

**UNIVERSITI TEKNOLOGI MARA**

**THE ASSOCIATION BETWEEN HIV-RELATED STIGMA,  
HIV KNOWLEDGE AND HIV LATE PRESENTERS AMONG  
PEOPLE LIVING WITH HIV (PLHIV) ATTENDING PUBLIC  
PRIMARY CARE CLINIC SETTINGS IN SELANGOR**

**MOHD ZULFIKRY BIN AHMAD**

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## ABSTRACT

**Introduction:** Early diagnosis and treatment of HIV have proven beneficial for people living with HIV (PLHIV), reducing the burden on healthcare systems, and contributing to ending the HIV/AIDS epidemic. However, in Malaysia, over 50% of newly diagnosed HIV patients present late, leading to increased morbidity and premature mortality. This study aims to determine the prevalence of late HIV presenters and its association with HIV-related stigma and HIV knowledge among PLHIV attending public primary care clinics in Selangor.

**Methods:** A cross-sectional study was conducted at selected public health clinics in Selangor, involving PLHIV aged 18 years and older, who were diagnosed since 2019. In this study, late presenters were defined as individuals presenting with a CD4 count below 350 cells/ $\mu$ L or with an AIDS-defining event, according to the European Late Presenter Consensus working group. HIV-related stigma was measured using the Malay version of Berger's HIV Stigma Scale, and HIV knowledge was assessed using the Malay version of Brief HIV-KQ-18. Univariate and multivariate logistic regression analyses were performed to identify factors associated with late HIV presentation.

**Results:** A total of 400 participants were included in the study, with 60.0% (n=240, 95% CI: 55.0-65.0) classified as late presenters. The participants had a mean age of 30.29 ( $\pm$ 7.77) years. The risk factors for late presenters were high levels of HIV-related stigma (aOR=1.049, 95% CI: 1.034-1.063, p-value <0.001), low levels of HIV knowledge (aOR=0.709, 95% CI: 0.646-0.778, p-value <0.001), tertiary education background (aOR=15.962, 95% CI: 1.898-134.235, p-value =0.011), and being single (aOR=3.582, 95% CI: 1.393-9.208, p-value=0.008).

**Conclusion:** This study highlights the association between high levels of HIV-related stigma, low levels of HIV knowledge, and late HIV presentation. Effective intervention programs targeting early HIV diagnosis, improved HIV care, and treatment are necessary to address this issue.

**Keywords:** HIV-related stigma, HIV knowledge, HIV late presenters, primary care

## INTRODUCTION

In 2021, the estimated global population of people living with HIV (PLHIV) was approximately 38.4 million (33.9-43.8 million). The number of new infections stood at 1.5 million (1.1-2.0 million) people, indicating a decline from 2.2 million (1.7-2.9 million) people in 2010 (1). A similar epidemiological pattern can be observed in Malaysia, where the incidence of new HIV infections has followed a discernible trend. Since the detection of the first case of AIDS in 1987 (2), the number of new infections has exhibited an upward trajectory, peaking at approximately 6,978 cases in 2002. However, following the introduction of the Harm Reduction Program, which includes initiatives such as the Needle and Syringe Exchange Program (NSEP) and Opioid Substitution Therapy (OST), there has been a rapid decline in new HIV infections. Subsequently, the number of new infections decreased to 2,760 cases in 2021 (3).

Despite a gradual decline in the number of new HIV infections, there remains a significant prevalence of late HIV diagnosis among affected individuals. In Malaysia, it is estimated that approximately 68% of new patients were diagnosed at a late stage in 2021 (3). On a global scale, the prevalence of HIV late presenters ranges from 40% to 60% in developed countries and tends to be higher in developing countries, ranging from 60% to 86% (4, 5). HIV late presenters can be identified based on either immunological criteria, specifically the CD4 count, or clinical criteria. The European Late Presenter Consensus working group has established a definition of late presenters as persons presenting for care with a CD4 count below 350 cells/ $\mu$ L or those who present with an AIDS-defining event, regardless of their CD4 count (6). Similarly, in Malaysia, according to the Country Progress Report on Global AIDS Monitoring 2022, HIV late presenters were defined as individuals with a CD4 count less than 350 cells/mm<sup>3</sup> (3).

Late HIV diagnosis has significant adverse outcomes for individuals, society, and the healthcare system. On an individual level, it has profound physical, psychological, and social impacts. PLHIV who are diagnosed late often face acute or chronic health issues and complications, such as opportunistic infections or clinical AIDS. This will lead to a decrease in life expectancy, an increase in treatment complexity, and a decrease in treatment adherence (7). Psychologically, PLHIV who are presented late with clinical AIDS experience higher levels of depression and anxiety than asymptomatic PLHIV (8). Moreover, late HIV diagnosis poses a risk of onward transmission in society due to a lack of awareness of HIV serostatus (5). The presence of opportunistic infections or clinical AIDS is commonly observed in cases where diagnosis is delayed, resulting in escalated treatment expenses (9, 10). In Malaysia, the first line treatment of antiretroviral therapy (ART) is provided free of charge to PLHIV in public healthcare facilities. Hence, the burden of HIV-related expenditures heavily relies on domestic public funding, accounting for over 80% of the total expenditure for the HIV response in 2021, which amounted to approximately RM82.9 million (3).

Multiple studies have been conducted to understand the risk factors for HIV late presenters. These risk factors include older age, specifically among the aging population, being male, transmission through heterosexual contact, and involvement in injecting drug use (11, 12).

Stigma towards PLHIV involves prejudice, negative attitudes, and abuse. It leads to shame and discredits individuals in the eyes of others (13). This stigma is multifaceted and often reinforced by associated HIV with marginalized behaviors like sex work, substance use and homosexual practices. In Malaysia, with its rich cultural and religious values, PLHIV from high-risk behaviors face stigmatization and discrimination. Injecting drug users are labeled as criminals, those involved in prostitution are seen as immoral and sinful, and individuals with multiple sexual partners or homosexuality are branded as sexually immoral (14).