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**Bridging the Gap: Assessing PrEP uptake and HIV prevention among At-risk
Populations in Malaysia**

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Abstract

HIV remains a major public health concern in Malaysia, particularly among men who have sex with men, sex workers, and people who inject drugs. Although national prevalence is low (0.4%), new infections among individuals aged 18–39 are increasing, driven by sexual transmission. Since 2018, pre-exposure prophylaxis (PrEP) has been introduced, yet stigma, financial barriers, and cultural sensitivities hinder uptake. This narrative review analyses national data and literature to identify implementation challenges and propose solutions. Findings highlight the need for integrated primary care, subsidies, education, and community engagement to promote PrEP as both a preventive and health equity measure.

Keywords: Human Immunodeficiency Virus; Pre-Exposure Prophylaxis; Trend; Issue.

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1.0 Introduction

Human Immunodeficiency Virus (HIV) and acquired immunodeficiency syndrome (AIDS) remain significant global public health challenges, affecting millions worldwide. According to the United Nations Programme on HIV/AIDS (UNAIDS, 2023), 39.9 million people were living with HIV globally, with 1.3 million new infections recorded in 2023. In Malaysia, the Global AIDS Monitoring (GAM, 2024) reported that 71,927 (84%) of the 85,283 people living with HIV (PLHIV) were aware of their status, and 68% were receiving antiretroviral therapy (ART) as of December 2023.

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In response to the evolving HIV epidemic, Malaysia adopted the National Strategic Plan to End AIDS (2016–2030), which aligns with the UNAIDS Fast-Track targets to end AIDS by 2030. A key component of this strategy is the introduction of pre-exposure prophylaxis (PrEP), a biomedical intervention that, when taken consistently, reduces the risk of HIV acquisition by more than 99% (McCormack et al., 2016). Despite its proven efficacy, the uptake of PrEP in Malaysia remains limited. Barriers, including as low awareness, social stigma, high cost, inadequate provider training, and cultural or religious sensitivities continue to hinder its implementation (Ahmad et al., 2024). Young adults and key populations remain underserved and insufficiently informed about PrEP as part of comprehensive HIV prevention.

This paper aims to critically examine the current state of PrEP implementation and uptake in Malaysia, with a focus on youth and other high-risk populations. Guided by a socio-ecological perspective, it examines the interaction between individual, social, and structural determinants that influence the use of PrEP. The specific objectives are to examine current trends and challenges in PrEP implementation in Malaysia, identify behavioural, social, and structural barriers to PrEP uptake, evaluate policy gaps and health system readiness, and propose evidence-based, culturally sensitive strategies to enhance PrEP integration.

2.0 Literature Review

2.1 Epidemiology of HIV in Malaysia

As of 2023, Malaysia has recorded over 85,283 HIV cases since the first documented case in 1986, indicating the ongoing importance of HIV as a public health challenge (MOH, 2024). This long-standing presence of HIV in Malaysia reflects not only the persistence of the virus but also the gaps in prevention, education, and access to healthcare services over the decades. The steady rate of approximately 3,000 new infections annually is particularly alarming among individuals aged 18 to 39, who represent most new diagnoses (GAM, 2024). The fact that this age group is most affected highlights the importance of targeted interventions that consider both the developmental stage of young adults and their social and sexual behaviours.

Epidemiological data indicate a significant shift in transmission patterns over the past three decades. Whereas only 5% of HIV cases in 1990 were attributed to sexual contact, this mode now accounts for 95% of new infections, with 62% involving homosexual transmission (MOH, 2022; GAM, 2024). This dramatic shift underscores the need for sexual health interventions that are both evidence-based and culturally sensitive. Men comprise 90% of new cases, and the MSM population represents over 70% of annual infections (MOH, 2022; GAM, 2024). These figures align with global trends in HIV epidemiology, where men who have sex with men remain disproportionately affected. In Malaysia, however, these trends are further complicated by cultural taboos and legal restrictions, which suppress open discourse around MSM sexual health and hinder access to prevention tools like PrEP.

Concurrently, the role of injection drug use (IDU) in HIV transmission has significantly declined. In 1990, 61% of cases were linked to IDU. By 2023, this figure had dropped to just 3%, following the expansion of harm reduction programs such as methadone maintenance therapy and needle exchange initiatives (MOH, 2024). This decline demonstrates the effectiveness of targeted harm reduction policies and programs. It also illustrates the evolving nature of HIV transmission in Malaysia, where sexual contact now constitutes the predominant mode. This epidemiological shift necessitates a strategic pivot in public health priorities, focusing on sexual health education, condom promotion, and the wider dissemination of PrEP, particularly among at-risk groups.

Geographically, states with high urbanisation and internal migration, such as Selangor, Kuala Lumpur, Johor, and Sabah, report the highest infection rates (MOH, 2024). Urban centres tend to concentrate populations that are highly mobile and diverse, including MSM, refugees, sex workers, and migrants, who are often at elevated risk of HIV infection. The clustering of cases in these regions underscores the importance of community-based, localized interventions that address the specific needs of urban populations. The COVID-19 pandemic further disrupted HIV prevention and treatment efforts between 2020 and 2022, delaying ART initiation, halting PrEP outreach, and reducing testing availability due to lockdowns and healthcare access constraints (MOH, 2024). These disruptions magnified existing vulnerabilities and service gaps, emphasizing the need for resilient health systems that can maintain essential HIV services even during public health emergencies.

2.2 Knowledge, Awareness, and Risk Perception

The lack of knowledge and understanding of PrEP's accessibility, effectiveness, and safety remains a significant barrier among Malaysian youth. Many individuals do not perceive themselves at risk of HIV and are unfamiliar with how or where to access PrEP. Studies show that 77.4% of Malaysians lack adequate knowledge about HIV, with teenagers (13–19 years) being the most uninformed group (Adnan et al., 2024). Even at the college level, awareness remains limited, with only 56.5% of students familiar with PrEP (Khairi et al., 2024). This lack of awareness has serious implications, as it delays preventive action, increases vulnerability to infection, and contributes to the ongoing spread of HIV among youth populations.

Myths, low risk perception, and fear of side effects further reduce uptake. Many young adults erroneously believe that HIV affects only certain “high-risk” groups, which reinforces complacency and undermines the perceived relevance of PrEP (Adnan et al., 2024; Khairi et al., 2024). Compounding the issue is the failure to deliver inclusive, contextually relevant health education that resonates with religious and cultural values. Digital solutions, such as JomPrEP, exist but remain underutilised due to limited outreach and digital literacy, particularly in rural areas (Shrestha et al., 2023). This gap between technological solutions and practical access highlights the importance of complementary approaches, such as community engagement and culturally tailored messaging, to increase awareness and uptake of PrEP.

One of the primary causes of the lack of knowledge and adoption of PrEP is the low awareness of the risk of HIV infection among Malaysian youth between the ages of 18 and 30. Despite data indicating a rise in HIV cases among young people, many still believe they are "not at risk" because they are unaware of how the virus spreads (Adnan et al., 2024). Misconceptions and lack of information, particularly among college students, exacerbate this problem. Research indicates that many young adults are still unaware of the actual risk of infection from unprotected sex (Nazmi et al., 2023). This situation is mirrored in other Southeast Asian countries, such as Indonesia, where only 1% of young people are fully informed about HIV (Sabilla et al., 2023). Such knowledge gaps foster casual attitudes toward prevention and create obstacles for the implementation of effective PrEP-based interventions.

Low perception of risk is compounded by socioeconomic factors. Young people with lower levels of education and those living in rural areas are often excluded from awareness campaigns and lack access to contemporary preventive information, such as PrEP (Adnan et al., 2024). Consequently, the adoption of proven-effective prevention technologies is hampered, and ignorance of the actual threat of HIV continues to impede public health goals.

Another significant barrier is the unclear understanding of where and how to obtain PrEP. Many young adults are unaware that PrEP is available at some health facilities and are uninformed about the steps involved in acquiring it (Rosen et al., 2023; Isnaeni et al., 2024). The lack of open promotion from authorities and insufficient provider-level support, including low knowledge and conflicts of personal values among health workers, further exacerbate this information gap. Although digital initiatives like the JomPrEP application have been developed to enable virtual access, most youth, particularly in rural areas or with limited digital literacy, remain unaware of its existence (Shrestha et al., 2023). Without accurate and accessible information, PrEP uptake is likely to remain low, even if it is technically available.

2.3 Stigma and Discrimination

Social stigma, particularly toward MSM and transgender individuals, remains one of the most persistent challenges to effective HIV prevention in Malaysia (Ahmad Ma, 2024; Rosen et al., 2022). Public and institutional attitudes often associate HIV with moral deviance, discouraging individuals from seeking testing or PrEP. Legal frameworks that criminalise same-sex relationships exacerbate these issues (Rosen et al., 2022). Even among healthcare providers, limited knowledge and discomfort discussing sexual health create barriers to equitable service delivery (Dixon et al., 2024). A fear of judgment from medical professionals deters many at-risk individuals from accessing essential services (Dixon et al., 2024; Rosen et al., 2023).

Transgender and MSM populations continue to face numerous social and systemic obstacles that restrict access to sexual health services (Ahmad Ma, 2024). Stigma, high treatment costs, limited knowledge among healthcare provider, and complex clinical protocols are significant barriers (Rosen et al., 2023). Consequently, many at-risk individuals are reluctant to seek HIV screening or PrEP, despite its proven efficacy in lowering infection risk by over 90% when used consistently (Dixon Yong et al., 2024; Rosen et al., 2023).

2.4 Cost, Accessibility, and Service Provision

The financial burden of PrEP is another major obstacle. In private clinics, monthly costs range from RM150 to RM250, making them unaffordable for many young people and low-income populations (Rosen et al., 2023). Public provision remains centralized in urban areas such as Johor Bahru, Penang, and the Klang Valley, leaving rural populations underserved (Ahmad Ma, 2024). Fear of stigma and discrimination from healthcare providers further limits access to care. Many LGBTQ+ individuals hesitate to disclose their identities or seek care, impacting their willingness to start or maintain PrEP usage. Only 39% of MSM respondents reported willingness to use PrEP, primarily among those already aware of it (Lim et al., 2017).

PrEP provision sites are primarily located in major cities, while access in rural and suburban areas is severely restricted (Ahmad Ma, 2024). Without government subsidies, the cost of PrEP at private medical facilities remains a significant barrier, particularly for youth and low-income groups (Rosen et al., 2023). Even when services are technically available, many young adults and LGBTQ+ individuals avoid healthcare settings due to fear of stereotyping, judgment, and disclosure of sexual orientation (Lim et al., 2017).

2.5 Cultural and Religious Sensitivity

Cultural and religious norms in Malaysia heavily influence public attitudes toward sexuality and HIV prevention (Ahmad Ma, 2024). Discussions around sex and same-sex relationships are often taboo, complicating public health outreach. PrEP users may face judgment as being immoral or un-Islamic, further discouraging uptake. Although awareness among MSM is rising, willingness to use PrEP remains limited due to stigma, misinformation, and adherence challenges (Dixon Yong et al., 2024). Socio-demographic factors, such as ethnicity, healthcare engagement, and sexual behaviour patterns, also influence usage (Eger et al., 2022).

MSM individuals are becoming more aware of PrEP, but their willingness to use it remains low. Social stigma, ignorance, and difficulties adhering to long-term commitment to PrEP regimes are key obstacles (Dixon Yong et al., 2024; Ahmad Ma, 2024). Multiple sexual partners, Malay ethnicity, and previous exposure to PrEP usage are factors linked to a higher willingness to use PrEP (Lim et al., 2017). Additionally, a person's degree of involvement with the healthcare system, their willingness to reveal their sexual orientation, and participation in high-risk sexual behaviours influence PrEP uptake (Eger et al., 2022). Therefore, a culturally tailored, inclusive approach that respects local beliefs while promoting scientific knowledge is essential. Engagement with religious leaders, expansion of LGBTQ+ services, and normalisation of PrEP within healthcare discourse can help bridge this gap.

3.0 Methodology

This study employs a narrative review methodology to synthesize empirical evidence, policy documents, and epidemiological data on HIV trends and the implementation of pre-exposure prophylaxis (PrEP) in Malaysia. The narrative review design is particularly suited for capturing the breadth and complexity of interdisciplinary research and policy discourse, enabling an integrative interpretation of heterogeneous evidence that extends beyond the constraints of systematic review parameters.

The review is conceptually guided by the socio-ecological framework, which provides a comprehensive lens for analysing the multi-level determinants of PrEP uptake—spanning individual awareness, interpersonal influences, community norms, and structural or policy-level barriers. Literature published between 2016 and 2025 was systematically searched across major databases, including PubMed, Scopus, and Web of Science, using key terms such as “PrEP Malaysia,” “HIV prevention Malaysia,” “youth HIV risk,” and “HIV-related stigma.” In addition, grey literature from the Ministry of Health Malaysia, UNAIDS, and non-governmental organisations (NGOs) was incorporated to enhance contextual depth and policy relevance.

A thematic synthesis approach was employed to identify recurring themes and critical gaps concerning PrEP awareness, accessibility, healthcare provider attitudes, and integration within Malaysia’s HIV prevention framework.

4.0 Results and Discussion

The findings from this narrative review reveal four core themes impacting PrEP uptake in Malaysia: epidemiological trends, policy implementation challenges, sociocultural barriers, and health system limitations. Each of these themes interacts with the others to shape the complex environment in which HIV prevention efforts must operate.

4.1 Shifting Epidemiological Trends

The evolving HIV epidemiology in Malaysia highlights the inadequacy of current interventions in addressing the rising infections among youth and MSM, as shown in table 1 (MOH, 2024; GAM, 2024). The highest infections reported was for youth with the age between 20 and 29 years (44%). Table 2 shows the HIV landscape in Malaysia indicated that men continue to account for most new cases, and MSM recorded an alarming increased from 8% in 2010 to 62% in 2023 of annual infections (MOH, 2022; GAM, 2024). The declining role of injection drug use and the increasing prevalence of sexual transmission, particularly among young adults aged 20-39 years indicated in Table 1, necessitate a strategic pivot towards enhanced sexual health education and broader PrEP dissemination (MOH, 2024).

Table 1. HIV cases by age group in Malaysia

Age (years old)	Percentage (%)
<13	0
13 - 19	4
20 - 29	44
30 - 39	31
40 - 49	13
>50	8

(Source: GAM Report 2024)

Table 2. HIV Landscape in Malaysia from 1990 – 2023

Risk Factor	1990	2010	2023
IDVU	61%	48%	3%
MSM	0%	8%	62%
HETRO	5%	40%	33%
OTHERS (Blood transfusion, organ transplant, needle-prick injury, vertical)	34%	4%	2%

(Source: GAM Report, 2024)

Urban centres such as Selangor, Kuala Lumpur, Johor, and Sabah report the highest infection rates, often serving as hubs for vulnerable populations, including MSM, refugees, and sex workers (MOH, 2024). The COVID-19 pandemic further disrupted HIV prevention and treatment efforts, delaying Antiretroviral Therapy (ART) initiation, halting PrEP outreach, and reducing testing availability due to lockdowns and healthcare access constraints (MOH, 2024). These disruptions magnified existing vulnerabilities and service gaps, underscoring the urgent need for inclusive, data-driven, and culturally sensitive interventions (MOH, 2024). Expanding PrEP access, improving youth-focused sexual education, and dismantling stigma are essential in achieving Malaysia’s goal of zero new HIV infections by 2030 (MOH, 2024; GAM, 2024).

4.2 Policy Gaps and Programmatic Limitations

While Malaysia introduced PrEP in 2018 and expanded its guidelines in 2023, its implementation has been geographically and demographically limited (Chong et al., 2020). Programs such as MyPrEP and PrEPGov, although impactful in urban centers, lack national scalability due to insufficient funding, the absence of universal protocols, and bureaucratic inertia (Chong et al., 2020; GAM, 2024). Programmatic efforts are often fragmented and lack integration with primary care services, reducing accessibility for rural populations and marginalised communities (Chong et al., 2020).

Pilot projects in selected healthcare facilities marked the beginning of PrEP’s targeted implementation. The MOH-run MyPrEP program collaborates with civil society groups, such as PT Foundation and SEED Foundation, to reach underserved communities (Chong et al., 2020). As of May 2024, 4,421 individuals had benefited from the program, with 99.8% of participants remaining HIV-free

(GAM, 2024). Compared to other nations, the HIV infection rate is the lowest among patients who have taken PrEP (GAM, 2024). Despite these successes, uptake and coverage are still low and have not expanded nationwide. Policy restrictions, lack of government funding, and unfavourable public perceptions of PrEP users continue to hinder broader adoption (Chong et al., 2020; Rosen et al., 2023).

The requirement for stringent medical monitoring, including routine testing for HIV status, liver function, and sexually transmitted infections, is perceived as a financial and administrative burden, limiting participation (Rosen et al., 2023). Social and legal stigma further compounds the challenges, making it difficult to reach target groups (Rosen et al., 2022; Dixon Yong et al., 2024).

3.4 Stigma and Discrimination

Social stigma remains a persistent challenge to effective HIV prevention in Malaysia (Ahmad Ma, 2024; Rosen et al., 2022). Public and institutional attitudes often associate HIV with moral deviance, discouraging testing and PrEP uptake (Dixon Yong et al., 2024; Rosen et al., 2023). Legal frameworks criminalising same-sex relationships exacerbate the issue (Rosen et al., 2022). Even healthcare providers demonstrate limited knowledge and discomfort discussing sexual health, creating barriers to equitable service delivery (Dixon Yong et al., 2024).

Transgender and MSM populations continue to face numerous social and systemic obstacles that restrict access to sexual health services (Ahmad Ma, 2024). Stigma, high treatment costs, limited knowledge among healthcare provider, and complex clinical protocols are significant barriers (Rosen et al., 2023). Consequently, many at-risk individuals are reluctant to seek HIV screening or PrEP, despite its proven efficacy in lowering infection risk by over 90% when used consistently (Dixon Yong et al., 2024; Rosen et al., 2023).

3.5 Knowledge and Awareness Barriers

The lack of knowledge and understanding of PrEP's availability, effectiveness, and safety continues to be a major impediment to uptake (Adnan et al., 2024; Khairi et al., 2024). Many young adults do not perceive themselves at risk of HIV and are unaware of the steps needed to access PrEP (Rosen et al., 2023; Shrestha et al., 2023). Misconceptions and a lack of contextualized information exacerbate this problem, resulting in low awareness, even in urban populations where access may be technically easier (Isnaeni et al., 2024).

3.6 Cost, Accessibility, and Cultural Sensitivity

The financial burden of PrEP, combined with limited distribution in rural areas, presents a significant structural barrier (Rosen et al., 2023; Ahmad Ma, 2024). Cultural and religious norms further shape public attitudes, making discussions on sexuality and HIV prevention challenging (Ahmad Ma, 2024). MSM individuals may be aware of PrEP but remain unwilling to use it due to stigma, misinformation, and difficulties adhering to long-term PrEP regimens (Dixon Yong et al., 2024; Lim et al., 2017).

Socio-demographic factors, such as ethnicity, healthcare engagement, and sexual behaviour patterns, also influence uptake (Eger et al., 2022). A culturally tailored, inclusive approach that respects local beliefs while promoting scientific knowledge is essential. Engagement with religious leaders, expansion of LGBTQ+ services, and normalisation of PrEP within healthcare discourse can enhance uptake and adherence (Lim et al., 2017; Dixon Yong et al., 2024).

5.0 Conclusion

The HIV epidemic in Malaysia remains a significant public health issue, despite a decline in the overall number of new infections. Epidemiological data show that young adults continue to account for most new cases each year. The shift in infection patterns from needle sharing to unprotected sex calls for a more holistic, comprehensive, and responsive prevention approach to current realities.

To effectively curb the spread of HIV, a more systematic and comprehensive approach needs to be implemented. This includes expanding PrEP subsidies, providing comprehensive sexuality education in schools and higher education institutions, training health service providers to adopt a non-judgmental approach, and empowering the role of NGOs and communities in delivering information and services. Ultimately, PrEP needs to be viewed not just as a medicine, but as a symbol of reproductive health rights, social justice, and inclusiveness within the Malaysian healthcare system.

Despite biomedical advancements and national policy efforts, HIV remains a pressing challenge in Malaysia, particularly among youth and MSM populations, who are experiencing rising infection rates. While PrEP has proven to be a highly effective prevention tool, its potential remains underutilised due to layered structural, sociocultural, and systemic barriers. These include stigma and discrimination, insufficient awareness and education, high treatment costs, limited geographic access, and cultural and religious resistance.

This review demonstrates that addressing these challenges requires more than the introduction of PrEP alone. A multidimensional strategy grounded in the socio-ecological framework and informed by real-world needs is critical to closing the gap between knowledge and action. Government subsidies, community-centred outreach, inclusive sexual health education, digital engagement, and inter-ministerial collaboration must be synchronised to ensure equitable access and uptake of PrEP.

Ultimately, HIV prevention in Malaysia must move beyond a purely biomedical focus to embrace culturally sensitive, youth-centred and rights-based approaches. Doing so will not only enhance the efficacy of current public health strategies but also advance the nation's commitment to ending AIDS as a public health threat by 2030.

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Paper Contribution to Related Field of Study

The contributions of this paper are in the fields of HIV prevention, PrEP awareness, uptake, barriers and implementation strategies.

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