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Homosexuality stigma and HIV risk behaviors among HIV-negative men who have sex with men in Vietnam

Truc Thanh Thai¹, Ly Thuy Nguyen², Hai-Van Thi Hoang³, Ngoc Bich Lung³, Minh-Hao Thi Bui³, Mirzazadeh Ali⁴, Diep Bich Vu², Giang Minh Le³

¹Faculty of Public Health, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam

²Division of Global HIV and Tuberculosis, U.S. Centers for Disease Control and Prevention, Hanoi, Vietnam

³School of Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Vietnam

⁴Department of Epidemiology and Biostatistics and Institute for Global Health Sciences, University of California, San Francisco, USA

Abstract

Stigma toward homosexuality plays an important role in the increased risk of acquiring or transmitting HIV among men who have sex with men (MSM). This study describes associations between three dimensions of homosexuality-related stigma (enacted, perceived, and internalized) and HIV risk behaviors among HIV-negative MSM in Hanoi, Vietnam. A total of 1,675 HIV-negative MSM were recruited from the baseline of a cohort study from 2017–2019 through respondent-driven, time-location, and internet-based sampling strategies. Stigma was measured by a locally validated instrument, with a higher score indicated a higher level of stigma (from 1 to 4). Enacted stigma (mean = 2.10), perceived stigma (mean = 2.62), and internalized stigma (mean = 2.55) were found. About 25% of participants reported group sex and 6.3% reported drug use before or during group sex in the last 6 months. Enacted stigma was significantly associated with group sex (adjusted OR = 1.48; 95% CI 1.20–1.84) and drug use before or during group sex (adjusted OR = 1.68; 95% CI 1.19–2.36). Internalized stigma was significantly associated with group sex (adjusted OR = 1.27; 95% CI 1.05 – 1.53) and drug use before or during group sex (adjusted OR = 1.44; 95% CI 1.04–1.99). The results highlight the need for multifaceted interventions at a multiple socio-ecological levels to reduce stigma toward homosexuality.

Keywords

homosexuality stigma; HIV risk behavior; MSM; Vietnam; SDG 3: Good health and well-being

Corresponding author: Truc Thanh Thai, Faculty of Public Health, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam. 217 Hong Bang Street, District 5, Ho Chi Minh City, 700000, Vietnam. thaithanhtruc@ump.edu.vn.

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Introduction

Vietnam has implemented successful HIV prevention and control strategies with a significant decline in both the number of new infections and deaths (Chu et al., 2018). However, challenges remain in key populations, including men who have sex with men (MSM), for whom new infections have been on the rise (Son et al., 2019). MSM in Vietnam are engaged in behaviors that put them at high risk for HIV. For example, a study in Northern Vietnam reported a high level of condomless anal sex (33.9%), group sex (21.1%), injecting drug use (13.6%), and drug use during sex (15.8%) (Ha et al., 2015). Another study in Southern Vietnam revealed more than one-third of MSM had condomless anal sex (Pham et al., 2015). Moreover, a study in Ho Chi Minh City and Hanoi revealed that over 20% of MSM engaged in group sex in the past 12 months (N. T. Vu et al., 2017). Similarly, drug use (21.5%) and methamphetamine use (30.4%) were also common among MSM (N. T. Vu et al., 2017).

One possible explanation for the high level of risk behaviors is homosexuality-related stigma that MSM experience in their daily life. A number of studies have indicated that MSM experiencing stigma are more likely to practice HIV risk behaviors (Edelman et al., 2016; Preston et al., 2007). Edelman et al. (2016) have suggested that risk behaviors are coping strategies that MSM may use to respond to stigma, social isolation and negative psychosocial experiences such as depression. Moreover, the cultural norms, misconception of homosexuality and homophobia contribute to stigma among MSM (Giang le et al., 2012). A study among MSM in Hanoi in 2011 reported that up to 30% of MSM had a high level of homosexuality-related stigma (Ha et al., 2015). Importantly, such experiences prevent MSM from accessing proper healthcare services, which undermines HIV prevention and care efforts in this population (Bui et al., 2017; Giang le et al., 2012). A review by Altman et al. (2012) has revealed high rates of HIV infection in countries where the level of homosexuality-related stigma is high.

Homosexuality-related stigma exists among MSM in different forms, and the impact of these forms on MSM is not the same across settings, possibly due to a variety of individual, health system, and community factors (Dunbar et al., 2020). While internalized stigma refers to self-stigma or negative self-perception and beliefs about being homosexual, perceived stigma refers to the perception of attitudes toward homosexuality in society (Dunbar et al., 2020). Enacted stigma refers to experiences of discriminating behaviors toward homosexuality (Dunbar et al., 2020). While a large body of literature reported significant, positive association between enacted stigma and HIV risk behaviors, the role of perceived stigma and internalized stigma in regard to HIV risk behavior in MSM is unclear (Ha et al., 2015). Moreover, enacted stigma in the form of verbal harassment and physical assault could be associated with HIV-related risk behaviors (Balaji et al., 2017). Several intervention models to reduce internalized, perceived and enacted stigma for MSM have been shown to be effective (Dunbar et al., 2020). However, understanding of contextual differences is important in adopting these models (Dunbar et al., 2020).

In Vietnam, little is known about whether these different types of stigmas are associated with HIV risk behaviors among MSM, as well as their access to and use of HIV services. The

association between HIV-related risk behaviors and multiple types of homosexual-related stigma has been described among MSM in Vietnam in 2010 (Ha et al., 2015). However, it is unclear which specific sexual risk behaviors MSM might engage in when they experience different types of homosexuality-related stigma. Therefore, our study examined the associations between homosexuality-related stigma and sexual and drug-use related risk behaviors among Vietnamese MSM in Hanoi.

Methods

We utilized baseline, self-reported survey data from the Health in Men-Hanoi (HIM-Hanoi) study, a prospective observational cohort with details about the sample size, sampling methods, and study procedure described elsewhere (Bhatia et al., 2020). In brief, 1,893 sexually active MSM aged 16 years and older were recruited through time-location sampling (July - December 2017, n = 796), respondent-driven sampling (April 2018 – March 2019, n = 295) and internet-based sampling (June 2018 – April 2019, n = 802). The use of these three approaches was intended to increase the probability of reaching MSM in Hanoi. The inclusion criteria included: 1) Vietnamese national; 2) male at birth; 3) at least 16 years of age; 4) living in Hanoi for the past 3 months; 5) having oral or anal sex with another man; and 6) willing and able to provide written informed consent. In this study, we only included 1,675 MSM who were HIV-negative and agreed to be followed up in the cohort.

Methods for conducting time-location sampling were described in our previous publication (Bhatia et al., 2021). In brief, we identified 53 venues during the mapping phase. At each venue, an average of 20 MSM was approached and invited to participate in this study. For respondent-driven sampling, ten seeds were initially recruited, each of whom was given three uniquely coded coupons to recruit other eligible peers. This recruitment process continued until we had the sample size needed. For internet-based sampling, advertisements and study contacts were posted on highly visited MSM commercial and social networking websites and apps in Hanoi. MSM who were interested in this study were asked to contact study staff for screening their eligibility. Eligible MSM were invited to go to the Sexual Health Promotion clinic at Hanoi Medical University, where they provided written consent to participate in the study. This clinic has a good reputation as a friendly and non-judgmental environment where MSM can access counseling, HIV and STI testing, and treatment. To prevent multiple participation, participants' fingerprints were recorded. The data were then collected through a self-interviewing process based on a pre-defined structural questionnaire deployed on an audio computer-assisted self-administered interviewing (ACASI) system.

Stigma was measured using the homosexuality-related stigma tool adapted and validated in Vietnam (Ha et al., 2013). The scale consists of 28 items that measure three aspects of homosexuality-related stigma: enacted stigma (9 items), perceived stigma (11 items), and internalized stigma (8 items). Each item is measured using a 4-point Likert scale, with the enacted subscale rated from 1 (never) to 4 (often), and the perceived and internalized stigma subscales rated from 1 (strongly disagree) to 4 (strongly agree). A higher score indicates a higher level of stigma. In this study, to calculate the percentage of each stigma experience, we also categorized the Likert responses for individual items into “yes” (rarely, sometimes,

and often) and “no” (never) for enacted stigma; “yes” (strongly agree and agree) and “no” (strongly disagree and disagree) for perceived stigma and internalized stigma.

Baseline risk behaviors measured in this study included drug use (drug use in the last 3 months, injecting drug use in the last 3 months), condomless anal sex in the last 6 months, group sex in the last 6 months, use of amphetamine to enhance sexual performance in the last 6 months, and drug use before or during group sex in the last 6 months. We also recorded demographic information, including age, number of years living in Hanoi, highest education, employment, income, sexual attraction, and disclosure of MSM status.

Mean, standard deviation (SD), and frequency were used as descriptive statistics for participants' characteristics, stigma, and risk behaviors. Although this study employed the RDS sampling method, we did not use RDS weights in our analysis and models as suggested by Avery et al. (2019). This was also due to the inclusion of multiple sampling strategies, where sampling probability calculation was not possible for some of the strategies, such as internet-based sampling. The bivariable and multivariable associations between stigma scores for each type of stigma and risk behaviors (in binary form) were evaluated using logistic regression. In the multivariable model, the analyses were adjusted for potential confounding factors reported in literature, including age, number of years living in Hanoi, education level, income, and MSM status disclosure. P values of <0.05 were considered statistically significant. All data analyses were performed using Stata version 16. This study was reviewed and approved by the U.S. Centers for Disease Control and Prevention and Hanoi Medical University IRBs.

Results

Among 1,675 HIV-negative participants, the mean age was 24.5 (SD = 6.7) years (Table 1). Most participants lived in Hanoi for at least 5 years (n = 975, 58.2%) and finished college or university (n = 670, 40.0%). Almost all participants were currently employed (n = 1,565, 93.4%). About a quarter (n = 405) of participants lived alone, and almost all disclosed homosexuality status to others (n = 1,539, 92.5%). Participant characteristics differed across the three recruitment methods, except for employment status (Supplemental Table S1).

Table 2 presents homosexuality-related stigma scores among participants. The mean score was 2.10 (SD = 0.57) for enacted stigma, 2.62 (SD = 0.59) for perceived stigma and 2.55 (SD = 0.64) for internalized stigma. Experiences of enacted stigma varied widely among participants, ranging from 71.9% (n = 1,204, being kicked out of school for being homosexual) to 86.7% (n = 1,452, being rejected by family because of being homosexual). Perceived stigma also varied, with 77.1% of participants (n = 1291) agreeing that “many families would be disappointed to have a gay son”, while 28.4% (n = 476) felt that “gay individuals are not welcome in public gatherings”. Internalized stigma ranged from 30.2% (n = 505) of participants who reported feeling ashamed of their sexual orientation to 66.6% (n = 1,115) who expressed fear of family and friends discovering their sexual orientation. Additionally, more than 80% of participants reported losing a friend due to their homosexuality (83.2%), being teased or cursed by others (85.6%) and being afraid of seeking health care (81.9%).

HIV risk behaviors related to sexual and drug use practices among participants are presented in Table 3. Of 1,675 participants, 919 (54.9%) reported having condomless anal sex in the last 6 months, and 423 (25.3%) reported having group sex. The percentage of participants reporting drug use in the last 3 months was 13.7% ($n = 230$), with only 1.0% ($n = 16$) reported injecting drugs. The percentage of participants who reported using amphetamine to enhance sexual performance and drug use before or during group sex in the last 6 months was 6.7% ($n = 113$) and 6.3% ($n = 106$), respectively.

The associations between the different types of stigma and HIV-related risk behaviors, with and without adjustment for other covariates, are presented in Table 4. In the adjusted model, higher scores for enacted stigma were significantly associated with having group sex in the last 6 months (adjusted OR = 1.48; 95% CI 1.20–1.84, $p < 0.001$). Moreover, higher odds of drug use before or during group sex in the last 6 months were found among participants who had a higher level of enacted stigma (adjusted OR = 1.68; 95% CI 1.19–2.36, $p = 0.003$). Internalized stigma was associated with group sex (adjusted OR = 1.27; 95% CI 1.05–1.53, $p = 0.015$) and drug use before or during group sex (adjusted OR = 1.44; 95% CI 1.04–1.99, $p = 0.028$). However, perceived stigma was not significantly associated with HIV risk behaviors.

Discussion

Our study revealed a high level of homosexuality-related stigma and a high prevalence of HIV-related risk behaviors among HIV-negative MSM in Hanoi. The majority of participants reported experiences of unfair treatment by others (enacted stigma) due to their sexuality. A high number of MSM also experienced perceived and internalized stigma. Condomless anal sex was reported by more than half, and group sex by about one-fourth of the participants. We found that enacted stigma and internalized stigma were positively associated with group sex and using drugs before or during group sex.

A previous study in Hanoi among MSM in 2010 (Ha et al., 2013) showed lower levels of stigma in all three dimensions, including enacted stigma, perceived stigma, and internalized stigma, compared with those in our study. In addition, compared to another study of MSM in Hanoi and Ho Chi Minh City in 2014, we found higher levels of perceived and internalized stigma but lower levels of enacted stigma (N. T. T. Vu et al., 2017). Supported by the findings from these studies, our study indicates that enacted stigma among MSM has increased since 2010, even in the metropolitan cities of Vietnam, while perceived stigma and internalized stigma may fluctuate over time. The lack, or inadequacy, of effective programs designed to address stigma among this population might be an explanation for the high levels of homosexuality stigma. Importantly, without appropriate interventions, MSM who experience enacted stigma may be more likely to develop perceived stigma, which in turn may result in a greater level of enacted stigma (Chi et al., 2014; Lekas et al., 2011). Given that Hanoi has the second-highest number of MSM in Vietnam (Son et al., 2019), interventions to reduce stigma among this population are urgently needed. However, since most participants in our study reported being afraid of seeking health care due to their homosexuality, such interventions could not only be implemented at health care facilities but

could also actively approach this hard-to-reach population in the communities or through community-based organizations (CBOs).

We found that group sex and drug use before or during group sex were significantly associated with enacted stigma and internalized stigma but not with perceived stigma. These results were consistent with a previous study in Vietnam, which indicated a link between HIV risk behaviors and enacted stigma (Ha et al., 2015). Similarly, the positive association between enacted stigma and unsafe sexual behaviors such as group sex was documented in a previous study among MSM in Vietnam (N. T. T. Vu et al., 2017). One possible explanation for the specific association between stigma and group sex, but not condomless anal sex, is the social nature of group sex. Group sex often occurs in specific social settings, such as parties or gatherings, where peer influence, substance use, and a sense of community may play a role. MSM who experience enacted stigma may seek social validation or belonging in these environments, making them more likely to engage in group sex as a coping mechanism (Meyer, 2003). Additionally, substance use, which is often reported in group sex settings, may lower inhibitions and further increase risk-taking behaviors (Mimiaga et al., 2009). In contrast, condomless anal sex can occur across various contexts, including within stable or casual partnerships, and may be influenced by factors such as relationship trust, access to prevention tools (e.g., PrEP), and personal risk perception rather than stigma alone. This may explain why we did not find a direct association between stigma and condomless anal sex. Moreover, MSM who experience enacted stigma may internalize these negative perceptions, leading to feelings of shame, self-doubt, and diminished self-worth. This contributes to the explanation about the positive association between internalized stigma and group sex found in our study. MSM who experience enacted stigma and internalized stigma may feel less empowered, have lower self-confidence, and thus fail to protect themselves against risk behaviors including group sex (Balaji et al., 2017). Our data indicate that nearly 60% of MSM participated in condomless sex, while almost one-third participated in group sex. The association between homosexuality-related stigma and HIV risk behaviors found in this study highlights an urgent need for interventions. A targeted and relevant intervention program to decrease stigma, particularly enacted stigma, for MSM could modulate these common HIV risk behaviors in this population.

The association between homosexuality-related stigma and high-risk behaviors in our study, particularly group sex and drug use before or during sex, poses a critical implication for comprehensive stigma reduction interventions for MSM in Vietnam at both individual and structural levels. First, at the individual level, interventions such as mental health support, counseling, and peer-led programs can help MSM build resilience against stigma and reduce engagement in risky behaviors (Halkitis et al., 2020; Meyer, 2003). MSM facing enacted and internalized stigma are at greater risk for poor mental health, which may increase risky behaviors. Second, at the structural level, strengthening legal protections, anti-discrimination policies, and healthcare provider training is essential to fostering a stigma-free healthcare access (Gunn et al., 2022). Stigma in healthcare settings has been linked to reduced access to HIV prevention and treatment services, further exacerbating health disparities among MSM (Halkitis et al., 2020; Stangl et al., 2023). Third, community-based organizations (CBOs) and digital health platforms should engage MSM who avoid traditional healthcare settings due to stigma. Our findings show distinct characteristics among MSM recruited through

different methods, underscoring the importance of diverse outreach strategies. Fourth, integrating stigma reduction into HIV prevention programs, such as PrEP promotion, sexual health education, and harm reduction, can improve effectiveness. Evidence from systematic reviews suggests that multi-level stigma interventions, including structural and behavioral approaches, are effective in reducing stigma and improving health outcomes among MSM (Gunn et al., 2022).

Moreover, several successful strategies to reduce stigma against homosexuality can be learned from other countries where social movements with practical support from governments are helpful, not only for this vulnerable population, but also for HIV prevention and control (Altman et al., 2012). Although intervention strategies and their mechanisms to reduce enacted stigma have been documented, especially in the context of HIV (Dunbar et al., 2020; Stangl et al., 2023), such intrapersonal (education, counseling), interpersonal (healthcare providers training, peer navigation, support and disclosure) and structural (policy and human right, access to health services and community sensitization) approaches are context-dependent. Therefore, HIV programs in Vietnam may consider implementing and evaluating the effectiveness of these approaches.

There are several limitations in our study. First, due to the nature of the cross-sectional study design, we were unable to explain the causal pathway between homosexuality stigma and risk behaviors. Second, we were unable to describe the contribution of specific stigmatizing events. It is possible that experiences of stigma with healthcare providers have consequences that are distinct from those resulting from experiences with family, neighbors, and society. Third, while our higher enacted stigma scores compared to those previously documented might be due to the differences in sampling strategies and data collection practices, future studies may consider identifying the optimal cut-off for the stigma scales we used. This would be useful in classifying MSM who experience stigma that warrant intervention, and, thus, in guiding individualized interventions. Fourth, the lack of analysis of sampling weight when combining data from three different sampling approaches for this hard-to-reach population might affect statistical estimates. This bias could be considered in future studies. Finally, the data presented in this paper were from MSM in a single city (i.e., Hanoi), which limits the generalizability of our findings. Multi-setting research is important since stigma may be influenced by social contexts and cultural norms in different regions of the country.

Conclusions

Both homosexuality-related stigma and high-risk behaviors were common among HIV-negative MSM in Hanoi, Vietnam. Enacted stigma and internalized stigma were positively associated with group sex and drug use before or during group sex. Findings from this study could be used to guide HIV program design to address stigma against MSM and, thus, to reduce the risk of HIV acquisition and transmission among this population.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1:
Characteristics of HIV-negative MSM in HIM-Hanoi, Vietnam, 2017–2019 (N = 1,675)

Characteristics	Frequency	Percentage
Age, Mean (SD) (years)	24.5	6.7
Age category (years)		
16–19	361	21.6
20–24	766	45.7
25–29	346	20.7
30+	202	12.1
Living in Hanoi (years)		
<5	700	41.8
5–<10	287	17.1
10+	688	41.1
Highest level of education		
Finished grade 1–9	90	5.4
Finished grade 10–12	274	16.4
In vocational training/college/university	641	38.3
Finished college/vocational training	151	9.0
Finished university	519	31.0
Currently employed	1565	93.4
Income in the last month (VND)(<i>n</i> = 1,614)		
<3 million VND (~150 USD)	270	16.7
3 – 7 million VND (~150 – 350 USD)	881	54.6
>7 million VND (~350 USD)	463	28.7
Mainly live with whom in the last month		
Family	647	38.6
Friends who are not sexual partners	440	26.3
Live alone	405	24.2
Male partner	287	17.1
Unsettled	68	4.1
Others	20	1.2
Female partner	18	1.1
Sexual attraction		
Attracted to men	1434	85.6
Attracted to men and women	166	9.9
Attracted to women	75	4.5
Disclose MSM status to family (Yes)(<i>n</i> = 1663)	1539	92.5

For some variables, the total sample size may not be reached due to non-response.

Table 2:
Homosexuality stigma among HIV negative MSM in HIM-Hanoi, Vietnam, 2017–2019 (n = 1675)

Homosexuality-related stigma	Distribution		Yes ^b	
	Mean ^a	SD	n	%
Enacted Homosexuality stigma	2.10	0.57		
Lost a job or career opportunity due to your engaging in homosexual activities	2.01	0.78	1271	75.9
Been rejected (separated, disregarded, etc.) by your family because of your homosexuality	2.52	0.91	1452	86.7
Lost a friend because that person knows you are engaging in homosexual sex	2.19	0.80	1394	83.2
Been teased or cursed by others because you are engaging in homosexual sex	2.38	0.86	1434	85.6
Been hit or beaten due to your homosexuality	1.90	0.68	1248	74.5
Been kicked out of school for being homosexual	1.83	0.65	1204	71.9
Changed accommodation due to your homosexuality	1.97	0.71	1298	77.5
Been refused health care because of your homosexuality	1.88	0.68	1245	74.3
Be afraid of seeking health care because of your homosexuality	2.20	0.82	1372	81.9
Perceived Homosexuality stigma	2.62	0.59		
Many people do not accept homosexual individuals	2.84	0.81	1205	71.9
Gay individuals would lose their heterosexual partners if those partners knew about their homosexual relationship	2.76	0.80	1135	67.8
Many employers would underestimate a man due to his homosexuality regardless of his qualification for the job	2.49	0.83	849	50.7
Many people would treat a gay individual differently than others	2.73	0.78	1131	67.5
Many people have negative attitudes toward gay men	2.78	0.81	1179	70.4
Many people do not see gay individuals as normal men	2.80	0.81	1197	71.5
Gay individuals are not welcome in public gatherings, for example, party, night club, meeting, etc.	2.20	0.74	476	28.4
Many families would be disappointed to have a gay son	2.93	0.79	1291	77.1
Many people think that most gay individuals are HIV positive and will die of AIDS	2.34	0.82	656	39.2
Many people think that most gay individuals are promiscuous	2.63	0.81	1004	59.9
Many health staff show unpleasantness or negative attitudes while dealing with homosexual individuals	2.28	0.76	585	34.9
Internalized Homosexuality stigma	2.55	0.64		
Sometimes, you wish you were not gay	2.74	0.88	1064	63.5
Sometimes, you think that if you were not homosexual, you would probably be happier	2.67	0.87	982	58.6
To avoid disclosure of your homosexual status, you have tried to stop being attracted to men	2.55	0.79	869	51.9
Sometimes, you wish you could become more sexually attracted to women	2.53	0.81	887	53.0
You feel that being gay is a personal shortcoming for you	2.27	0.83	583	34.8
Sometimes, you feel ashamed of your sexual orientation	2.20	0.81	505	30.2
You are afraid family and friends will find out about your sexual orientation	2.77	0.83	1115	66.6
You try to look masculine in order to avoid other's rejection	2.65	0.83	963	57.5

^aScores range from 1 to 4. For enacted Homosexuality stigma, these include 1 (never), 2 (rarely), 3 (sometimes) and 4 (often). For perceived Homosexuality stigma and internalized Homosexuality stigma, these include 1 (strongly disagree), 2 (disagree), 3 (agree) and 4 (strongly agree).

^bEnacted Homosexuality stigma (Yes: rarely, sometimes, and often combined), perceived Homosexuality stigma (Yes: agree and strongly agree combined), internalized Homosexuality stigma (Yes: Agree and strongly agree combined)

Table 3:
HIV risk behaviors among HIV negative MSM in HIM-Hanoi, Vietnam, 2017–2019 (n = 1,675)

HIV risk behaviors	Frequency	Percentage
Sexual behavior in the last 6 months		
Condomless anal sex	919	54.9
Group sex	423	25.3
Drug use in the last 3 months		
Drug use	230	13.7
Injection drug use	16	1.0
Sexual behavior and drug use in the last 6 months		
Use amphetamine type stimulants to enhance sexual performance	113	6.7
Drug use before or during group sex	106	6.3

Table 4: Odds of HIV risk behaviors among HIV negative MSM with different stigma scores in HIM-Hanoi, Vietnam, 2017–2019

Homosexual stigma	HIV risk behavior									
	Sexual behavior			Drug use			Sexual behavior and drug use			
	Condomless anal sex		Group sex	Drug use		Injection drug use		Use amphetamine type stimulants to enhance sexual performance		Drug use before or during group sex
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Enacted homosexuality stigma										
Crude	1.14 (0.96 – 1.35)	0.123	1.55 (1.26 – 1.89)	<0.001	1.04 (0.82 – 1.33)	0.741	1.42 (0.62 – 3.25)	0.408	1.22 (0.88 – 1.70)	0.228
Adjusted	1.14 (0.95 – 1.36)	0.150	1.48 (1.20 – 1.84)	<0.001	1.06 (0.82 – 1.36)	0.673	1.20 (0.52 – 2.78)	0.673	1.14 (0.81 – 1.60)	0.453
Perceived homosexuality stigma										
Crude	1.04 (0.89 – 1.23)	0.620	1.13 (0.93 – 1.38)	0.207	1.04 (0.82 – 1.32)	0.750	0.83 (0.37 – 1.87)	0.657	0.81 (0.59 – 1.12)	0.202
Adjusted	1.06 (0.90 – 1.26)	0.490	1.15 (0.94 – 1.42)	0.169	0.96 (0.75 – 1.24)	0.770	0.85 (0.37 – 1.91)	0.687	0.78 (0.56 – 1.09)	0.140
Internalized homosexuality stigma										
Crude	0.98 (0.84 – 1.13)	0.753	1.23 (1.03 – 1.47)	0.023	0.82 (0.66 – 1.02)	0.069	0.88 (0.41 – 1.88)	0.736	1.08 (0.80 – 1.46)	0.606
Adjusted	0.97 (0.83 – 1.14)	0.746	1.27 (1.05 – 1.53)	0.015	0.88 (0.70 – 1.10)	0.265	0.78 (0.36 – 1.72)	0.544	1.08 (0.79 – 1.48)	0.632
Adjusted for age, living in Hanoi, education, income and MSM status disclosure										
									1.45 (1.07 – 1.98)	0.018
									1.44 (1.04 – 1.99)	0.028