



Knowledge and Stigma Regarding HIV and Homosexuality: An Exploratory Survey of Responding Physicians in Lebanon

Hilal Abdessamad¹, Zeinab Roumieh², Jacques E. Mokhbat³

ABSTRACT

BACKGROUND

HIV remains a major public health challenge in the Middle East and North Africa (MENA), where stigma against people with HIV (PWH) and men who have sex with men (MSM) hinders access to care. In Lebanon, little is known about physicians' current knowledge, attitudes, and willingness to provide care for PWH.

METHODS

We conducted an exploratory online survey of all Lebanese physicians registered with the Ministry of Public Health, distributed in four waves between 2023 and 2025. The 58-item questionnaire assessed HIV knowledge, attitudes toward PWH and homosexual colleagues, willingness to provide medical care, and practices related to sexual history and pre-exposure prophylaxis (PrEP). Out of 4,331 emails, 760 were invalid and 127 physicians responded (3.2%).

RESULTS

Interpretation is limited by a low response rate, and findings should be considered for hypothesis generation rather than prevalence estimates. Respondents were mostly male (63%), with varied specialties and practice settings. Knowledge of HIV transmission was generally high, though gaps were identified: 54% did not recognize breastmilk as a transmission route, 20% were unaware of confidential testing facilities, and only 64% knew that PrEP prevents transmission. While 86% were willing to medically examine PWH and over 90% would perform minor or major procedures, 29% believed physicians have the right to refuse care due to fear of infection. Stigmatizing attitudes were also noted, where 13% would not buy food from PWH, 33% would not allow their child to play with PWH, and 39% would not accept surgery from a surgeon living with HIV. Regarding homosexuality, 10–12% opposed accepting homosexual applicants to medical training or granting them practicing privileges. Most respondents (61%) did not routinely take sexual histories, and 84% had never prescribed PrEP, while 96% agreed on the need for further education.

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CONCLUSION

In this exploratory sample, respondents had adequate HIV knowledge, but signs of stigma and prevention gaps (PrEP/sexual history) were identified toward PWH and homosexual colleagues, coupled with significant gaps in awareness of PrEP and HIV testing. Physician-targeted educational campaigns focusing on transmission, PrEP, and non-discrimination may help reduce barriers to HIV care and align Lebanon with WHO's goal of ending the epidemic.

INTRODUCTION

As of 2025, HIV remains one of the longest on-going pandemics [1]. Affecting diverse populations, different areas of the world deal with it differently [2]. Thus, the barriers to HIV care tend to be unique to certain areas of the world, dictated by the prevalence of certain modes of transmission, access to care, availability and cost of medication, ease of diagnosis, lack of awareness and stigma and social barriers [3]. As of 2019, the United Nations Programme on HIV/AIDS (UNAIDS) reported a 95% surge in HIV incidence in the Middle East and North Africa (MENA) region [4]. With a high proportion of new infections occurring in the population of men who have sex with men (MSM) [5], these populations face a lot of stigma and stereotype that challenges their access to HIV-related care. In addition, insurances are able to legally refuse and deny coverage for a person living with HIV (PWH) [6]. Moreover, not all Lebanese physicians are willing to assess PWH or people belonging to the Lesbian/Gay/Bisexual/Transsexual+ (LGBT+) community [7]. These people often face discrimination when seeking medical care, which can root from discrimination or lack of proper training due to excessive stigma [8].

With the Lebanese Ministry of Public Health (MoPH), the National AIDS Control Program and the local NGOs, awareness was improved and medication was provided for free, in an attempt to improve sexual health, prevention and HIV care [9]. There was a decrease of 52% in HIV incidence in 2020 [10]. However, despite evidence of continued transmission during coronavirus lockdown years [11], little data exists about the progress related to stigma and awareness, especially with a big outflow of physicians and an economic crisis [12].

Among the tools available to assess physicians' perspective on this matter, surveys provide valuable data, but they are challenged by low response rates, leading to selection bias [13, 14]. Despite these challenges, nationwide surveys provide very meaningful exploratory information in such settings in the most cost-effective way [15].

To assess the current situation, we conducted an exploratory survey sent to all registered Lebanese physicians to assess their attitudes towards HIV and homosexuality as well as their knowledge about HIV.

This would provide a descriptive assessment of the current situation amongst Lebanese providers and their current willingness to engage, treat and assist in the care of PWH in Lebanon. As we have little data regarding this area in Lebanon, recording such responses would provide valuable information about the nature of the situation and help identify areas to focus efforts for future intervention for a more effective approach towards the World Health Organization (WHO) goals to ending the HIV epidemic.

Emergency and acute care settings are usually the first point of contact for people with undiagnosed HIV, patients presenting after occupational exposure or sexual assault, and those requiring urgent interventions. Physician knowledge of HIV transmission risk, comfort with procedural care, and familiarity with HIV prevention strategies affect patient safety, occupational safety, and equity of care.

METHODS

Analyses were planned as primarily descriptive given the exploratory study design and anticipated low response rate.

To assess the current attitudes of Lebanese physicians towards PWH and homosexual patients, we conducted an online survey that was sent to all registered Lebanese physicians via email, in 4 waves between 2023 and 2025.

The survey consisted of 58 multiple-choice questions regarding HIV transmission awareness, attitude towards PWH, experience and willingness to provide medical care to PWH, healthcare professionals living with HIV and colleagues who are homosexual and sexual history and pre-exposure prophylaxis (PrEP).

The 58-item instrument was developed for exploratory use based on domains relevant to HIV care and stigma (transmission knowledge, willingness to provide care/procedures, occupational exposure/PEP/PrEP awareness, sexual history practices, and attitudes toward colleagues). Items were reviewed by the study team for clarity and validity prior to distribution. The questionnaire was not formally psychometrically validated.

We used a registry of emails provided by the Lebanese AIDS Society which contains emails of all registered Lebanese physicians in the MoPH as of 2019. This yielded 4331 email addresses. A special email address was used to send the IRB-approved email template containing the google docs link to the survey.

Out of the email addressed contacted, 760 addressed were unreachable due to a wrong, inactive or outdated address. The remaining 3571 addresses received all 4 email invitations, which yielded 127 (3.2%) responses.

Given the low response rate, results are subject to nonresponse and selection bias, and are presented as exploratory findings rather than population estimates.

STATISTICAL ANALYSIS

Responses were summarized using counts and percentages. Given the exploratory design and limited sample size, we restricted analyses to descriptive statistics and bivariate comparisons. Associations between physician characteristics and outcomes related to HIV stigma and prevention were explored by chi-square or Fisher's exact tests, as appropriate. Univariable logistic regression was performed to estimate odds ratios (ORs) with 95% confidence intervals when possible. No multivariable modeling was planned. All analyses were considered hypothesis-generating, and p-values were interpreted descriptively without adjustment for multiple comparisons.

ETHICS

This project was reviewed and granted approval by the Lebanese American University Institutional Review Board. All survey answers were kept anonymous.

RESULTS

Out of the 127 responses, 81 (63%) were male, 12 (9.4%) graduated before 1989, 19 (15%) between 1990 and 1999, 44 (35%) between 2000 and 2009 and 52 (41%) after 2010. Among respondents, 81 (64%) graduated from Lebanese private universities, 25 (19.6%) graduated from the Lebanese University and 20 (15.7%) graduated from outside Lebanon. They practiced in different specialties, with family medicine, pediatrics, anesthesiology, obstetrics and gynecology and infectious diseases being the most reported specialties reported. Regarding studies, 94 (74%) of respondents reported to have studied abroad at some point in their careers, and 75 (59%) of them reported practicing medicine at some point outside Lebanon. As for practice, 77 (60.6%) reported practicing in a university medical center and 64 (50.3%) reported engaging in teaching activities at least 2 times weekly. 93 (73.2%) of them reported seeing on average more than 10 patients per day.

QUESTIONS REGARDING HIV AND TRANSMISSION AWARENESS

The vast majority (125; 98.4%) of respondents knew HIV cannot be transmitted by sharing eating and drinking utensils or by sharing towels and toilets with PWH. Regarding other sexually transmitted infections (STIs) like gonorrhea and genital herpes, 88 (69.2%) of

respondents knew they increase the likelihood of HIV transmission if untreated. For vertical transmission, 111 (87.4%) knew a mother with HIV can have an uninfected baby. However, 69 (54.3%) respondents did not know that HIV can be transmitted to the baby by breastmilk. As for routine antibody-based testing, 114 respondents (89.7%) were certain these tests are not able to detect HIV antibodies within a few days of infection, and 25 (19.7%) of respondents did not know there are facilities in Lebanon that provide confidential testing. Furthermore, 3 (2.3%) physicians responded that they can tell if someone is a PWH by their appearance. 108 (85%) responded that antiretroviral therapy (ART) prolongs the life of PWH, and 81 (64%) knew that oral PrEP is effective in HIV prevention.

QUESTIONS REGARDING GENERAL ATTITUDE TOWARDS PWH

When asked about interactions with PWH, 9 (7%) respondents did not agree to go to a store owned by a PWH, 17 (13.3%) did not agree to buy food from a PWH, 42 (33.1%) did not agree to let their child play with a PWH, 19 (15%) did not agree to play sports with someone with HIV, 16 (12.6%) were reluctant to accept a dinner invitation from a friend living with HIV and 2 (1.6%) thought that PWH should be isolated.

QUESTIONS REGARDING EXPERIENCE AND WILLINGNESS TO PROVIDE MEDICAL CARE TO PWH

When it came to experience with PWH, 89 (70.1%) of respondents have treated a PWH at some point in their careers, and 122 (86.1%) of them expressed willingness to medically examine a PWH. If that person is a relative, 117 (92.1%) were willing to medically care for them. When asked if they were willing to perform minor procedures on PWH, such as venipuncture, abscess drainage, mole excision, chest tube placement, 81 of the 87 (93.1%) eligible respondents expressed willingness to do so, and with open surgery, 56 of the 60 (93.33%) eligible respondents were willing to do so. A third of respondents (37, 29.1%) agreed that physicians have the right to refuse medical care to PWH for fear of contamination.

QUESTIONS REGARDING HEALTHCARE PROFESSIONALS LIVING WITH HIV AND COLLEAGUES WHO ARE HOMOSEXUAL

Among the physicians who responded to the survey, 12 (9.4%) reported they would not accept to be treated by a doctor who lives with HIV, and 50 (39.4%) reported not accepting to be operated on by a surgeon living with HIV. While 124 (97.6%) expressed willingness to get tested for HIV if exposed, 22 (17.3%) have never been tested before.

Regarding colleagues with HIV, 15 respondents (11.8%) were unwilling to refer patients to a colleague with HIV, 9 (7%) think a colleague who gets infected with HIV should not be allowed to continue working

and 15 (11.8%) think a qualified applicant with HIV should not be admitted to medical school or residency programs.

Regarding homosexuality, 15 (11.8%) would not refer a patient to a colleague who is homosexual, 13 (10.2%) think such a colleague should be denied practicing privileges and 12 (9.4%) think a qualified applicant who is homosexual should not be admitted to medical school or residency programs.

QUESTIONS REGARDING SEXUAL HISTORY AND PrEP

Most respondents (78, 61.4%) did not take sexual history in their routine history taking, and 107 (84.2%) had never prescribed PrEP. Furthermore, 61 (48%) expressed unwillingness to prescribe it for someone with high risk of HIV infection, and 62 (49%) believed it will decrease safe sex practices and increase the incidence of STIs. Similarly, 23 (18.1%) would not advise an exposed colleague to start PrEP, and 44 (34.6%) believed PrEP will cause ART resistance. The majority of respondents (122, 96.1%) believed more education around PrEP should be implemented before prescribing it routinely.

EXPLORATORY ASSOCIATION ANALYSES

We performed exploratory bivariate analyses to assess if certain physician characteristics were associated with stigma and prevention outcomes. No statistically significant associations were observed for routine sexual history taking, PrEP prescribing, belief in the right to refuse care, or willingness to accept surgery from a surgeon/dentist living with HIV (all $p > 0.05$). Univariable logistic regression similarly did not identify significant predictors; however, there was a trend toward lower refusal of surgery among physicians who had studied abroad (OR 0.51, 95% CI 0.23–1.14; $p = 0.10$).

DISCUSSION

While we had different demographic profiles of respondents, most younger graduates, who work in educational institutions and had some international experience with a big patient load. This coincides with the known profile of physicians who are more likely to respond to survey invitations, as they are more familiar with such an approach [16]. Furthermore, such profiles are generally more accepting and less stigmatizing of patient populations, due to general and educational trends, making them more inclined to answer surveys related to stigma around HIV and homosexuality [17, 18].

In general, our exploratory survey showed a high awareness of the general knowledge about HIV transmission and the safety of sharing utensils and toilets with PWH, which is a good baseline. This situation is better than the 1990s, where PWH were discriminated against because of misinformation

around this topic. Back then even nurses would not enter the rooms of PWH and they would be left alone, stigmatized, and quarantined [19].

However, our results show significant gaps in knowledge around HIV transmission and its interaction with other STIs. Only 69% of respondents knew that untreated gonorrhea and herpes increase HIV transmission risk, and around 46% not being sure or not knowing that HIV can be transmitted via breastmilk might be indicators of an awareness gap, worthy of a focused intervention in future campaigns.

Furthermore, around 10% of respondents were not certain about antibody testing windows and 20% were not aware of confidential testing facilities. These can be barriers to effective testing, where some PWH might not know their status. In addition, while 85% of provider respondents knew that ART prolongs life or PWH, only 65% of them knew PrEP is effective in prevention, which can be an awareness gap to target for future campaigns.

While a small number, still having some providers think they can tell PWH by appearance and that they should be quarantined, is a significant indicator that stigma and misinformation are not fully eradicated, even among physicians. This is especially evident in a quantifiable stigma attitude towards PWH, which ranges from somewhere around 7% with minimal interaction (buying groceries from shopper) to around 33% when a respondent's child is playing with a PWH. The 1996–2004 Lebanese study showed a gap between HIV awareness and declining knowledge in prevention and safe practices. When this stigma is not eradicated, even among physicians, this can impede public health interventions. This shows there is a multi-layered problem where misinformation not only affects the general public, but also some healthcare providers [20].

However, when it comes to providing care, the general trend was positive, with more than 85% of respondents willing to examine PWH or caring for relatives with HIV and performing minor procedures or surgeries on them. This can represent an improvement from the 50–50 willingness of physician care for PWH in 2014(7). Nevertheless, 29% of them agreeing that physicians have the right to refuse care for PWH because of fear of contamination might be a point to target in future campaigns to stress on non-transmissibility of the virus in treated PWH with controlled viral loads [21]. This hesitation is concerning in emergency departments, where delays in triage or refusal of urgent procedures due to fear of transmission can impact patient morbidity [22]. Therefore, more education about basic infection control barriers and their effectiveness in prevention of any blood-borne illness prevention should always be implemented, especially that most patients are not routinely tested for HIV. If all barriers fail and a needlestick injury happens, post-exposure prophylaxis, or PEP, is available and effective [23].

This remains better than the situation in the 1990s, where physicians and dentists in the west would deny PWH care due to fear of the infection and of stigma, despite effective treatment emergence [24].

Furthermore, the percentages of respondents who discriminate against medical (9.4%) or surgical (39.4%) colleagues with HIV was alarming. Their unwillingness to refer patients to colleagues who live with HIV (11.8%), and similar percentages of respondents thinking colleagues with HIV or who are homosexual should be denied practicing privileges or prevented from admission to medical school or residency programs shows some clear discriminatory points in the medical community against PWH and LGBT+ people.

Regarding sexual history taking and PrEP, having 61% of respondents admitting to not routinely taking sexual history shows possible missed opportunity for detecting new exposure and preventing new infection. However, 84% of respondents have never prescribed PrEP and 48% are not willing to do so with one-third of them lack up-to-date knowledge about its use or safety.

Surveys responses can be low, sometimes less than 5%, especially in uncompensated surveys as in our case. 13 Physician surveys are especially known to have low response rates [25]. Furthermore, the coronavirus pandemic induced a "survey fatigue", further decreasing response rates [26]. Some invitations would have been lost in the high volume of emails received daily by physicians. Furthermore, since there is no perceived benefit from filling the surveys, many would have just ignored the invitation [13, 27, 28]. The financial crisis and general stress and burnout would be demotivating to fill a survey, and the outflow of physicians to outside the country means that many of them might have abandoned the previously registered email accounts. Moreover, it is impossible for us to know with certainty the number of active email addresses in the registry, so our calculated 3.2% response rate might be an underestimation of the actual rate of response from physicians who received the invitation and filled the survey. Therefore, percentages in this study should be interpreted as signals among respondents, not as estimates of stigma prevalence among Lebanese physicians overall.

This low response rate would lead to a selection and a nonresponse bias, which affects data representativeness and accuracy. However, the exploratory nature of this study in a topic that is stigmatized and faced with the obstacles mentioned makes our findings important. While our study was not made to draw generalizable conclusions, it aims to gain insight into the current situation among physicians, providing us with potential areas of focus for future interventions in the country to mitigate challenges PWH face while seeking healthcare.

These results would help us make some recommendations for prevention efforts against HIV in Lebanon in the coming years based on the possible gaps identified in our exploratory survey. These recommendations would be for awareness campaigns targeted for physicians practicing medicine in Lebanon. Based on these findings, we recommend that future educational campaigns for Lebanese physicians prioritize three areas. First, interventions must correct persistent misconceptions regarding horizontal transmission and teach the concept that Undetectable = Untransmissible (U=U) to reduce refusal of care. Second, training should focus on practical protocols regarding indications for PrEP, the window periods for different HIV tests, and the availability of confidential testing sites. Finally, to ensure occupational safety and reduce delays in procedures, education should include efficacy of PEP following needle-stick injuries, ensuring that fear of contamination does not compromise urgent surgical or emergency interventions.

LIMITATIONS

Our study has some limitations, especially its low response rate. This is mitigated by the exploratory nature of the study. The questionnaire was not pilot-tested or psychometrically validated, which may affect reliability and comparability across studies. In addition, the list of emails used was from 2019, which was largely due to the unavailability of a more updated list after the COVID-19 pandemic. As a lot of physicians left Lebanon after the pandemic, this can be a contributing factor to the low response rate.

CONCLUSION

With stigma and misinformation affecting the public and healthcare professionals regarding HIV and homosexuality in Lebanon, it is important to identify areas of actionable concern. This exploratory survey revealed knowledge gaps, especially in PrEP use, HIV testing and transmission. In general, physician-targeted campaigns on HIV awareness regarding transmission, screening, testing, availability of confidential testing sites, PrEP and PEP might play a role in promoting acceptance, especially in the emergency department. These targeted campaigns, identified by our survey, might be very promising in changing Lebanese physicians' attitudes towards HIV in Lebanon, and subsequently their attitude towards homosexuality. This would lead to more testing, more treatment and more viral control, contributing eventually to the WHO goals to end HIV.

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All authors contributed equally and validated the final version of record.

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DECLARATIONS

CONFLICTS OF INTERESTS

The Authors declare that there is no conflict of interest.

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REGISTRATION

No registration applicable.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL APPROVAL

This project was reviewed and granted approval by the Lebanese American University Institutional Review Board. All survey answers were kept anonymous.

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