Destigmatizing perceptions of people living with Human Immunodeficiency Virus (PLHIV): A reflexive thematic analysis among pre-clinical medical students at a Malaysian public university

Calvin C. Fernandez[1,2*], John L. Oliffe[2,3], Patricia Zhu[4] , Wei-Han Hong[5], Chan Choong Foong[6]

[1,2] School of Population and Public Health, University of British Columbia, 2206 East Mall, Vancouver, V6T 1Z3 Canada
[2] School of Nursing, University of British Columbia, Vancouver, V6T 1Z1, Canada
[3] Department of Nursing, University of Melbourne, Melbourne, Parkville, Victoria, 3010, Australia
[4] Lady Davis Institute of Medical Research, Montreal, Quebec, H3T 1E2, Canada
[5,6] Medical Education and Research Development Unit, Faculty of Medicine, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

*Corresponding author: calvin.fernandez@ubc.ca

https://doi.org/10.61211/mjqr120112

How to Cite:
Fernandez, C. C., Oliffe, J. L., Zhu, P., Hong, W. H., & Foong, C. C. (2026). Destigmatizing perceptions of people living with Human Immunodeficiency Virus (PLHIV): A reflexive thematic analysis among pre-clinical medical students at a Malaysian public university. *Malaysian Journal of Qualitative Research, 12*(1). 175-188
https://doi.org/10.61211/mjqr120112

ABSTRACT

People living with Human Immunodeficiency Virus (PLHIV) can experience high levels of HIV stigma in Malaysian healthcare settings, hindering their access to HIV diagnosis and treatment services. Among Malaysian medical students – future doctors who would go on to treat and care for PLHIV, numerous evidence has documented how Human Immunodeficiency Virus (HIV) stigma can characterize their discriminatory perceptions towards PLHIV. However, limited research has explored the factors that may underpin the destigmatization of HIV among medical students. This is particularly crucial to address, given the fact that stigmatizing perceptions can manifest as discriminatory attitudes and behaviors upon entering the healthcare workforce, impacting how HIV-related care is ultimately delivered. Addressing this gap, an exploratory qualitative study was conducted with six preclinical medical students at a Malaysian public university to identify the factors that influenced how they dismantled previously held HIV-related stigma. Individual semi-structured interviews were conducted online via Zoom. Reflexive thematic analysis was used to generate three distinct yet interconnected themes that characterize the destigmatization of PLHIV among Malaysian medical students: Interaction with others, Traditional and social media, and Formal education. In addition to informing future large-scale research/interventions, these findings can also shape ongoing efforts to develop targeted HIV awareness programs and competency-based medical education curricula to better prepare pre-clinical medical students to equitably care for PLHIV. Our recommendations include the need to center the lived experiences of PLHIV as key dimensions of medical education training and emphasize more political will and investments in addressing HIV-related misinformation in the media and school settings, including implementing HIV sensitization and awareness trainings for media personnel and educators.

Keywords: HIV, medical education, medical students, people living with HIV (PLHIV), stigma

Article Info:
Received: 23 January 2026
Accepted: 15 March 2026
Published: 31 May 2026

INTRODUCTION

People living with Human Immunodeficiency Virus (PLHIV) refer to those who are infected with the human immunodeficiency virus (HIV). This virus attacks the human immune system, which, if untreated, may lead to

acquired immunodeficiency syndrome (AIDS). By the end of 2024, there were 40.8 million PLHIV worldwide, with an average of 1.3 million people becoming newly infected. Of these, approximately 630,000 people died from HIV-related causes. PLHIV are usually those who engage in homosexual relationships, either with gay, bisexual, and other men who have sex with men (GBMSM), transgender sex workers, those who inject drugs (PWID), and prisoners (UNAIDS/WHO, 2025). In comparison, in Malaysia, there were approximately 85,283 PLHIV in 2023, with 75% aged 20-39 years (Yuswan et al., 2024).

PLHIV frequently endure severe societal stigma and discrimination, leading to isolation, humiliation, and limited access to healthcare. Stigma presents itself in medical settings as negative labeling, social discrimination, leading to severe psychological anguish, poor and late diagnosis, and treatment adherence. It is fuelled by a lack of awareness, fear of transmission, and moral judgments. Approximately 74% of PLHIV experience stigma, which generates severe psychological suffering, internalized guilt, and limits access to healthcare, resulting in late diagnosis and poor treatment outcomes (Mohd Zulfikry Bin Ahmad et al., 2024).

In Malaysia, PLHIV are also disproportionately impacted by HIV stigma – a form of social devaluation that marginalizes individuals based on their HIV status (Earnshaw et al., 2014; Major et al., 2018). Despite progress made to improve care for PLHIV in Malaysia, HIV stigma continues to permeate diverse contexts of PLHIV's lives, heightening their risks for social isolation and mental health distress (Makhatar, 2019). The lack of stringent labor policies that protect against HIV stigma in the Malaysian workplace predisposes PLHIV to risks of job demotion, forced resignation, and termination due to their HIV status (Rahman, 2016). In addition, there are further religious, cultural, and state sanctions against these key population groups, all of whom are more susceptible to HIV (Suleiman et al., 2023), and are entwined with HIV stigma to worsen prejudice towards PLHIV (Hasnain, 2005). Consequently, PLHIV in Malaysia may experience increased levels of psychosocial health issues such as depression and anxiety (Earnshaw et al., 2023), and may face more barriers to getting tested, disclosing their HIV status, and/or accessing life-saving antiretroviral treatment (ART) (Earnshaw et al., 2015).

Due to its rich cultural and religious values, PLHIV in Asia face higher risk behaviors and stigmatization and discrimination. These perspectives were observed within families, communities, and healthcare settings. Examples of stigma and discrimination were negative labeling, separation of personal belongings, isolation of PLHIV, substandard care, and rejection by healthcare providers, family, and community members. The identified factors for stigma and discrimination were poor knowledge about HIV, fear of contracting HIV, one's own personal values and beliefs, religious thoughts, and sociocultural norms (Fauk et al., 2021). This indicates the need for HIV education across individuals, families, community members, and healthcare providers to improve attitude, self-efficacy, and acceptance of PLHIV (Fauk et al., 2021).

Medical students in local universities are part of the community; thus, they, too, may be influenced by the same cultural values, religious beliefs, and attitudes. However, the main difference is that they are the ones who will be facing and attending PLHIV during medical treatment. Thus, it is important to explore what are the factors that influence their perception of PLHIV. Specifically, the research question for this study is: "What influenced Malaysian pre-clinical medical students' perceptions of PLHIV?"

BACKGROUND OF THE STUDY

Within Malaysian contexts, Tee et al. (2019) reported that physicians in surgical-based specialties were more likely to discriminate against PLHIV due to greater levels of HIV-related fears and shame, wherein HIV is perceived as a consequence for engaging in 'illicit' behaviors and is therefore undeserving of high-quality care. Similar reasons also underpinned over 80% of physicians' decisions to double glove when treating a patient living with HIV (Mohamad et al., 2021), despite national clinical policy recommendations to only double glove during specific Exposure Prone Procedures (EPPs) (Occupational Health Unit, 2007).

In a separate study, Ferro et al. (2017) reported how the pathologization of people who inject drugs and incarcerated persons influenced doctors' decisions to withhold antiretroviral therapy (ART) from those living with HIV. The manifestation of HIV stigma in the Malaysian healthcare setting imposes significant challenges for PLHIV to develop trusting, genuine, and sustainable relationships with their healthcare practitioners, which can delay the presentation of HIV among newly diagnosed individuals or prevent them from accessing (and staying) on life-saving ART, both of which increase their vulnerabilities for acquired immunodeficiency syndrome (AIDS) (Ahmad et al., 2024).

Among medical students in Malaysia, the ways they enact HIV stigma are diversely shaped by their level of training, gender, religious beliefs, and past experiences in interacting with PLHIV (Earnshaw et al., 2014). Specifically, it was reported that female students and those who were less advanced in their training (pre-medical

students) were more likely to discriminate against PLHIV, expressing stronger disagreements that PLHIV deserved optimal medical care. Among family medicine trainees, Chan et al. (2022) also found that students with less advanced training were more likely to express discriminatory behavioral intentions, including isolating patients living with HIV (and the healthcare practitioners treating them) from other patients who do not have HIV. However, some improvements in these stigmatizing practices were observed when students reported personally knowing someone who was living with HIV (Jin et al., 2014) or had had interpersonal interactions with individuals at risk for HIV during their medical school training (Earnshaw et al., 2016).

While past evidence has extensively measured and/or explored how HIV stigma operates to influence medical students' perceptions and behavioral intentions of PLHIV (Earnshaw et al., 2023; Mohamad et al., 2021; Tee et al., 2019), the overemphasis on a deficit-focused framing reinforces negative stereotypes about medical students' lack of capacity and ignorance for challenging HIV stigma – a socially and politically complex phenomenon in Malaysia (Barmania & Aljunid, 2016). That said, in the current article, we acknowledge the diverse dimensions that may underpin how pre-clinical medical students at a Malaysian public university destigmatize their perceptions of PLHIV, and thus aim to use a strengths-based, reflexive thematic analysis to identify the factors that influenced their destigmatization of HIV over time.

Thus, understanding the factors that aid the destigmatization of HIV among pre-clinical medical students can be key for driving competency-based medical education training and tailoring targeted HIV stigma prevention efforts, both of which will orient future doctors to equitably treat and care for diverse populations of PLHIV. This, in turn, can enhance the ways in which PLHIV may feel safe, trusted, and protected within the healthcare system, mitigating their health vulnerabilities in the long term (Ahmad et al., 2024).

METHOD

Study design

Underpinned by social constructivism, we acknowledge Malaysia's unique (and evolving) sociocultural and religious norms that influence how medical students may perceive PLHIV, given that HIV remains an important, and at times controversial, political issue in Malaysia (Barmania & Aljunid, 2016; Mutalip & Mohamed, 2012). That said, the exploratory nature of this study is intended to distill preliminary insights on how HIV can be destigmatized within Malaysian contexts, whereby reflexive thematic analysis is specifically used as an analytic strategy to identify the factors that influence Malaysian pre-clinical medical students' unlearning – or dismantling of HIV stigma.

Participant recruitment and demographics

Ethical approval was obtained from the Universiti Malaya Research Ethics Committee (UMREC) (Reference number: UM. TNC2/UMREC_1197. Participants were recruited using maximum variation sampling based on the following inclusion criteria: (i) a medical student currently enrolled at a local Malaysian university, (ii) aged 18 and above, and (iii) can speak and understand English. The participants were purposively sampled according to: (i) gender (men or women), (ii) year of program (year 1 or 2), and (iii) race (Malay, Indian, or Chinese) to obtain perspectives from an equal yet diverse sample of participants.

Study recruitment posters that detailed the study's inclusion criteria, the researcher's contact details, and honorarium were disseminated via social media, including X (Twitter at the time) and Instagram, as well as on the Faculty of Medicine's student bulletin board. Interested participants completed an online intake form and were then contacted by phone by the first author for a brief eligibility interview. Eligible participants subsequently provided written informed consent to be interviewed and audio-recorded via a digital Google form and completed a brief socio-demographic survey. Participants who completed the interviews received a 50 MYR cash honorarium (approximately 11 USD).

A total of six (6) participants were included in this exploratory study. Due to the exploratory nature of the study that aims to generate initial insights into an area that remains under-researched within Malaysian medical education contexts, the small sample size appropriately functions as a starting point for developing contextual insights on the topic (Miranda & Khan, 2022), which can be explored further via larger and more extensive empirical research designs in the future. Table 1 shows the demographic information of the study participants.

Table 1. Pre-clinical medical students' demographics (n=6)

Demographic Details		N (%)
Race	Indian	2 (33.3)
	Malay	2 (33.3)
	Chinese	2 (33.3)
Year in Medical School	1	3 (50)
	2	3 (50)
Gender	Male	3 (50)
	Female	3 (50)

Data Collection

Using an interview guide developed after an extensive review of the literature on HIV stigma in Malaysian healthcare contexts (Earnshaw et al., 2014; Ferro et al., 2017; Tee et al., 2019), the first author conducted individual semi-structured interviews over a two-month period via Zoom application. Each interview was conducted in English and lasted between one and one and a half hours. Some the interview prompts that were used to elicit participants' responses include 'Before joining medical school, what were your thoughts about PLHIV' with follow-up prompts quiring 'what influenced these perceptions you had' and 'how might your perceptions change after being enrolled in medical school. Participants were also asked how their perceptions might change based on their relationship with PLHIV, and their recommendations for how HIV can be destigmatized within the healthcare setting moving forward.

With each interview, reflexive memos were drafted to document researchers' reflections on the interview process, including key insights gleaned from individual participants' narratives. Interviews were audio-recorded, transcribed verbatim, and anonymized (with pseudonyms assigned) before being checked for accuracy and manually coded.

Data Analysis

Using the six-step framework for conducting reflexive thematic analysis (Braun & Clarke, 2006; 2019), participants' transcripts (complemented by the researcher's reflexive memos) were first read and re-read by the first author to allow for in-depth familiarization with the data and to generate pre-analytical insights to pre-empt potential categories. Guided by the study's broad research question – '*what influenced Malaysian pre-clinical medical students' perceptions of people living with HIV?*', a broad, inductive coding approach was used by the first author to distil preliminary codes that reflected the meaning within and across participants' description of the factors and circumstances that influenced the ways in which they unlearned HIV stigma throughout their lives, especially before and after joining medical school.

Throughout the analytic process, the initial coding decisions were iteratively compared with the reflexive memos containing pre-analytical insights drafted during the interviews to enhance the dependability of the findings. The codes derived from this analytic process were subsequently reviewed and refined, with patterns between similar codes identified to collate them into distinct, representative categories. With ongoing peer debriefings among the first, fourth, and fifth authors – all of whom were trained in medical education in Malaysia - the connections among the generated categories were further interpreted and compared to pre-empt three distinct yet interrelated themes that describe the factors influencing the destigmatization of PLHIV among pre-clinical medical students.

Reflexive strategies also included collaborative input and feedback on the findings analyzed by the entire author team, which comprised medical education and population health researchers who worked to write up and organize multiple drafts of the study's findings. These discussions were key to enhancing the findings' confirmability (ensuring that the findings are rooted in data generated by participants, not in researchers' bias) and dependability (ensuring the stability and consistency of the findings over time), and the overall trustworthiness of the study (Ahmed, 2024).

With regard to ensuring confirmability specifically, the peer debriefings allowed the author team to interrogate and challenge our shared interpretations of participants' quotes, ensuring they were rooted in participants' perspectives and experiences rather than researchers' bias. The drafted reflexive memos were also used to help the first author trace possible evolving thoughts during the data analysis process and to be transparent about potential subjectivities that might arise when making sense of participants' perceptions of PLHIV. In terms of dependability, this was ensured through detailed methodological documentation of the entire study process (in the form of audit trails), including decisions regarding participant recruitment, data collection, and analytical

strategies (Ahmed, 2024). This also aligned with Braun and Clarke's (2019) emphasis on centering researchers' positionality, subjectivities, and assumptions during thematic analysis and data meaning-making.

RESULTS

The analyzed data from the interviews generated three distinct yet interconnected themes, illustrating the diverse factors that influenced how pre-clinical medical students destigmatized their perceptions of PLHIV. Their perspectives are situated within the diverse sociocultural contexts in which they were socialized and raised, especially before and after enrolling in medical school. The three themes are: (1) Interaction with others, (2) Traditional and social media, and (3) Formal education.

Theme 1: Interaction with others

In unlearning damaging stereotypes about HIV and PLHIV's lived experiences, the destigmatization process was ongoing and co-constructed between participants and the different people (family, friends, members of key population groups) they interacted with before and after joining medical school.

Detailing how religious indoctrination was used to perpetuate HIV misinformation and invoke HIV-related fears in him as a child, Ismail, a second-year male Malay medical student, explained that interactions with key population group members as a medical student aided his understanding of how socio-structural inequities amplify one's vulnerabilities for HIV, and that it was actually not a '*punishment for committing sins*' as taught by his parents:

> *'…Sex workers and transgenders too, and you learn why they go down these routes. So, it is more so we are learning their stories and how they get this disease and all that… and that makes me more accepting of them, for who they are…some of these sex workers, for example, transgender, when these transgender people try to apply for jobs, they don't get the jobs they applied for. They end up being jobless. So some of these people resort to sex work to make money. So, this is why they go down the route. I wouldn't say these are the same for everybody, but some of them have to earn a living.'*

Garnering a better understanding of the socio-structural inequities that impact transgender sex workers' vulnerability to HIV fostered a sense of empathy and compassion in Ismail. Specifically, Ismail learned how cissexism and structural violence towards transgender women predisposed them to an increased likelihood of socioeconomic marginalization, and sex work (which is criminalized in Malaysia) becomes a last resort for sustaining themselves. Grasping how this positions transgender sex workers as vulnerable to HIV acquisition due to sexual violence and lack of legal protections for sex workers, Ismail better understood how power differences were central in shaping how one may or may not be at increased risk for HIV. Reflexive in action, this influenced the destigmatization of HIV for Ismail '*Everyone has their own story, and speaking to them and getting to know them for who they are, it humbles me'.*

Attributing her previously held HIV stigmas as a teenager to a lack of HIV literacy among family members at home, Leela, a second-year female Indian pre-clinical medical student, explained how interactions with friends in secondary school revolving around sex and sexual health facilitated her own open-minded approach to discussing the transmission of HIV, and debunking HIV-related myths she had internalized in the past:

> *I think that really opened my mind about it. Like, why are people so scared to talk about it? We are not conducting it[sex], and no one is getting hurt… That was when I realized it was not bad to discuss it. I started talking to more people and making more friends. And I even brought it up in my family. I wanted it to be a normal topic in my family…*

Through informative knowledge-sharing interactions with her friends, Leela learned to proactively seek evidence-based information moving forward, where she would learn to '*read about it [HIV] before [she] forms an opinion about it'*. This anchored Leela's changed ways for enhancing HIV literacy, and to destigmatize her own perceptions of PLHIV in the long-term.

Chuah, a second-year male Chinese pre-clinical medical student, described how HIV stigma was evident in the language used by his parents to warn him about having unprotected sex, or to justify their blatant homophobia. Challenging the harmful rhetoric he was taught, Chuah's interactions with patients living with HIV as a medical student helped him humanize their lived experiences as being structurally marginalized, which aided his own empathy and perspective-taking, both of which helped him destigmatize HIV. Chuah said:

> *'I understand this is a disease, [but] we need to try to treat the person as a whole. And not to just treat the disease alone. So, if you have this kind of mindset where you avoid seeing this kind of patient and don't take care of him because of the mindset, it will cause more suffering to the patient.*

Emphasizing that his first and utmost priority as a future doctor will always be to prioritize his patients, including those living with HIV, Chuah added, '*they obviously have their reasons [for seeking my help] and trust in me, so I should do my job'.* Reflected here is Chuah's intrinsic motivation to provide impartial and compassionate care as a future doctor, with an underlying commitment to change how he perceives and behaves around PLHIV, contrary to what his parents taught.

Summarizing participants' experiences in interacting with others, it is evident that empathy and perspective-taking were crucial facilitators that underpin their ability to connect and learn from others as a way of dismantling HIV stigma.

Theme 2: Traditional and social media

While interaction with others emerged as a key factor that influenced how participants dismantled previously held HIV stigma, traditional and social media also operated as key information sources, wherein PLHIV's lived experiences and distinct challenges were represented and portrayed to shape how medical students perceived PLHIV.

Highlighting the use of risk-based language within her own social circles (to describe PLHIV) as characterizing her own initial HIV stigma growing up, Anjali, a first-year female Indian medical student, explained her self-directed use of YouTube to learn about the PLHIV's lived experiences first-hand, from content creators living with HIV. This aided some level of perspective-taking for Anjali as she unlearned previously held stigmatizing views:

> *I learned some of these things online [about PLHIV's experiences]. Since there is YouTube and social media, they have opened my mind a lot. I have a lot of different perspectives now... As an individual, I try to put myself in their shoes and see how I would like to be treated. This brings me to another stage, which is what makes me want to become a doctor too*

Enhanced here was Anjali's own sense of introspection as she made meaning of the socio-structural inequities that have historically marginalized PLHIV by articulating their lived experiences on YouTube. Through perspective-taking, Anjali also envisioned what the circumstances would look like if the tables were turned, which partly shaped her motivation for boosting her HIV literacy and desire to become a more informed and caring future doctor:

> *'...As a doctor, I was given the knowledge, so it is my responsibility to help anyone…even though I am not personally related to this patient, it is my responsibility as a human being to try to help others in some way'.*

Resonating with Anjali, Ismail also added that online media platforms helped him access content from progressive Muslim clerics that talked about how one should connect and build relationships with members of key population groups (including those living with HIV). This guided Ismail in navigating his social identity as a faithful Muslim man and professional goals in becoming a non-judgmental future doctor:

> *We as Muslims believe that it is a sin, but we do not punish those who practice it. Let's say if I meet a homosexual man on the street, I have no right to be demeaning or condemn them, because even I, as a Muslim, have a lot of faults… so what rights do I have to judge them for their actions?*

The ability to access diverse online media platforms as sources of information provided Ismail with the critical knowledge needed to reconcile his principles as a future doctor with his religious values as a Muslim man. Herein, emphasis on tolerance and acceptance by the Muslim clerics he was listening to helped Ismail dismantle the damaging HIV-related stereotypes he internalized in the past, where it '*opened up [his] humanity*' and helped him be a '*proper Muslim where [he] doesn't judge them [gay people living with HIV] for what they are doing.'*

The representation of PLHIV in traditional media like movies provided avenues for depicting their histories and the ongoing socio-structural inequities they endure. This was helpful for some participants in deconstructing their own HIV stigmas. Discussing The Normal Heart as an example - a film set in the 1980s at the height of the HIV

pandemic, Leela described how the movie conveyed the challenges that fueled the HIV/AIDS epidemic, which evoked a whirlwind of emotions and profoundly changed the way she perceived PLHIV:

> *And there was a scene; there were two guys, and one of the partners was HIV [positive]. And they were traveling, and people wouldn't let them on the flight, and the guy was really, really sick. But they managed to get to their destination. At the hospital, no one wanted to treat them. And they didn't want to issue a death certificate after the guy passed away. And the guy [living partner] actually had to bribe to get the body cremated because no one wanted to handle the body because they thought the HIV virus could still spread. No one wanted to prioritize AIDS because it was only a homosexual thing, and it was just very sad.*

Despite the distress sparked in Leela, she reiterated the importance of showcasing such histories via storytelling in the media, which enhanced her own HIV awareness and literacy. These impacts have since expanded to influence how Leela leveraged her increased HIV literacy to educate her family members, with the goal of getting them to destigmatize their own perceptions of PLHIV:

> *I started talking about it with my family, and they slowly agreed [to change their opinions of PLHIV]. I discuss it with them and tell them how HIV is really transmitted, and that [PLHIV] are also people, and we should not stigmatize [against them]*

In conclusion, the ways in which PLHIV were portrayed and discussed in traditional and social media influenced how participants construct their own perceptions of PLHIV, where the receipt of multiple perspectives through various media information platforms influenced participants' empathy, perspective-taking, and HIV literacy, ultimately aiding the destigmatization of HIV within this group.

Theme 3. Formal education
Distinct from interaction with others and access to traditional and social media, formal education provides an added dimension for understanding how existing educational curricula and teaching approaches/expertise – both before and after medical school, influenced participants' ability to destigmatize their perceptions of PLHIV

Ismail recalled the HIV-related misinformation that was perpetuated by his own teachers in school, where they had repeatedly emphasized that "*homosexuals had a great chance of getting HIV",* as well as *"people who share[d] needles"*. It was not until he took the initiative to self-educate using existing educational resources that he was able to challenge the stigmatizing notions pertaining to HIV within his school's curriculum:

> *I started to read more about HIV, and that is where I started to realize that "oh, Malaysia had a HIV epidemic around the 1980s and all that". So that is when I started to learn more about HIV and how it is transmitted and all that. If it wasn't for my extra reading, my only basic knowledge would be that if you are homosexual or have the same gender sex, then you have a good chance of getting HIV.*

By taking the initiative to equip himself with the relevant knowledge and skills, Ismail was able to develop some level of extrospection for challenging the perpetuation of HIV misinformation in school. He also reflected on the educational gaps that deprioritized sexual education as a vital tool for dismantling HIV stigma among young people:

> *Because the topic of sex is still stigmatized, and you don't see it around in schools. So, a lot of people who are probably undereducated… they wouldn't know what a condom is or what sexual education is, and how to protect themselves from [HIV]*

Illustrating the benefits of evidence-based learning about HIV in high school, Leong, a first-year male Chinese medical student, described his experiences in working with teachers who were equipped with the necessary skills and knowledge to comprehensively deliver the subject. Speaking of what he learned about HIV treatment modalities in secondary school Biology, Leong said,

> *From an early age, I already knew that PLHIV are actually just as fine, with the exception that they are on some antiviral drugs and stuff like that… Basically, during secondary school, we took Biology, and there was one page in the textbook that covered HIV. From there, the textbook included some facts about HIV and PLHIV. And a certain stigma, which was also explained by our teacher at that time, so we kind of had some understanding about it.*

Such learning opportunities laid the groundwork for Leong's understanding of PLHIV's experiences, including the socio-structural challenges they continue to face in accessing appropriate care and treatment in the public healthcare setting. This shaped Leong's own recommendations for bridging systemic inequities impacting PLHIV in Malaysia, adding

> "*I would say we should try to invest as much as the government can to try to help PLHIV [systemically]… They are also a part of the country and a part of the world*".

Within medical school contexts, the implementation of a medical education curriculum that emphasized human rights-based approaches and the utilization of specific clinical practice guidelines when working with PLHIV provided participants with the practical skills and confidence needed to work with future patients living with HIV. Describing how she was taught to work with patients living with HIV without fear and judgment, Leela said:

> *The first thing they teach you [in medical school] is how to protect yourself, not just [against] HIV, but all sorts of diseases. You just have to be careful… So yeah. We have been taught how to do this, so I feel like we don't have to be so afraid, since we already know how to prevent it.*

Leela's confidence reflected the quality of training she received, wherein evidence-based clinical practice guidelines were used to help medical students build trust and sustainable relationships with future patients living with HIV, which in turn aided their destigmatization of HIV.

Leong also explained how the medical education curriculum equipped him with the affective skills needed to be more compassionate when working with future patients living with HIV, which helped reframe the way he perceived and treated PLHIV as a medical student:

> *That is our responsibility, that is our job. We cannot choose not to treat this patient just because he has a certain infectious disease and stuff like that. So, I think, instead of pushing them away, it is our responsibility to treat the patient. That is the job of a doctor, and the patient needs our help… when we see people suffering, we tend to want to help them. At least that is how I feel. I wouldn't, or never in my life, I would say I would not want to treat certain patients - that is my number one thing."*

Echoing Leong's commitment to be a better future doctor by humanizing PLHIV's experiences, Anjali also said,

> "*As a [future] doctor, I was given the knowledge, so it is my responsibility to help anyone. Because even though I am not personally related to this patient, it is my responsibility as a human being to try to help others in some ways."*

For both Leong and Anjali, evident here is an attained sense of responsibility to reduce suffering, improve the quality of care, and respect the dignity of all their patients, including those living with HIV. The reflected empathy and perspective-taking here was nurtured via medical school training that also emphasized collaborative learning with community members, including key population group members and/or PLHIV.

As formal education created some avenues in helping medical students unlearn HIV stigma, it must be acknowledged that the design and structure of educational curricula are critical in shaping how educators teach about HIV, and how future doctors might derive from such lessons to destigmatize their perceptions of PLHIV prior to entering the healthcare workforce.

In summary, Figure 1 illustrates a visual map of thematic findings

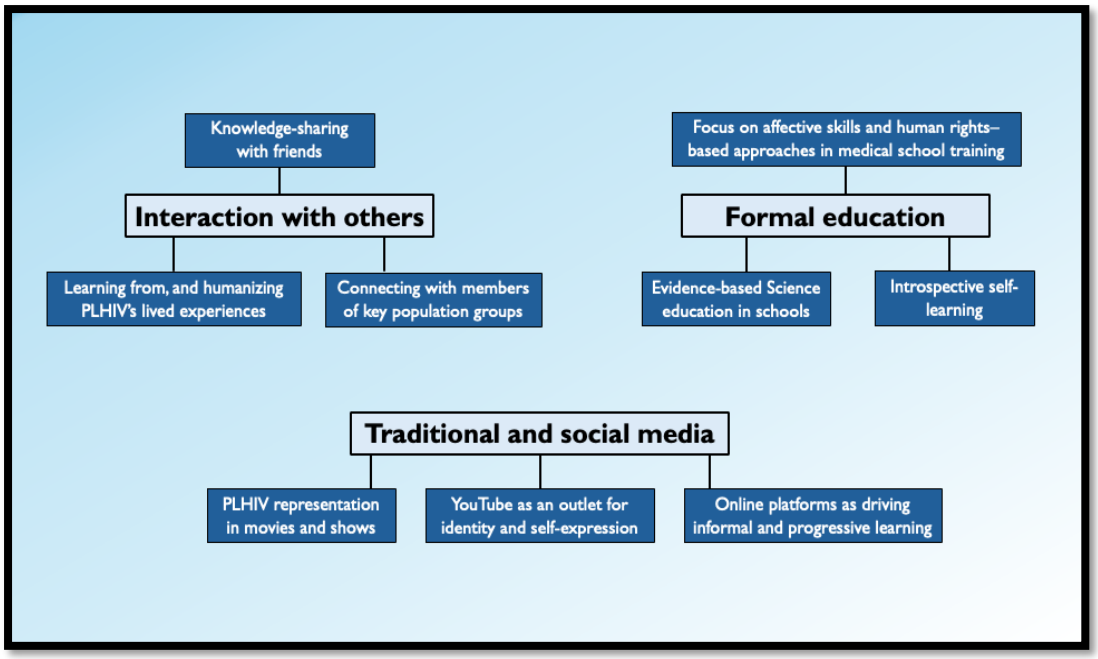

Figure 1. Visual map of thematic findings

DISCUSSION

As distilled in our findings, the three interrelated themes diversely influenced the destigmatization of HIV among Malaysian pre-clinical medical students. Drawing on prior literature, we discuss the implications of these findings for tailoring future large-scale studies and interventions to address HIV stigma among medical students in Malaysia. In destigmatizing HIV among pre-clinical medical students, our findings illustrate how this process is ongoing and co-constructed between medical students and the diverse groups of people they interact with (to listen to and learn from).

Past evidence has demonstrated how this has worked for mitigating HIV stigma, whereby building connections with others, including the PLHIV community, is essential for embodying compassion and care for PLHIV (Earnshaw et al., 2016) whilst developing a better understanding of the socio-structural inequities that influence one's HIV vulnerabilities in the first place (Mahajan et al., 2008). This can also be explained by Allport's (1954) "contact hypothesis," which highlights how interpersonal interactions can reduce prejudice between two groups. In the context of our findings, this was helpful for medical students who connected with (and learned from) members of key population groups and PLHIV, enhancing their perspective-taking and empathy and, over time, reducing their perceived stigma toward PLHIV.

However, given the contexts in which this study took place – within a leading Malaysian public university with the country's largest HIV research center, and within an urban metropolitan city- the findings from this study may not be entirely transferable to medical schools in other parts of Malaysia. This is especially since HIV stigma in Malaysia continues to be linked to a myriad of factors, including the criminalization of same-sex relationships, sex work, and drug use (Yuswan et al., 2024), and is therefore framed as a cause-and-effect punishment for defying diverse sociocultural and religious norms, linking morality to self-health (Reyes-Estrada et al., 2016; Hamidi et al., 2024). This was evident in previous research that reported the prevalence of stigmatizing perceptions and discriminatory intentions towards PLHIV among healthcare practitioners, despite already working with and interacting with PLHIV (Earnshaw et al., 2014; Earnshaw et al., 2023; Ferro et al., 2017; Tee et al., 2019). That said, Hasnain (2005) and Ahmad et al. (2024) cautioned that such harmful framings will only make PLHIV feel increasingly unsafe to seek care out of fears of being stigmatized, which may worsen their health outcomes in the long run. As such, while opportunities to build and sustain interactions with others are key for destigmatizing HIV, broader socio-structural values and norms must be considered when strategizing ways to dismantle HIV stigma among future Malaysian doctors.

Traditional and social media outlets were also crucial factors in shaping the destigmatization of HIV among medical students. Herein, there is immense value in disseminating HIV-related content through traditional media channels, including movies, television advertisements, and radio shows, all of which can influence changes in society's health behaviors, improve health literacy rates, and reduce stigmatizing perceptions of PLHIV over time

(Asamoah et al., 2017). However, while some participants have benefited from traditional media in this study in dismantling their HIV stigma, Aghaei et al. (2023) warned that the use of traditional media as a way to mitigate HIV stigma is a dynamic, context-specific, cultural process. This is especially true for Malaysia, where specific guidelines continue to be enforced to ensure televised media content aligns with the country's sociocultural and religious norms (Department of Foreign Affairs and Trade (DFAT), 2024).

There is a tendency to use risk-based language in Malaysian traditional media to shift the blame of the HIV epidemic onto PLHIV rather than the socio-structural inequities fueling the epidemic in the first place (Tham & Zanuddin, 2012). Aligning with Aghaei et al. (2023)'s recommendations, traditional media companies need to be responsible in tailoring HIV-related health messages to be more culturally sensitive and evidence-based. Social media, on the other hand, affords much more freedom than traditional media, with limited government control over the types of content accessible to the public (Aghaei et al., 2023). Taggart et al. (2015) added that social media can build a sense of community where users can share HIV-related information and personal stories in discreet and safe ways without having to necessarily disclose their HIV status or confront HIV stigmatization. These resonated with our findings, where social media outlets like YouTube have been helpful for medical students to draw on PLHIV's lived experiences, or learn about how to work with them, aiding their destigmatization of HIV over time.

However, some risks remain, especially with the dissemination of fake news and unsubstantiated health information, both of which can pose risks to PLHIV and people looking to learn about HIV. There are also additional risks linked to cyberbullying (Othman et al., 2022) that, if left unchecked, can impose significant mental health risks on some of the most vulnerable communities, including PLHIV who rely on social media as a safe expression outlet. As such, in promoting diverse media platforms as valuable informal avenues in shaping the destigmatization of HIV over time, specific legislations must also be enforced to curb the potential spread of disinformation and protect the well-being of all those who rely on these platforms to learn and connect with each other in the context of dismantling HIV stigma (Aghaei et al., 2023).

Formal education aided the de-stigmatization of medical students' perceptions of PLHIV, highlighting the value of integrating comprehensive HIV information into different education curriculum levels. At the primary and/or secondary school level, the incorporation of culturally sensitive, evidence-based HIV information within instructional design plans (e.g., Moral and Religious studies, Physical Education) offers key opportunities for educators and students to teach and learn about HIV as not just a biological issue, but also as a gendered, political, and sociocultural issue. This resonates with some participants' experiences learning from teachers who draw on evidence-based information rather than mere unsubstantiated assumptions. Expanding on this finding, previous research has shown that student-centered learning can also be helpful in teaching about HIV in formal primary/secondary education (Lichtenstein & DeCoster, 2014).

Therefore, structured lessons can focus on independent work, such as problem-based learning and outreach activities with the PLHIV community, to cultivate students' affective and critical-thinking skills. That said, however, in strategizing HIV awareness and education efforts in Malaysia specifically, the country's sociocultural and religious norms must also be considered, including the ways in which they underpin the politicization of HIV (Barmania & Aljunid, 2016; Mutalip & Mohamed) and influence how sexual health education is delivered in schools. For one, school administrators and education/health policymakers must consider whether the curriculum may be at odds with educators' and students' own cultural and religious values.

In their study, Nsubuga and Bonnet (2009) suggest that policymakers develop more comprehensive and strategic guidelines for planning, designing, and implementing HIV-responsive curricula within distinct sociocultural and/or religious contexts. As described by participants in our study, opportunities to engage with PLHIV through practical sessions in medical school also aided their own destigmatization, emphasizing the value of interpersonal interactions for mitigating prejudice between medical students and their patients living with HIV (Earnshaw et al., 2016). This resonates with previous findings that have reiterated the value of engaging PLHIV in the medical education process, where they are actively involved in HIV-related training for medical students, which is essential in humanizing HIV as more than just a biological health/illness issue (Pulerwitz et al., 2010).

Relatedly, it is crucial for medical schools to expand beyond the biomedical aspects of illness and disease to educate future doctors on the socio-structural determinants of health (Onchonga & Abdalla, 2023). This may include training exercises for medical educators to not just deliver stigma-free curriculum designs that prevent the pathologization of PLHIV (Chory et al., 2021), but to focus on existing socio-structural inequities that drive HIV vulnerabilities in the first place. Not doing so risks the transitioning of HIV stigma to fuel discriminatory behaviors

when medical students become doctors in the future, which may worsen PLHIV's health inequities (Earnshaw et al., 2023; Tee et al., 2019).

CONCLUSION

In conclusion, the insights garnered in the study reflect the diverse ways in which factors like interaction with others, traditional and social media, and formal education can influence the destigmatization of HIV among medical students in Malaysia. Given that existing evidence on medical students' perceptions of PLHIV in Malaysia tends to adopt a deficit-focused framing to emphasize why HIV stigma exists (Chan et al., 2022) and how it negatively impacts PLHIV's well-being (Earnshaw et al., 2015; Earnshaw et al., 2023), the findings from this study are unique and crucial in ensuring that we do not reinforce these stereotypes or risk reproducing these stigmas to pathologize PLHIV. Instead, we suggest a more strengths-based focus on how future doctors can be oriented to dismantle previously held HIV stigma, which can aid in addressing the ongoing inequities PLHIV continue to endure in the Malaysian healthcare setting and improve their health outcomes in the long-term.

IMPLICATIONS OF THE STUDY

The insights generated from this study can inform ongoing efforts and/or lay the groundwork for building targeted formal and informal HIV awareness programs and developing competency-based medical education curricula that prepare medical students to treat and care for PLHIV equitably, with dignity and respect. Further, the preliminary insights from this study also pre-empt key indicators and factors that can be examined by future larger empirical studies and/or interventions – for instance, cross-sectional or longitudinal studies that aim to investigate the broader population of medical students' experiences and strategies for destigmatizing HIV across Malaysia – and how that might happen over time.

RECOMMENDATIONS OF THE STUDY

In detailing specific recommendations for existing medical education curricula in Malaysia, we reiterate the need to center the lived experiences of PLHIV as a key component of medical education training, where future doctors are able to connect with and learn from PLHIV as the ultimate experts of their own experiences (Earnshaw et al., 2016; Jin et al., 2014; Mahajan et al., 2008; Pulerwitz et al., 2010). This can be done via practicum trainings or in collaboration with local HIV/AIDS community organizations. By doing so, it acknowledges HIV as a consequence of structural inequities, instead of pathologizing individuals and communities who may be more susceptible to HIV than others. On a broader societal level, more political will and investments are needed to address HIV-related misinformation in the media and within school settings, with better HIV sensitization and awareness training needed for media personnel and educators across these settings. Herein, HIV exists as a health issue – not a moralistic one and must be recognized as such at all levels, including when designing curricula and during policymaking, in efforts to mitigate HIV stigma and improve the well-being of PLHIV in the long term.

LIMITATIONS OF THE STUDY

The study's limitations include a sole focus on preclinical-year medical students. Given that a majority of patients living with HIV interact with healthcare professionals of diverse specialties other than doctors, it is valuable for future studies to explore how other future allied health professionals might destigmatize their perceptions of PLHIV. In addition to this, the geographical contexts in which the study was conducted within a single institution in a large urban city limit the transferability of the findings to other sociocultural contexts (Ahmed & Muhammad, 2018), including rural areas with different cultural/religious norms and institutions that may not have similar access and resources related to HIV care and awareness for their medical students. Thus, without compromising participants' anonymity, we have provided detailed contextual information within each theme to enable readers to assess the transferability of the findings to their own contexts. Lastly, only six participants were included in this study due to the project's scope as part of a non-funded master's degree, which constrained available resources for additional recruitment and data collection. While this might limit the ability to attain data saturation, the findings from this exploratory qualitative study still provide some crucial preliminary insights on how HIV can be destigmatized among future doctors, with opportunities to build on these findings to conduct larger future studies/interventions to address HIV stigma.

DECLARATION OF CONFLICT OF INTEREST

The authors declare that they have no competing interests with regard to the research, authorship, and/or publication of this article.

ACKNOWLEDGEMENT
We would like to thank all the participants for their time and contribution to the study, and the university for its support.

FUNDING
The author(s) received no funding for the research, authorship, and/or publication of this article

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