinfections further complicate the clinical picture, leading to more severe disease outcomes and prolonged recovery periods [52]. Furthermore, the presence of multiple syndemic conditions can increase the biological vulnerability to both HIV and Mpox throuh potentiating immune dysregulation [53, 54]. Additionally, the co-occurrence of HIV and mpox can lead to higher levels of immune activation and inflammation, which are critical factors in the progression and severity of these infections [54].

Figure 3 illustrates the syndemic convergence of HIV and mpox in the Philippines, highlighting the synergistic interplay of biological, psychosocial-behavioral, and structural determinants of health. This multifactorial framework captures the complex, multi-layered interaction of these two infectious diseases within populations already burdened by systemic inequities. It elucidates how HIV and mpox reinforce each other through shared vulnerabilities and transmission networks, leading to a compounding of health outcomes and deepening disparities in care access, morbidity, and mortality.

At the biological level, several mechanisms drive the syndemic interplay. HIV-induced immunosuppression heightens susceptibility to more severe mpox infections, resulting in prolonged viral shedding, atypical clinical presentations, and more complicated disease trajectories [54]. Both viruses share transmission pathways, such as skin-to-skin contact and exposure to bodily fluids, particularly within high-risk sexual networks. Genital lesions common to both conditions further increase the probability of co-infection by compromising mucosal integrity, creating viral entry points that enhance transmission. Drug interactions and comorbidities also play a critical role, especially when individuals must manage ART for HIV alongside antiviral treatment for mpox [14, 55]. This polypharmacy, coupled with the presence of other STIs, critically diminishes therapeutic efficacy and complicates disease management, leading to severe health outcomes [52]. The presence of multiple syndemic conditions, such as depression, substance use, and food insecurity, can potentiate immune dysregulation, increasing biological vulnerability to both HIV and Mpox [56, 57]. In Cape Town, South Africa for example, in a survey conducted on people with HIV, 82.8% of surveyed participants had at least two co-occurring syndemic problems that interfered with HIV outcomes, while 46.9% claimed more than four, with the most pressing problems being depression, substance use, and food insecurity [53]. Elevations in rectal cytokine and chemokine levels were pronounced among sexual minority men with two or more syndemic conditions, which indicates increased biological vulnerability to HIV through potentiating rectal immune dysregulation [54].

Socio-behavioral factors add another layer of complexity. High-risk sexual behaviors, including multiple partnerships, chemsex, and transactional sex, are significant drivers of both HIV and mpox transmission [53, 58]. These behaviors are often shaped by socioeconomic marginalization and compounded by stigma associated with gender identity, sexual orientation, and HIV status. Discrimination against MSM, transgender individuals, and PLHIV fosters fear and distrust of healthcare institutions, driving individuals away from testing, treatment, and preventive services [59–61].

The clustering of psychosocial health problems — including substance use and mental health issues — has been conceptualized as a syndemic that synergistically increases engagement in risky sexual behaviors associated with HIV transmission [62]. Evidence shows that individuals with multiple co-occurring psychosocial conditions have higher odds of condomless sex, multiple partners, and other high-risk behaviors, particularly among sexual and gender minority populations [62, 63]. Studies in women who inject drugs and youth living with HIV also demonstrate that co-occurring depression and substance use cluster with sexual risk behaviors [64]. Furthermore, epidemiologic data from mpox outbreaks indicate that HIV co-infection is common among mpox cases, illustrating how underlying vulnerabilities — including immunosuppression in people with HIV — intersect with infections in high-risk populations [65].

Policy interventions must address these behavioral factors by integrating mental health and substance abuse treatment with HIV and mpox prevention efforts. Effective public health strategies should also focus on targeted risk communication and vaccination campaigns to enhance vaccine acceptance among people living with HIV, as seen in Nigeria [66]. In northern Nigeria, a mixed-methods study of 430 people living with HIV

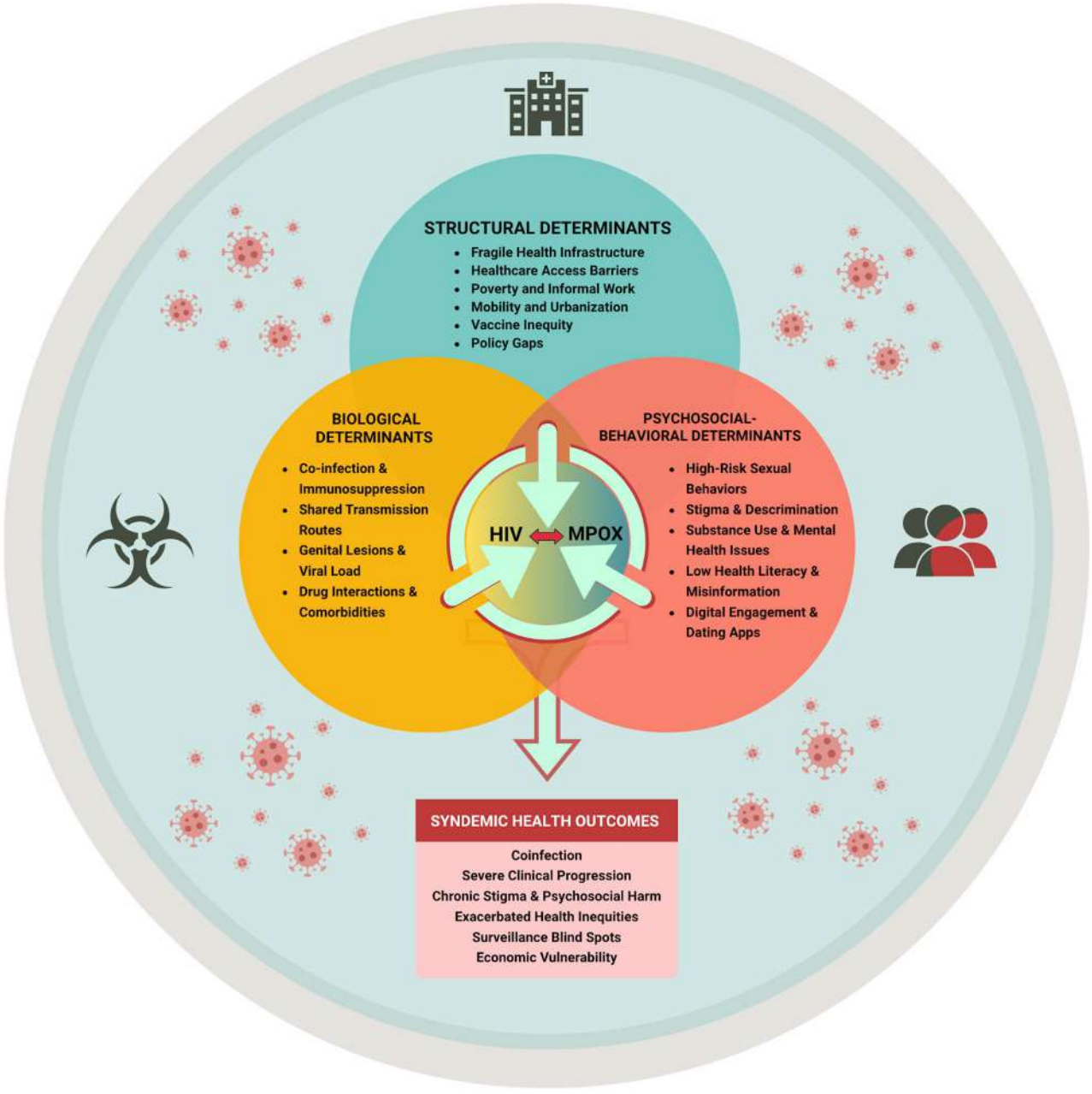

Fig. 3 Multifactorial Syndemic Framework of HIV and Mpox in the Philippines

attending HIV care services in Kano found that, although awareness of mpox was high, perceptions of personal risk and willingness to accept an mpox vaccine were suboptimal, with only about 64.4% indicating willingness to be vaccinated and just 38.1% perceiving themselves at high risk for mpox infection [66]. Importantly, willingness to accept vaccination was significantly associated with factors such as being male, older, having higher education, and perceiving mpox as a serious disease or feeling personally at risk, highlighting how perceived susceptibility and health beliefs influence vaccine uptake. Conversely, hesitancy was driven by concerns about potential interactions between the mpox vaccine and antiretroviral therapy, low perceived risk of infection, the novelty of the vaccine, mistrust of authorities and pharmaceutical companies, and worries about safety. These findings illustrate that despite considerable awareness, barriers rooted in risk perception, misinformation, and distrust can impede vaccine acceptance among people living with HIV, underscoring the need for targeted risk communication, community engagement, and tailored public health messaging to address specific concerns and improve vaccination uptake in this vulnerable group [66]. Comprehensive prevention approaches that consider the

syndemic nature of these epidemics are essential for mitigating their impact on vulnerable populations [67]. Low health literacy, coupled with widespread misinformation (e.g., framing mpox as a "gay disease"), impedes awareness and timely health-seeking behavior [68–70]. Barriers to healthcare access, such as centralized testing facilities, high out-of-pocket costs, and provider bias, further delay diagnosis and worsen disease outcomes [68, 69]. Additionally, structural poverty and the prevalence of informal labor push many into survival-based strategies, including sex work or migration to dense urban areas, where infection risks escalate due to overcrowding and limited access to services [71].

The outermost layer of the framework emphasizes structural determinants that condition the syndemic context. A fragile healthcare infrastructure, characterized by limited decentralization and a lack of mpox-specific programming, restricts the capacity for integrated responses. Policy gaps persist where HIV programs remain siloed from broader emerging infectious disease strategies, resulting in fragmented surveillance and weak inter-disease coordination. Global and local vaccine inequities further exacerbate the crisis, as mpox vaccines remain inaccessible for many at-risk Filipinos. The digital divide, amplified by misinformation, also undermines health literacy and reinforces harmful narratives, particularly among young and underserved populations [72].

These converging determinants give rise to significant health system and societal consequences. The syndemic dynamic increases morbidity and mortality, especially among co-infected individuals. It creates blind spots in disease surveillance, as mpox may be underdiagnosed in PLHIV and vice versa. Marginalized populations bear the compounded burden of these co-occurring diseases [73]. They are more likely to experience catastrophic health expenditures [74], which can push families into poverty, and to suffer work absenteeism [75] and productivity loss, leading to reduced income and long-term economic hardship [76]. These burdens are exacerbated by limited access to affordable care and social protection, particularly in low-resource settings [73]. In the absence of integrated policy frameworks, these syndemic effects persist unchecked, resulting in delayed and insufficient responses from health institutions and government agencies [77].

To mitigate these challenges, the framework proposes several pathways for action. Syndemic-aware health programming that integrates HIV and mpox services, such as dual screening, contact tracing, and treatment, can optimize resource use and improve outcomes. Community-led interventions, especially those driven by PLHIV and MSM organizations, are essential in delivering culturally competent risk education and countering stigma [77, 78]. Decentralized diagnostic systems and mobile clinics can address barriers to access, particularly in geographically isolated and disadvantaged areas. Provider sensitization and stigma-free care models must also be scaled to ensure inclusive, patient-centered health environments. Ultimately, policy coherence across national and local levels is crucial. HIV services must be embedded within a broader, flexible epidemic preparedness framework that can adapt to emerging threats like mpox while maintaining attention to long-standing epidemics [78, 79].

Structural vulnerabilities and gaps

The upsurge of HIV and mpox in the Philippines was realized to have originated from several critical barriers and gaps. Access and utility of crucial preventive tools like mpox vaccines, post-exposure prophylaxis (PEP), and timely testing services remain discrepant, especially among stigmatized and marginalized populations, thus negatively impacting disease response [16]. Vulnerable communities often face systemic barriers such as stigma, discrimination, and a lack of culturally competent healthcare providers [2]. An increasing number of AHD cases and preventable deaths were revealed to be caused by the continued prevalence of late HIV diagnoses [33, 35]. This scenario is aggravated by the tenacious stigma surrounding HIV and inadequate testing coverage, which deters vulnerable groups from seeking timely detection and urgent medical cure due to the polarity between the health providers and the individual at risk, thus emboldening the vicious cycle of transmission [20, 43–45]. Moreover, there is suboptimal retention in antiretroviral therapy (ART) programs, with many patients experiencing interruptions in HIV and mpox management due to psychosocial factors, supply chain challenges, and mobility [80, 81]. This eventually leads to poor viral suppression rates [10]. Compounding these issues is the inadequate provision of comprehensive sexual and gender education in both formal and informal settings [3]. Withal, cultural beliefs and religious resistance further limit awareness of HIV and mpox risks as well as preventive measures [2, 12]. Consequently, the community awareness in the country remains insubstantial, characterized by knowledge gaps regarding its transmission, symptoms, and prevention strategies, as revealed by a national study survey [82].

On the other hand, fragmented service delivery across health departments, local government units (LGUs), and non-governmental organizations (NGOs) has led to disjointed efforts and a lack of cohesive healthcare responses, resulting in missed opportunities for integrated and sustained interventions [35]. This disorganization is compounded by critical setbacks, including inadequate infrastructure for contact tracing, low levels of public awareness, and the lack of a unified and responsive vaccination strategy [20, 42]. These systemic

Table 1 A policy matrix for integrated HIV and Mpox response in the Philippines

Policy Area	Current Gaps	HIV-Specific Action	Mpox-Specific Action	Joint/Integrated Action
Surveillance & Data	- Fragmented reporting systems - Delayed data updates - Mpox is not fully integrated into national health surveillance	Strengthen OHASIS; include real-time community-based reporting	Expand mpox testing and case mapping in provincial areas	Integrate mpox into HIV surveillance dashboards and alert systems
Testing & Diagnosis	- Low testing rates among youth and rural communities - Delayed diagnosis - Limited mpox testing centers outside urban areas	Decentralize HIV testing (schools, community hubs) and normalize rapid self-testing	Provide mobile testing for symptomatic individuals	Combine screening for HIV, STIs, and mpox in high-risk groups
Treatment & Care	- Poor ART adherence - Centralized care delivery - Lack of formal mpox treatment protocols across many regions	Ensure ARV access via pharmacies, clinics, and telehealth	Prepare provincial mpox case management pathways and stockpile antivirals	Establish integrated care models for co-infections, including TB and hepatitis
Prevention & Prophylaxis	- Inadequate PrEP/PEP coverage - Condom distribution is inconsistent - No local access to mpox vaccines	Scale PrEP/PEP access and promote consistent condom use	Acquire and roll out mpox vaccines for high-risk populations	Educate at-risk groups on syndemic risks and prophylaxis options for both infections
Education & Public Awareness	- Lack of reliable biology-based sex education in Philippine schools - Poor awareness of mpox symptoms and transmission	Integrate sex education in schools and local curricula	Launch campaigns on mpox symptoms and prevention	Create joint multimedia content targeting MSM, youth, and migrant workers
Stigma Reduction	- Discrimination in healthcare - Fear of disclosure - Stigma associated with both HIV and mpox in LGBTQ + communities	Train healthcare workers to reduce HIV-related stigma	Promote respectful language in mpox education materials	Enforce RA 11,166 anti-discrimination clauses; support LGBTQ + rights and mental health support
Community Empowerment	- Limited support for peer-led initiatives - Underfunded community-based orgs - Insufficient training on emerging infections	Fund PLHIV networks and peer educators	Engage LGBTQ + CSOs in mpox response planning	Provide joint training for peer navigators on HIV/mpox and emergency response protocols
Policy & Legal Reform	- Uneven implementation of the HIV Law across LGUs - Absence of a formal mpox response legal framework	Fully implement RA 11,166 across all LGUs	Draft MPox response framework with clear funding and mandates	Establish cross-cutting infectious disease boards at regional DOH offices
Funding & Sustainability	- Limited national funding for HIV services - No dedicated mpox budget - Overreliance on external donor funding	Increase the HIV budget and integrate services into PhilHealth packages	Allocate emergency MPox response funds	Create pooled outbreak preparedness funding mechanisms to support multi-disease response

gaps weaken early detection, containment, and prevention efforts. Moreover, persistent stigma and discrimination continue to act as formidable barriers to healthcare access, particularly for marginalized populations such as MSM, transgender individuals, and sex workers. These social determinants of health not only discourage health-seeking behaviors but also undermine the effectiveness of public health campaigns and treatment programs [20, 31, 43].

Recommendations

Addressing the intertwined challenges of HIV and mpox in the Philippines demands a comprehensive, coordinated approach that strengthens surveillance, expands treatment access, and promotes prevention (as shown in Table 1). Surveillance systems must be enhanced by decentralizing HIV testing through pharmacies, mobile units, and barangay health stations to reach underserved populations, while integrating routine mpox screening and education within HIV clinics and outreach programs. Regular monitoring of viral loads and CD4 counts is crucial for early detection of treatment failure and advanced HIV disease. Treatment efforts should scale up ART availability, especially Dolutegravir-based regimens, coupled with adherence support via telehealth and peer navigators. Prevention must be bolstered by increasing access to PrEP and PEP, including free distribution through government channels, alongside a national mpox vaccination program targeting high-risk groups such as PLHIV and MSM. Education initiatives should institutionalize comprehensive sex education encompassing HIV and mpox, and stigma reduction campaigns using frameworks like Undetectable = Untransmittable (U = U) to foster empathy and engagement. Policies must formally recognize HIV as a national public health emergency to facilitate funding and coordinated responses, while clear

guidelines for mpox vaccination and case management should be disseminated and harmonized across agencies.

Community engagement is vital, requiring enhanced funding and institutional support for peer-led and community-based clinics to increase accessibility and acceptability among marginalized groups. Empowering peer networks in MSM, transgender, and other key populations will improve outreach, testing, and linkage to care. Responsible use of social media and dating apps can amplify accurate, stigma-free health communication. The accompanying table highlights key gaps and actionable interventions across policy areas, from surveillance and testing to stigma reduction and funding, emphasizing the need for integrated HIV and mpox strategies to improve health outcomes and streamline services nationwide.

Conclusion

The concurrent threat of HIV and mpox in the Philippines urgently demands an integrated and strategic response. This syndemic threat is interlinked through shared transmission pathways, vulnerable populations, systemic stigma, and the same overstretched healthcare infrastructure. Without decisive and integrated action, the country faces rising morbidity and mortality, deepening health disparities, and escalating economic strain. To counter this, a cohesive national strategy must prioritize decentralized testing, equitable access to prevention and treatment, comprehensive biology-based sex education, and stigma reduction. Empowering communities, particularly those most affected, and ensuring sustained government commitment and funding are essential pillars of an effective response. By addressing HIV and mpox together through a unified and equity-driven approach, the Philippines can not only control these syndemics but also build a more inclusive and resilient health system for future threats.

Abbreviations

ADH	Advanced HIV disease
ART	Antiretroviral therapy
CSOs	Civil society organizations
DOH	Department of Health
HIV	Human Immunodeficiency Virus
HARP	HIV/AIDS Registry Program
IHBSS	Integrated HIV Behavioral and Serologic Surveillance
LMICs	Low- and middle-income countries
LGUs	Local Government Units
MSM	Men who have sex with men
NGOs	Non-Government Organizations
PLHIV	People living with HIV
PEP	Post-exposure prophylaxis
PrEP	Pre-exposure prophylaxis
STIs	Sexually-transmitted infections
WHO	World Health Organization

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