Internal Stigma and Self-Directed Discriminatory Behaviours Among Key Populations in Malaysia: An Analysis from the Integrated Biological and Behavioural Surveillance (IBBS) Survey 2022

Stigma Dalaman dan Tingkah Laku Diskriminasi Kendiri dalam Kalangan Populasi Utama di Malaysia: Analisis daripada Tinjauan Pengawasan Biologi dan Tingkah Laku Bersepadu (IBBS) 2022

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Abstract

Internal human immunodeficiency virus (HIV) stigma poses a hindrance to the preventions of new HIV infections and individuals' engagement in HIV treatment, care, and support programmes. The objective of this study was to assess internal stigma and self-directed discriminatory behaviours among key populations in Malaysia. A respondent-driven sampling (RDS) method was used to conduct the Integrated Biological and Behavioural Surveillance (IBBS) survey between July and December 2022 among four main key populations including men who have sex with men (MSM), transgender women (TGW), female sex workers (FSW), and people who inject drugs (PWID). Respondents' internal stigma and self-directed discriminatory behaviours were measured using a fifteen-item in a validated self-administered questionnaire. The findings of this study showed that all key populations generally experienced low levels of internal stigma as they felt ashamed (21.4%), guilty (18.1%), blamed self (18.0%), and have low self-esteem (12.3%). Interestingly, majority (67.5%) reported zero internal stigma. In this study, only a quarter of respondents reported self-directed discriminatory behaviours as a result of internal stigma. This study suggested that internal stigma did not significantly lead to self-directed discriminatory behaviours among the respondents. However, understanding and addressing internal stigma are critical components of comprehensive HIV prevention, care, and treatment efforts.

Keywords*:* Integrated Biological and Behavioural Surveillance (IBBS), Internal stigma, HIV stigma, Key populations

INTRODUCTION

Over the past few decades, the global fight against HIV/AIDS has witnessed significant advancements, particularly through biomedical innovations such as antiretroviral therapy (ART), pre-exposure prophylaxis (PrEP), and extensive testing initiatives. These medical breakthroughs have not only improved the quality of life for people living with HIV but have also contributed to substantial reductions in HIV transmission rates and AIDS-related mortality worldwide. The introduction of ART has transformed HIV from a fatal disease into a manageable chronic condition, allowing individuals to lead healthier lives and reducing the viral load to undetectable levels, which in turn minimizes the risk of transmission. Similarly, PrEP has emerged as a powerful preventive tool, enabling at-risk populations to protect themselves from HIV infection. However, despite these biomedical successes, significant social and psychological barriers persist, undermining the full impact of HIV prevention and treatment efforts. Among these barriers, internalized stigma stands out as one of the most critical challenges.

Internal stigma, often referred to as self-stigma, is the phenomenon in which individuals internalize negative societal beliefs, attitudes and stereotypes about HIV. This internalization leads to feelings of shame, guilt, worthlessness, and self-blame among those living with or at risk of HIV (Pantelic et al., 2019; Nyblade et al., 2021). Unlike external stigma, which is driven by the prejudices of others, internal stigma originates within the individual and has profound implications for mental health, healthcare engagement, and overall quality of life. It can create a vicious cycle where the stigma associated with HIV exacerbates feelings of isolation and despair, further deterring individuals from seeking the care and support they need. This form of stigma has been widely acknowledged as a critical determinant that impedes the success of HIV interventions (UNAIDS, 2011; Ferguson et al., 2022; Muñoz-Laboy et al., 2022).

The consequences of internal stigma are far-reaching. A growing body of literature has demonstrated that individuals experiencing high levels of self-stigma are less likely to access HIV testing, disclose their status, initiate treatment, or adhere to preventive measures such as condom use and PrEP (Pantelic et al., 2019; Hempel et al., 2021). Internal stigma contributes to a cycle of avoidance and denial, ultimately increasing the risk of late diagnosis and ongoing HIV transmission. It also exacerbates mental health challenges, including depression and anxiety, which further hinder the ability to manage the disease effectively. These behaviours, driven by internal stigma, not only jeopardize the well-being of affected individuals but also perpetuate HIV transmission, particularly within high-risk communities (Nyblade et al., 2021; Hart et al., 2023; Lo Hog Tian et al., 2021).

Despite significant global research on the psychosocial impacts of HIV, there remains a limited understanding of how internal stigma specifically affects key populations within the Malaysian context. Malaysia's HIV epidemic is largely concentrated among key populations, including men who have sex with men (MSM), transgender women (TGW), female sex workers (FSW), and people who inject drugs (PWID). These groups not only face elevated biological risks of HIV infection but are also subjected to social, legal, and structural inequalities that further compound their vulnerability. Laws criminalizing same-sex relations, sex work, and drug use, combined with pervasive social discrimination, contribute to a hostile environment that fuels both external and internal stigma.

By the end of 2022, Malaysia had made notable progress in HIV diagnosis and treatment. Approximately 81% of people living with HIV were aware of their status, 68% were receiving treatment, and 87% of those on treatment achieved viral suppression (MOH, 2022). These figures reflect commendable national efforts to meet the global 95-95-95 targets set by UNAIDS. However, significant gaps remain, particularly in reaching marginalized groups and addressing the social determinants that hinder the uptake and continuity of care. Fear of judgment, internalized shame, and lack of social support are among the key reasons many individuals delay or avoid engaging with healthcare services, despite the availability of effective treatment.

To inform evidence-based strategies, the Integrated Biological and Behavioural Surveillance (IBBS) has been a key component of Malaysia's national HIV surveillance system since 2009. The IBBS is a comprehensive surveillance tool that combines biological testing for HIV and other sexually transmitted infections with behavioural surveys among key populations. It provides essential data on risk behaviours, service uptake, and psychosocial factors, including various forms of stigma.

The periodic implementation of IBBS has played a pivotal role in identifying emerging trends, measuring the effectiveness of interventions, and highlighting areas requiring targeted programming. One of the unique strengths of IBBS is its ability to capture data from populations that are often underrepresented in mainstream research and public health statistics. By focusing on key populations, IBBS allows policymakers, researchers, and service providers to gain a nuanced understanding of the barriers faced by these groups, which is crucial for designing effective, context-specific interventions. Among the various dimensions explored in IBBS, internal stigma remains an area that has not been adequately studied, despite its known impact on health-seeking behaviours.

The current study seeks to address this gap by systematically examining the prevalence of internal stigma and associated self-directed discriminatory behaviours among key populations in Malaysia. Specifically, it explores how internalized negative beliefs and feelings influence actions such as social withdrawal, reluctance to access healthcare services, and diminished self-worth. Understanding these dynamics is essential for tailoring interventions that not only focus on biomedical outcomes but also consider the psychological and social realities of affected individuals.

The importance of addressing internal stigma is underscored by the recognition that ending the HIV epidemic by 2030 - a goal articulated in Malaysia's National Strategic Plan Ending AIDS (NSPEA) 2016-2030, requires more than just clinical treatment. It demands structural and cultural changes that empower individuals to overcome stigma, claim their rights, and engage fully with prevention and care services. This study aims to fill a significant knowledge gap by documenting the extent and effects of internal stigma among MSM, TGW, FSW, and PWID. By doing so, it contributes to the development of more inclusive, evidence-based, and stigma-informed strategies that align with Malaysia's broader goals of health equity and ending AIDS by 2030.

Reducing internal stigma is paramount not only for improving individual health outcomes but also for enhancing public health efforts overall. When individuals feel empowered to seek care without fear of judgment or shame, they are more likely to engage in health-promoting behaviours, such as regular testing, adherence to treatment, and participation in preventive measures. Furthermore, stigma reduction initiatives can foster a more supportive community environment, where individuals feel validated and understood, thereby enhancing their overall quality of life.

Strategies for reducing internal stigma can include psychoeducation programs that provide individuals with information about HIV, its transmission, and treatment options, as well as workshops that focus on building self-esteem and resilience. Peer support groups can also play a vital role in combating internal stigma by creating safe spaces for individuals to share their experiences and support one another. These interventions can help individuals reframe their narratives about HIV, moving from a place of shame to one of empowerment and agency.

In addition to individual-level interventions, broader societal changes are necessary to combat the stigma associated with HIV. Advocacy efforts aimed at changing public perceptions of key populations can help to dismantle the negative stereotypes that contribute to internal stigma. Engaging community leaders, healthcare providers, and policymakers in these efforts is essential for creating a more inclusive and accepting environment. Media campaigns that highlight the stories of individuals living with HIV and promote messages of acceptance and support can also be powerful tools for reducing stigma.

The fight against HIV/AIDS in Malaysia is at a critical juncture where biomedical advancements must be complemented by efforts to address the psychosocial barriers that hinder effective care and prevention. Internal stigma, as a significant barrier to health-seeking behaviours, necessitates urgent attention. By understanding the prevalence and impact of internal stigma among key populations, this study aims to inform the development of targeted interventions that address both the medical and social dimensions of HIV. The findings will contribute to the ongoing discourse on stigma reduction, ultimately supporting Malaysia's commitment to ending the HIV epidemic by 2030.

Through a holistic approach that integrates medical treatment with psychological support and community engagement, it is possible to create a future where individuals living with HIV can thrive without the burden of stigma. Thus, the aim of this study was to assess internal stigma and self-directed discriminatory behaviours among key population groups in Malaysia, using data derived from the IBBS as a foundational tool for analysis and action.

METHODS AND MATERIALS

Type and interval of study

This study employed a cross-sectional design to capture a snapshot of internal stigma and self-directed discriminatory behaviours among key populations at risk for HIV in Malaysia. Cross-sectional studies are particularly useful for assessing the prevalence of specific characteristics or behaviours within a defined population at a single point in time. The data collection period spanned six months, from July through December 2022.

Study sites and sampling size

The study was conducted nationwide, encompassing all states and federal territories in Malaysia. This wide geographical coverage ensured the inclusion of diverse demographic, socio-economic, and cultural profiles, which is essential for understanding the nuances of internal stigma across different contexts. The sample size was calculated to be 2,600, consisting of 1000 MSM, 550 TGW, 350 FSW, and 700 PWID. The calculations were based on a 95% confidence level, a 5% margin of error, a design effect of three, and the HIV prevalence rates of key population groups derived from the previous IBBS survey.

Study population and selection criteria

The study targeted key populations recognized to be at elevated risk of HIV infection. These populations included MSM, TGW, FSW, and PWID. According to the specified inclusion criteria, MSM enrolled were: individual who were biological male, aged 18 years or older, and who had engaged in anal penetrative sex with men at least once in the previous six months. TGW were included based on the specified inclusion criteria: individuals who were biologically male, aged 18 years or above, but with female identity, and had anal penetrative sex at least once in the previous six months. FSW were incorporated according to the stated inclusion criteria: women aged 18 years of above reporting having been paid in cash or in kind for penetrative sex within the last three months with more than one client. PWID were enrolled according to the predetermined inclusion criteria: current injectors aged 18 years or above and had been injecting drugs for at least six months prior to the date of survey.

Additional inclusion criteria for all groups included the ability to comprehend Malay or English and a willingness to provide informed consent. Exclusion criteria were the inability to understand either language, employment as a member of the IBBS research team, or being paid staff of the site organisations.

Sampling

To recruit respondents, the study employed respondent-driven sampling (RDS), a peer-referral-based method that is effective for reaching hidden or hard-to-reach populations. RDS was selected for its proven efficacy in sampling populations that lack a clear sampling frame and may face stigma or legal barriers that prevent conventional survey methods (Heckathorn, 1997).

RDS operates on the principle of social networks, allowing initial participants (referred to as "seeds") to recruit their peers. Two categories of respondents were defined:

1. Seeds: Initial participants pre-identified to start the recruitment chain. Seeds were selected based on their ability to represent the target population effectively.
2. Waves: New participants recruited by previously enrolled respondents. This process continued in successive waves until the target sample size for each population group was reached.

At each site, local coordinators identified three to four potential seeds. However, only one seed was introduced initially to avoid overwhelming the recruitment process. If the recruitment chain stalled or progressed too slowly, additional seeds were introduced to maintain momentum. Seed selection considered diversity in geography, socio-economic status, HIV status, behavioural patterns, and demographic characteristics to ensure heterogeneity and representativeness of the sample.

Eligibility screening questions were administered before enrolment to ensure that respondents met all inclusion criteria. Once enrolled and having completed the online survey and biological testing, each seed received three unique Quick Response (QR) codes, valid for five days, to distribute among their peers. This peer-driven recruitment continued until the target sample size for each key population group was reached. Respondents received an incentive RM40 for completing the online survey and blood test. This incentive was provided to respondents as a token of appreciation for the transport, time/effort and costs that they had incurred whilst taking part in this study. They also received RM10 as an additional incentive for each successful referral (up to maximum of RM30).

Participation in the study was strictly voluntary, and anonymity was maintained throughout the process. No personally identifiable information was collected, ensuring that respondents could engage in the study without fear of repercussions or breaches of confidentiality.

Data collection

Data were collected using a self-administered online questionnaire accessible via a secure web-based platform. This approach allowed for flexibility and convenience, enabling respondents to complete the survey at their own pace and in a comfortable environment. To ensure accessibility, respondents could choose between Malay and English language versions of the survey. The questionnaire comprised fifteen relevant items designed to assess internal stigma and self-directed discriminatory behaviours among key population groups. Topics covered included feelings of shame, guilt, self-blame, low self-worth, and specific behavioural responses such as avoidance of social situations, reluctance to seek healthcare, and withdrawal from employment or relationships.

Data analysis

Quantitative data were analysed using IBM SPSS Statistics version 26.0. Descriptive statistics (frequencies, percentages, and medians) were used to summarise demographic characteristics, internal stigma experiences, and self-directed discriminatory behaviours. Bivariate analyses were performed to explore associations between internal stigma indicators and socio-demographic factors.

RESULTS

Socio-demographic characteristics

A total of 2,877 respondents participated in this study, distributed across the key population groups: MSM accounted for 36.4%, TGW comprised 18.2%, FSW made up 16.8%, and PWID represented 28.6%. The median age across all participants was 32 years, with the majority (32.7%) falling between the ages of 30 and 39. In terms of gender distribution, the majority were male (83.2%), while 16.8% were female. This is consistent with the gender profiles typical of key populations, particularly among MSM and PWID. Educational attainment among respondents varied, with 56.3% having completed up to secondary education, 33.7% achieving tertiary education, and 8.1% possessing only primary education. A small proportion (1.9%) reported having no formal education. This educational landscape suggests that while a significant number of respondents have attained at least a secondary level of education, there remains a notable minority lacking basic educational qualifications. This disparity can influence access to information, healthcare, and employment opportunities, further exacerbating the vulnerabilities faced by these populations.

Internal stigma

Internal stigma is a critical factor influencing the mental health and well-being of individuals within key population groups. Indications of internal stigma are summarised in Table 1. The findings indicate a generally low level of internal stigma across the groups studied. A significant majority (67.5%) of respondents indicated that they had "Never experienced any of the above feelings," which included shame, guilt, self-blame, or low self-esteem related to their identity or behaviour. However, a bivariate correlation analysis using Pearson's r revealed no statistically significant correlations between internal stigma and demographic variables such as age, gender, education level, and key population group. This uniformity suggests that internal stigma may be influenced more by broader societal factors rather than individual demographic characteristics.

When analyzing internal stigma by key population groups, PWID respondents reported the highest levels of internal stigma, with 34% feeling ashamed, 30.2% experiencing guilt, and 33.1% blaming themselves for their circumstances. On the contrary, respondents from TGW group demonstrated the lowest levels of internal stigma among the groups studied.

Self-directed discriminatory behaviours

Self-directed discrimination behaviours are reflected in Table 2. In this study, only a quarter of respondents engaged in self-directed discriminatory behaviours as a result of internal stigma. TGW group exhibited the least amount of self-directed discriminatory behaviours among the respondents.

Table 1. Internal stigma experiences among key population groups in Malaysia

	All		**MSM**		**TGW**		**FSW**		**PWID**	
	n = 2877		n = 1047		n = 523		n = 483		n = 824	
	n	%	n	%	n	%	n	%	n	%
Felt ashamed	615	21.4	201	19.2	18	3.4	116	24.0	280	34.0
Felt guilty	522	18.1	192	18.3	2	0.4	79	16.4	249	30.2
Blamed self	517	18.0	162	15.5	6	1.1	76	15.7	273	33.1
Blamed others	121	4.2	62	5.9	2	0.4	15	3.1	42	5.1
Have low self-esteem	353	12.3	109	10.4	8	1.5	74	15.3	162	19.7
Felt should be punished	114	4.0	55	5.3	0	0.0	27	5.6	32	3.9
Felt suicidal	84	2.9	45	4.3	6	1.1	26	5.4	7	0.8
(***multiple response*) Never experienced any of the above feelings	1941	67.5	733	70.0	492	94.1	320	66.3	396	48.1

** Respondents could select more than one response

Table 2. Self-directed discriminatory behaviours among key population groups in Malaysia

	All		**MSM**		**TGW**		**FSW**		**PWID**	
	n = 2877		n = 1047		n = 523		n = 483		n = 824	
	n	%	n	%	n	%	n	%	n	%
Have chosen not to attend social gatherings	282	9.8	73	7.0	7	1.3	38	7.9	164	19.9
Have chosen not to seek health care	135	4.7	27	2.6	4	0.8	29	6.0	75	9.1
Have chosen not to apply for job	86	3.0	13	1.2	3	0.6	24	5.0	46	5.6
Have chosen not to seek social support	116	4.0	23	2.2	2	0.4	20	4.1	71	8.6

continued

Have isolated themselves from family and/or friends	182	6.3	72	6.9	4	0.8	31	6.4	75	9.1
Decided not to have sex	147	5.1	87	8.3	2	0.4	27	5.6	31	3.8
(***multiple response*) Never done any of the above things	2360	82.0	873	83.4	508	97.1	378	78.3	601	72.9

** Respondents could select more than one response

DISCUSSION

The findings from this study indicate that key populations in Malaysia experience relatively low levels of internal stigma compared to their counterparts in other countries. Specifically, only 21.4% of respondents reported feelings of shame, 18.1% felt guilty, 18% blamed themselves, and 12.3% experienced low self-esteem related to their identities and behaviours. These figures starkly contrast with previous research in various global contexts, where internal stigma has been reported at significantly higher rates. A 2011 UNAIDS report highlighted that in countries such as Bangladesh, Sri Lanka, Pakistan, Philippines, Myanmar, China, Fiji, Thailand, and Cambodia, the prevalence of internal stigma among key populations was alarmingly high, with feelings of shame ranging from 54% to 76%, guilt from 43% to 76%, self-blame from 51% to 80%, and low self-esteem from 22% to 81%. Similarly, a study conducted in Estonia found that over 60% of key population respondents felt guilty, 57% reported self-blame, 42% felt ashamed, and over 33% had low self-esteem (Estonian Network of People Living with HIV, 2012).

These cross-country comparisons suggest that internal stigma among key populations in Malaysia is relatively low, which could be attributed to several factors. One significant factor is the presence of more established community-based outreach programs and targeted HIV awareness campaigns that have increased accessibility to HIV-related services. These initiatives are crucial in fostering a supportive environment for key populations, thereby reducing the potential for internalized stigma. Furthermore, Malaysia's adoption of rights-based approaches to HIV programming, including the expansion of PrEP and support for community-led initiatives, may also contribute to a more accepting environment for key populations. Such strategies can buffer the development of internal stigma, providing individuals with the resources and support necessary to navigate their identities without succumbing to feelings of shame or guilt.

However, while these findings present a relatively positive outlook, they must be interpreted with caution. Internal stigma persists, particularly among PWID respondents, who reported the highest levels of negative self-perception among the groups studied. This group consistently exhibited higher levels of shame, guilt, self-blame, and low self-esteem compared to MSM and FSW. This observation aligns with global evidence indicating that individuals engaged in highly criminalized or socially visible behaviours often bear a disproportionate burden of stigma. In Malaysia, drug use remains heavily stigmatized and criminalized, subject to punitive legal responses and mandatory detention. The visibility of injection drug use, coupled with its association with crime, may amplify societal judgment, resulting in heightened internal stigma. Unlike MSM or FSW, whose behaviours may be more concealed, PWID are more frequently subjected to public scrutiny, surveillance, and law enforcement action. This exposure can reinforce feelings of exclusion, inferiority, and shame, leading to a cycle of internalized stigma that is difficult to break.

Moreover, the stigma experienced by PWID is often compounded by overlapping vulnerabilities, including poverty, homelessness, and a history of incarceration. These intersecting challenges can exacerbate the internalization of societal rejection, further alienating individuals from health systems and community support structures. The findings underscore the need for more nuanced, group-specific interventions that address the unique drivers of stigma within different key populations, particularly among structurally marginalized groups such as PWID.

Tailored interventions should consider the specific contexts and challenges faced by these individuals, incorporating strategies that address both the psychological and social dimensions of stigma. For example, integrating mental health support with harm reduction services could provide a comprehensive approach to addressing the needs of PWID, helping them to navigate their identities while minimizing the impact of internal stigma.

Conversely, the TGW group reported the lowest levels of internal stigma among the populations studied. This finding invites further exploration, as it may reflect the characteristics of the sampled population. It is possible that the TGW respondents represent a more empowered and connected subgroup, individuals who are already linked to community-based organizations or networks that offer psychosocial support, empowerment programs, and gender-affirming services. These protective factors are crucial in enhancing resilience, fostering acceptance of their gender identity, and reducing susceptibility to internal stigma.

Additionally, participation in research studies often requires a level of openness and comfort with one's identity. Therefore, it is plausible that TGW individuals who experience higher levels of internal stigma, fear of discrimination, or psychological distress may be underrepresented in this study. Their exclusion could lead to an underestimate of the true prevalence of internal stigma among the broader TGW population. This limitation highlights the importance of ensuring more inclusive study designs and outreach strategies that engage hard-to-reach or less empowered individuals within key population groups.

On a more optimistic note, the study found that self-directed discriminatory behaviours resulting from internal stigma were relatively uncommon among respondents. Most respondents did not isolate themselves from family or friends, avoid healthcare services, decline job opportunities, or withdraw from social and sexual relationships due to feelings of stigma. Reported rates of self-discriminatory actions ranged from as low as 0.4% to a maximum of 19.9% across all key populations surveyed. While these findings may suggest a degree of resilience and continued social engagement among Malaysian key populations, this interpretation should be viewed with caution, as the present study did not include qualitative data to explore the underlying psychosocial mechanisms in depth.

Several contextual factors may nonetheless help explain these patterns. The increased visibility of key population leaders within Malaysia's national HIV response may foster representation and agency, promoting engagement with health services and community initiatives. Additionally, the expanding availability of psychosocial and peer support services including counselling, mental health interventions, and peer navigation, may have contributed to mitigating the effects of internalized stigma. These supportive structures likely play a role in strengthening respondents' coping capacities and sustaining their connection to social networks.

Moreover, community-based organizations have played a vital role in strengthening peer support networks, creating safe spaces, and promoting empowerment through leadership development and advocacy training. These organizations often serve as a lifeline for individuals grappling with stigma, offering not only practical support but also emotional validation and community solidarity. The establishment of such networks is essential in fostering resilience among key populations, helping to mitigate the adverse effects of internal stigma.

Although the level of internal stigma appears relatively low, its persistence warrants continued attention. Even at minimal levels, internal stigma may undermine HIV prevention efforts, treatment adherence, and psychological well-being, with its effects potentially compounded by external discrimination, structural inequities, and inadequate psychosocial support. Sustained investment in stigma reduction should therefore remain a central priority within Malaysia's HIV response. This focus is consistent with the NSPEA 2016–2030, which identifies stigma reduction, social inclusion, and community empowerment as foundational strategies toward achieving zero discrimination and ensuring an equitable, sustainable pathway to ending AIDS in Malaysia (MOH, 2024).

The integration of mental health support into HIV prevention and treatment programs is particularly critical. Mental health issues can exacerbate feelings of stigma and isolation, making it challenging for individuals to seek care or adhere to treatment regimens. By addressing mental health alongside HIV services, healthcare providers can create a more holistic approach that recognizes the interconnectedness of these issues.

Furthermore, advocacy efforts aimed at reducing societal stigma and discrimination should continue to be a priority. Public awareness campaigns that challenge stereotypes and promote understanding of key populations can help to shift societal attitudes, creating a more accepting environment. Engaging community leaders, influencers, and policymakers in these efforts can amplify the message and foster broader societal change.

In addition to these interventions, ongoing research is essential to monitor the evolving landscape of stigma among key populations in Malaysia. Longitudinal studies can provide insights into how internal stigma changes over time and in response to specific interventions. Moreover, qualitative research can explore the lived experiences of individuals within key populations, providing a deeper understanding of the complexities of stigma and its impact on health and well-being.

This study has several limitations that warrant careful consideration when interpreting the results. One significant limitation is the reliance on self-reported responses, which is a common practice in research within this domain. Self-reporting can introduce various biases that may affect the accuracy of the data collected. Specifically, the findings are susceptible to reporting biases, where respondents may not accurately disclose their behaviours or experiences due to memory recall issues or misunderstanding of the questions. Additionally, there is the potential for social desirability biases, where respondents may provide answers, they believe are more acceptable or favourable in the eyes of researchers or society, rather than their true behaviours or beliefs.

These biases highlight the importance of interpreting the results with caution, as they may not fully reflect the actual behaviours and attitudes of the population studied. Future research could benefit from incorporating objective measures or triangulating self-reported data with other sources to enhance the reliability of the findings. Utilizing mixed-methods approaches could provide a more comprehensive understanding of the factors influencing internal stigma and self-directed discriminatory behaviours among key populations.

The findings from this study suggest that internal stigma is relatively low among key populations in Malaysia, it is essential to recognize the ongoing challenges faced by specific groups, particularly PWID. Targeted interventions that address the unique needs of these populations are crucial in reducing stigma and promoting better health outcomes. By fostering resilience, enhancing community support, and addressing mental health needs, Malaysia can continue to make strides in creating a more inclusive and supportive environment for all key populations. Continued research and advocacy efforts will be vital in sustaining progress and ensuring that the voices of key populations are heard and valued in the ongoing fight against stigma and discrimination.

CONCLUSIONS

In conclusion, this study highlights that while internal stigma among key populations in Malaysia appears to be lower than in many other countries, it remains a significant concern, particularly for PWID. The unique challenges faced by PWID, including societal perceptions of drug use and the visibility of their behaviours, contribute to higher levels of internal stigma within this group. Despite the overall low levels of internal stigma observed in the study, it is crucial to recognize that even minimal stigma can have profound effects on individuals' mental health and well-being.

Interestingly, the findings indicate that internal stigma did not significantly lead to self-directed discriminatory behaviours among respondents. This suggests a level of resilience within these populations, indicating that many respondents are able to navigate their experiences of stigma without resorting to harmful self-discrimination. However, this resilience should not diminish the need for targeted interventions to address internal stigma, particularly among the most vulnerable groups.

Addressing internal stigma is essential for delivering effective HIV prevention, care, and treatment services. By integrating stigma reduction efforts into these programs, healthcare providers can create a more supportive environment that encourages individuals to engage openly in health-seeking behaviours. Moving forward, specific actions such as stigma reduction campaigns tailored for PWID and the integration of internal stigma awareness within harm reduction initiatives should be prioritized. These efforts can help normalize help-seeking behaviours, challenge negative societal perceptions, and strengthen community-based support systems.

Ultimately, fostering an inclusive and understanding environment will empower key populations to seek the care they need, thereby improving health outcomes and reducing the burden of HIV in Malaysia.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHORS CONTRIBUTION

Author 1.: Project administration, Methodology, Writing- Original draft preparation. **Author 2.**: Conceptualization, Data curation, Validation, Visualization. **Author 3.**: Writing- Reviewing and Editing, Supervision.

AVAILABILITY OF DATA AND MATERIALS

Data available on request due to privacy/ethical restrictions.

DECLARATION OF GENERATIVE AI

During the preparation of this work, the author(s) used ChatGPT (OpenAI, San Francisco, CA, USA) to enhance the clarity and readability of the writing. After using ChatGPT, the author(s) carefully reviewed and revised the content as necessary and take full responsibility for the final version of the manuscript.

ETHIC STATEMENTS

This study received ethical clearance from the Medical Research and Ethics Committee (MREC) of the Ministry of Health, Malaysia, and was conducted in accordance with national and international ethical guidelines for research involving human subjects.

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