

Chemsex: Emerging Threats Facing the MSM Experience - A Cross-Sectional Study

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Abstract

Background. The trend of male homosexuality is progressively rising. The preference for chemsex (use of recreational drugs during sexual encounters) is also becoming more prevalent among the men who have sex with men (MSM), which increases sexual excitement during intercourse. This, in turn, heightens the risk of transmission of sexually transmitted diseases, including HIV/AIDS.

Objective. To assess the prevalence of chemsex in same-sex relationships and related behaviors among MSM.

Subjects and methods. A cross-sectional study was conducted on 227 MSM in the community of Can Tho city, Vietnam, from March to October 2023.

Results. 42.3% of MSM engage in chemsex. The most commonly used substance in chemsex is popper (94.8%). Six factors are associated with chemsex: (a) MSM working in office jobs (OR = 2.1, 95% CI 1.1 - 4.3, $p = 0.030$); (b) Having more than 5 sexual partners (OR = 7.2, 95% CI 2.6 - 20.1, $p < 0.0001$); (c) Engaging in sex work or exchanged sex for money (OR = 5.0, 95% CI 1.3 - 18.6, $p = 0.017$); (d) Participating in group sex (OR = 5.2, 95% CI 2.4 - 11.4, $p < 0.0001$); (e) Never using condoms during sex (OR = 1.5, 95% CI 1.2 - 2.0, $p = 0.003$); and (f) Using recreational drugs (OR = 1.9, 95% CI 1.1 - 3.5, $p = 0.024$). Factors influencing chemsex behavior include easy access to stimulants, lack of understanding about the harms of chemsex, trust in sexual partners, desire to enhance sexual pleasure, and pain reduction during intercourse.

Conclusion. Chemsex among the MSM group is on the rise, and this likely leads to increased rates of HIV and STI transmission, as well as long-term health consequences. Healthcare workers and the community need to reduce stigma, discrimination, and narrow-minded attitudes towards individuals who use substances during sexual activity, as these barriers can prevent them from seeking harm reduction information and professional assistance for the issues they face.

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Introduction

The preference for using chemical substances to enhance sexual excitement is increasingly popular, and these substances are referred to as “chemsex” (1). The common chemical substances used include heroin, morphine, codeine, fentanyl, methadone, tramadol, and similar substances (1). Due to their pharmacological effects, they can cause respiratory depression, and opioid overdose can lead to death (2). The use of substances during sex involves the use of various substances before or during sexual intercourse to facilitate initiation, prolongation, maintenance, and enhancement of sexual encounters. This can occur in both heterosexual and homosexual individuals (3,4). Chemsex increases the risk of HIV and sexually transmitted infection (STI) transmission, and this is a concerning behavior that affects public health, especially in the MSM (men having sex with men) population (5). Chemsex is currently very prevalent among MSM and has been increasingly on the rise in recent years (6). In Asia, statistics from 2012–2021 show that the prevalence of Chemsex behavior among MSM ranges from 6% to 40% (7). In Germany and Ireland, the percentage of Chemsex among MSM is the same, with 27% of MSM reporting that they have used substances during sexual encounters (8). A comprehensive study in Europe surveying 597 MSM over a 12-month period found that alcohol was the most commonly used substance at 90.5%, followed by amyl nitrite (“poppers”, 60.9%), and cannabis (43.2%). Substances with lower percentages of use included methamphetamine, GHB/GBL, and ketamine, at 13.8%, 19.7%, and 17.6%, respectively (9).

The trend of sexual orientation towards homosexuality, bisexuality, and transgender (LGBT) is increasingly rising, with this trend being higher among males compared to females (10). In 2023, according to a survey conducted in 30 countries, out of 10 people, 7 were identified as heterosexual. Approximately 3% of the respondents declared themselves as homosexual, either gay or lesbian, while 4% identified as bisexual. Additionally, a small percentage were Omnisexual or Pansexual (11). The percentage of American adults who self-identify as lesbian, gay, bisexual, transgender, or something other than heterosexual has increased to a new high of 7.1%, which is double the percentage observed in 2012 when Gallup first measured it (12). In Vietnam, according to data from the National HIV Surveillance System, the HIV infection rate among the MSM group has

been increasing rapidly, from 6.7% in 2014 to 12.2% in 2017 and 13.3% in 2020 (4). Homosexuals tend to have more sexual partners than heterosexuals (13), so leading to a higher risk of STIs.

In Vietnam, the trend of chemsex among MSM is increasing, and there has been no assessment of its consequences on health and the risk of increased STI. This study aims to evaluate the current status of chemsex use in same-sex relationships and the factors related to this behavior among MSM. Based on this, recommendations will be made to raise awareness of risk behaviors to minimize disease transmission risks and encourage health-protective behaviors in this group, such as using condoms and avoiding addictive substances.

Materials and Methods

Study Design

This cross-sectional study was conducted from March to October 2023 in Can Tho city, southern Vietnam. The study population included 227 MSM aged 16 years or older who had condomless anal sex at least once in the past 12 months and agreed to participate in the study. Additionally, in-depth interviews were conducted with 7 individuals who reported using recreational drugs during sexual encounters.

Sample size

The sample size was calculated using the following formula:

$$n = Z_{1-\alpha/2}^2 \frac{p(1-p)}{d^2};$$

where, n is the sample size; p is the estimated prevalence of stimulant use during sex among MSM at 14.3% (based on a previous study conducted in Vietnam in 2017 (14)); d is the absolute error of 5%, and $Z(1-\alpha/2)$ is the Z-statistic for a 95% confidence level. An additional 20% sample size was added to account for potential errors. The minimum sample size calculated was 227.

Data collection

The Centers for Disease Control (CDC) of Can Tho City currently manage 235 hotspot venues (coffee shops, gyms, parks and clubs) with 1,222 MSM regularly present. It is estimated that each venue will have 5 eligible MSM respond to the interview, so we randomly selected 46 venues out of the total 235. An electronic self-administered questionnaire link

(Google Forms) was sent via message to the MSM. The research content consists of 3 parts:

Part 1: Demographic characteristics: age, occupation, economic status, marital status; psychosocial characteristics of MSM.

Part 2: Status of sexual behaviors involving the use of stimulants; Substances Used in Chemsex: Opioid-type drugs (heroin, morphine, codeine, etc.); Cannabis (weed, marijuana, grass); Stimulants (crystal meth, ecstasy, amphetamine, methamphetamine, bath salts); Hallucinogens (psychedelic mushrooms, ketamine, etc.); Sedatives (benzodiazepines like Valium, GHB/GBL); Sexual enhancement drugs (Viagra, Cialis); Poppers.

Part 3: In-depth interviews with 7 MSM who engage in chemsex and were reached by the research team.

At the end of the survey, 227 valid responses were collected. The respondents were completely anonymous.

Statistical analysis

Quantitative data processing and analysis: Data entry was done using Excel software. Data processing was performed using SPSS version 20.0 software. The information is presented in the form of frequency (n) and percentage (%). The factors associated with the percentage of substance use during sexual intercourse among MSM were determined using the Chi-square test (2), odds ratio (OR), with a statistical significance level of $p < 0.05$ (95% CI).

Qualitative data processing and analysis: The in-depth interview recordings will be transcribed into Word documents, and the information will be coded. Qualitative data will be summarized and analyzed thematically to complement and clarify the results of the quantitative data.

Managing data bias

To control bias when surveying chemsex behaviors among MSM, we designed a clear and easy-to-understand self-administered questionnaire while ensuring anonymity. In-depth interviews were conducted by peer groups to make participants feel comfortable sharing. The questionnaire was pre-tested before the official survey, and appropriate statistical analyses were applied to ensure the reliability and validity of the data.

Ethics approval of research

The participants voluntarily took part in the study, were clearly explained the purpose of the research, and

had the right to withdraw at any time. The collected data will be used solely for research purposes, and all personal information of the participants will be kept confidential. For the in-depth interviews, the interviewee information was coded, without recording names, and the interviews were conducted by counselors in a private room to ensure anonymity. In addition, this study was approved by the Scientific Research Appraisal Council of the Can Tho City Centers for Disease Control (Decision No. 4103/QĐ-SYT December 6, 2022).

Results

A total of 227 MSM participated in the electronic survey interview. The average age was 23.4 years, with the youngest being 17 and the oldest 42 years old. The age group of 20 to 29 years old accounted for the highest proportion at 74.5%. The majority of the participants had a high level of education, with 85% having completed at least secondary, vocational, or university-level studies. In terms of occupation, students made up the largest group at 60.8%, followed by office workers at 19.4%, and manual laborers and self-employed individuals at 11%. There were 48 participants who were married to women. Regarding income, 37.9% had no income, while 52% of respondents had a monthly income of over VND10 million (equivalent to approximately \$395 USD, considered a high income level in Vietnam).

Out of a total of 227 MSM respondents, 96 individuals, or 42.3%, reported using stimulants or aphrodisiacs immediately before or during sexual intercourse. Among these, the highest usage was for poppers, which accounted for 94.8% of cases, followed by erectile dysfunction medications at 15.6%. Crystal meth, ecstasy, and similar substances account for 8.3%, hallucinogens for 2.1%, opioids for 2.1%, cannabis being the lowest at 0.1%. Poppers are popular and not banned in Vietnam, commonly used by MSM. In-depth interviews reveal the following: IDI MSM-4 stated, “*When having sex with my partner, I only use poppers, and I don’t use any other substances*”, while IDI MSM-2 said, “*Whenever I have sex with a partner, I always use poppers; I almost always have them, and I don’t care about any other substances*”. Additionally, 11.5% of MSM reported using two or more stimulant substances during sexual encounters, while 88.5% used only one. Most MSM use substances during their sexual activities, with some consuming them 2-3 times a week or more. For instance, IDI MSM-5 mentioned,

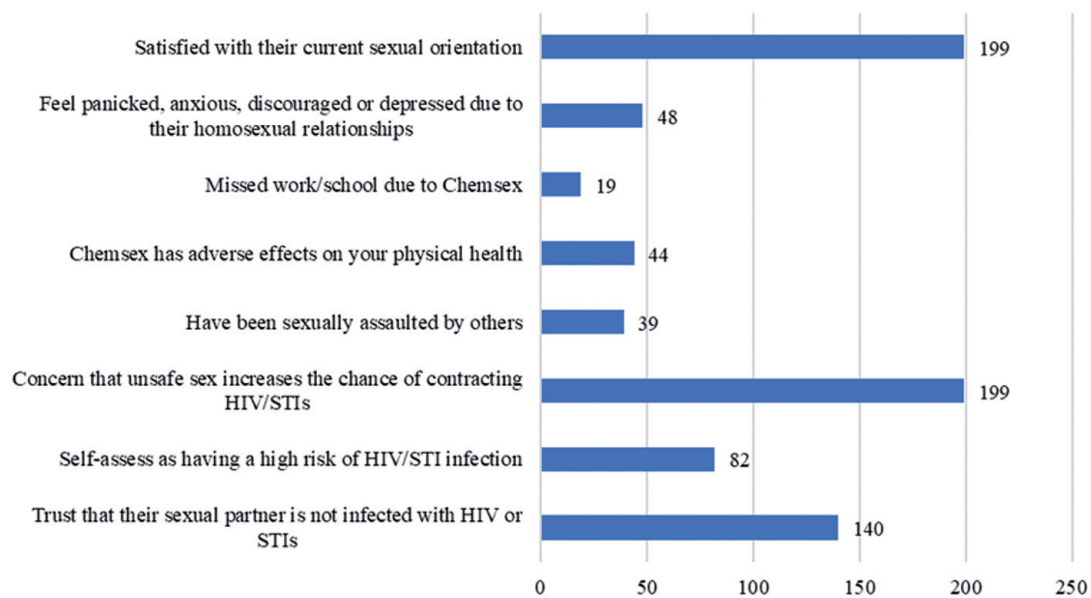


Figure 1 - Psychosocial Characteristics of MSM (n = 227)

“Every time I have sex, I use a substance, about 2 to 3 times a week, and sometimes even more”, and IDI MSM-1 noted, “I have sex frequently, and I always use poppers”.

The majority of MSM are satisfied with their current sexual orientation (87.8%); however, 21.1% of participants have experienced feelings of panic, anxiety, or depression due to their same-sex relationships. Regarding the impact of chemsex on their lives, 19.8% reported missing work or school, and 45.8% faced negative health effects. Among the 227 participants, 199 expressed concern that unsafe sex could increase the risk of HIV and STIs, while 17.2% reported having been sexually assaulted (Figure 1). Additionally, 31.6% of participants perceived themselves at risk for HIV/STIs, while 61.7% believed their partners were not HIV-positive. Participants indicated that once they engage in activities, they often trust their partners and do not question their HIV status: *“If I ask my partner, they might refuse to have sex, and I trust my partner, so I don’t ask about their HIV/STI status”* (IDI MSM-3). They also believe that chemsex currently does not affect their health, but they remain concerned about potential long-term health consequences: *“When having sex while using substances, I feel a bit of a headache and fatigue, but I don’t know what the long-term effects will be”* (IDI MSM-4). Another participant mentioned, *“After using substances, I feel a bit tired and have a headache for a while, but then it goes away. I’ve looked into the long-*

term harms, which may include confusion, but I’m not too worried because I don’t overuse” (IDI MSM-6).

Participants engaging in chemsex activities obtain substances primarily through mobile apps (60.4%), online websites and social media (47.9%), and peers or contacts (21.9%). MSM find it very easy to access and purchase substances. One participant noted, *“When you want to buy quality products, just search on the website; they sell a lot, and it’s very easy to buy”* (IDI MSM-3). Another added, *“It’s very easy to find and buy substances. It’s exciting; just go to the BlueD app; Grindr has a lot, with all kinds to choose from”* (IDI MSM-6). Regarding the motivations for participating in chemsex, the majority (68.8%) reported wanting to enhance sexual desire and pleasure, 37.5% used substances to alleviate pain during intercourse, and 18.8% aimed to prolong sexual activity. In terms of chemsex practices, 50.0% of participants indicated they only sometimes use condoms during chemsex, while 14.6% reported never using them (Table 1). One MSM explained their reason for not using condoms: *“I usually don’t use condoms, or I only use them at the beginning and then take them off because of the stimulating effects of poppers”* (IDI MSM-7).

Sociodemographic factors such as age, education level, marital status with women, and income level were not associated with the rate of chemsex among MSM ($p > 0.05$). The only significant factor was that office workers had a 2.1 times higher percentage of chemsex compared to students, manual laborers, and

Table 1 - Modes of obtaining substances, reasons and use of condoms in chemsex among MSM

Variables	Frequency (n = 96)	Percentage
Modes of Obtaining Substances for Chemsex		
Mobile Apps	58	60.4
Online Websites, Social Media	46	47.9
Peers and Contacts	21	21.9
Reasons for Participating in Chemsex		
Enhanced sexual pleasure and sensation	66	68.8
Prolonged sexual experiences	18	18.8
Pain Reduction During Intercourse	36	37.5
Increased confidence and disinhibition	17	17.7
Partner/Client Requests	13	13.5
Use of Condoms During Chemsex		
Always	34	35.4
Occasionally	48	50.0
Never	14	14.6

freelancers (OR = 2.1, 95%CI 1.1 – 4.3, $p = 0.030$) (Table 2).

Participants with a higher number of sexual partners exhibited a greater percentage of chemsex. Those with 2-5 partners had a 4-fold increase (OR = 4.0, 95% CI: 2.2 – 7.2, $p < 0.0001$), while those with more than 5 partners had a 7.2-fold increase (OR = 7.2, 95% CI: 2.6 – 20.1, $p < 0.0001$) compared to

individuals with only 1 partner. MSM who engaged in group sex had a 5.2 times higher percentage of chemsex (OR = 5.2, 95% CI: 2.4 – 11.4, $p < 0.0001$). Those who participated in sex work or exchanged sex for money had a 5 times higher percentage of chemsex compared to those who did not (OR = 5.0, 95% CI: 1.3 – 18.6, $p = 0.017$). Participants who sometimes or never used condoms during sex exhibited over a 50%

Table 2 - The social and demographic aspects related to chemsex among MSM

Socio-demographic	Total (n = 227)	Chemsex (n = 96)		Non-chemsex (n = 131)		OR	95% CI for OR	p-value
		n	%	n	%			
Age group (years)								
17 -19	34	10	29.4	24	70.6	1		
20 - 29	169	75	44.4	94	55.6	1.9	0.8 – 4.3	0.110
Over 30	24	11	45.8	13	54.2	2.0	0.7 – 6.0	0.203
Mean \pm SD	23.4 \pm 4.4	33.9 \pm 4.1		23 \pm 4.6		1.1	1.0 – 1.1	0.115
Education								
≤ 12 years	34	14	41.2	20	58.8	1		
< 12 years	193	82	42.5	111	57.5	1.1	0.5 – 2.2	0.887
Occupation								
Student, Worker, Freelance	183	71	38.8	112	61.2	1		
Officials	44	25	56.8	19	43.2	2.1	1.1 – 4.3	0.030
Married to a woman								
No	179	74	41.3	105	58.7	1		
Yes	48	22	45.8	26	54.2	1.2	0.6 – 2.3	0.576
Income								
Under VND10 million	109	49	45.0	60	55.0	1		
Over VND10 million (\$395)	118	47	39.8	71	60.2	0.8	0.5 – 1.4	0.435

n: Frequency, %: row %

Table 3 - The Behaviors Associated with Chemsex Among MSM in the Past 12 Months

Behaviors	Total (n = 227)	Chemsex (n = 96)		Non-chemsex (n = 131)		OR	95% CI for OR	p-value
		n	%	n	%			
Number of Sexual Partners								
1	120	31	32.3	89	67.9	1		
2 - 5	86	50	52.1	36	27.5	4.0	2.2 – 7.2	< 0.0001
Over 5	21	15	15.6	6	15.6	7.2	2.6 – 20.1	< 0.0001
Groupsex								
No	188	67	35.6	121	64.4	1		
Yes	39	29	74.4	10	25.6	5.2	2.4 – 11.4	< 0.0001
Prostitution								
No	214	86	40.2	128	59.8	1		
Yes	13	10	76.9	3	23.1	5.0	1.3 – 18.6	0.017
Condom Use								
Always	128	43	33.6	85	66.4	1		
Occasionally, Never	99	53	53.5	46	46.5	1.5	1.2 – 2.0	0.003
Substance Use								
No	160	60	37.5	100	62.5	1		
Yes	67	36	53.7	31	46.3	1.9	1.1 – 3.5	0.024

n: Frequency, %: row %

higher percentage of chemsex behaviors compared to those who consistently used condoms (OR = 1.5, 95% CI: 1.2 – 2.0, $p = 0.003$). Additionally, individuals who regularly used substances had a 1.9 times higher percentage of chemsex than those who did not use (OR = 1.9, 95% CI: 1.1 – 3.5, $p = 0.024$) (Table 3).

Discussion

Chemsex is a behavior that increases the risk of HIV and STI transmission. Chemsex has been discussed for a long time globally. However, in Vietnam, it is currently only prevalent within the LGBT community. The results of our research show that on average, 1 out of every 2 MSM engages in chemsex. This percentage is comparable to studies conducted in the UK (15), where 41% of MSM reported using sex-stimulating drugs; in Western countries, the percentage is around 40% (16); and in a US online survey, it was 65.1% (17). In Western countries, the percentages of chemsex tend to be higher than in the East, such as 9.0% in Malaysia (18), and 50.8% in China (19). Additionally, the age group of 25 and above has a higher prevalence of chemsex compared to younger age groups. This is likely because individuals aged 25 and above are mostly in the working population, have higher incomes, and can more easily afford and use stimulant

substances during sexual encounters.

The percentage of chemsex among the MSM group has been continuously increasing in Can Tho City. In 2021, it was 20.3%, in 2022 it was 24.3% (20) and in 2023 it reached 42.3%. The MSM group in Vietnam has seen a rapid increase in the percentages of existing HIV/STI infections and new HIV infections in recent years, making them a key target population for HIV/AIDS prevention and control programs in Vietnam. The main reason for the rapid increase in HIV infection rates among the MSM group is due to unsafe sexual practices, and a significant number of individuals are involved in the use of stimulant substances during sexual encounters, with the desire to enhance intimacy, performance, and sexual function.

In Vietnam, substances such as crystal meth, ecstasy, hallucinogens, opioids, and cannabis are prohibited for purchase, storage, and use, except in strictly controlled medical circumstances. In contrast, poppers are not banned in Vietnam and can be easily purchased at stores, websites, and online shopping applications. As a result, poppers are the most commonly used substance among the MSM group, with usage rates of 94.8% in Can Tho City and 85.4% in Ho Chi Minh City (21). In Germany, 27% of participants reported using stimulant substances, including methamphetamine, mephedrone, GHB/GBL, and ketamine in the context of sexual activity in

the past 12 months (8). The use of stimulant substances during sexual encounters is considered a major challenge in HIV control activities targeting the MSM population globally. Individuals who use addictive substances and participate in chemsex parties often engage in extended sessions, neglecting to eat or sleep, which can be detrimental to their health. Substances such as methamphetamine, GHB, and poppers have been associated with an increased risk of HIV and other STI transmission (22,23).

MSM often have multiple sexual partners, which can lead to increased risks of engaging in chemsex behaviors. MSM are more likely to accept having multiple sexual partners and participating in group sex, often congregating in gay bars, massage parlors, and LGBTQ-friendly hotels. This finding is similar to a study in the UK (2019) (15), which found that MSM with multiple sexual partners, who do not use condoms, report higher levels of sexual satisfaction. In-depth interviews with MSM who have engaged in chemsex also revealed that group sexual behavior directly impacts the use of stimulant substances. In Vietnam (3), individuals participating in chemsex often have an average of 5 sexual partners per encounter, and the sexual activity is frequently unprotected, a higher number compared to a study in Australia, which found an average of 3 partners per group sex encounter (24). This further reinforces the notion that inconsistent condom use among substance-using individuals, combined with having multiple sexual partners or engaging in group sex, is a key factor contributing to the alarming increase in HIV transmission rates among the MSM population. In southern Vietnam, sexual intercourse is the primary mode of HIV transmission (95.1%) (25). In Vietnam, awareness of risky behaviors during chemsex among MSM is low, potentially increasing the risk of transmitting STIs and HIV. Pressure related to same-sex romantic relationships makes it more challenging to use protective measures, such as condoms. The lack of adequate information and appropriate sex education, combined with stigma and discrimination, prevents many MSM from accessing reliable health information. Additionally, the availability of free HIV treatment and prevention medications is limited in some areas, which may increase the risk of HIV transmission. There may also be negative impacts on mental health. To address these issues, health policymakers should implement targeted healthcare support for this population.

Limitations of the study: The research did not successfully engage a significant number of

individuals from specific subgroups, including closeted MSM, older adult MSM, and MSM who work in public employment. This limitation may impact the comprehensiveness of the findings and their applicability to these underrepresented populations.

Conclusions

Chemsex among the MSM group is on the rise, and this likely leads to increased rates of HIV and STI transmission, as well as long-term health consequences. There is a need for support measures to reach MSM, such as providing comprehensive information and access to reproductive and sexual health services. Additionally, healthcare workers and the community need to reduce stigma, discrimination, and narrow-minded attitudes towards individuals who use substances during sexual activity, as these barriers can prevent them from seeking harm reduction information and professional assistance for the issues they face.

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Availability of data and material: The data sets during and /or analysed during the current study are available from the corresponding author on reasonable request.

Riassunto

Chemsex: pericoli emergenti di fronte all'esperienza MSM - Uno studio trasversale

Introduzione. La tendenza dell'omosessualità maschile è sempre più in aumento. Anche tra gli uomini che fanno sesso con uomini sta diventando sempre più diffusa la preferenza per il chemsex (uso di droghe ricreative durante i rapporti sessuali), che aumenta l'eccitazione sessuale durante il rapporto. Ciò, a sua volta, aumenta il rischio di trasmissione di malattie sessualmente trasmissibili, compreso l'HIV/AIDS.

Obiettivo. Valutare la prevalenza del chemsex nelle relazioni omosessuali e nei comportamenti correlati tra gli uomini che praticano sesso con altri uomini.

Soggetti e Metodi. Uno studio trasversale è stato condotto su 227 uomini che praticano sesso con altri uomini nella comunità della città di Can Tho, in Vietnam, da marzo a ottobre 2023.

Risultati. Il 42,3% degli uomini che praticano sesso con altri uomini utilizza il chemsex. La sostanza più comunemente usata nel chemsex è il popper (94,8%). Sei fattori sono associati al chemsex: (a) Uomini che lavorano e che praticano sesso con altri uomini (OR = 2,1, IC 95% 1,1 - 4,3, $p = 0,030$); (b) Avere più di 5 partner sessuali (OR = 7,2, IC 95% 2,6 - 20,1, $p < 0,0001$); (c) Essere impegnati in lavori legati all'attività sessuale o scambiare sesso con denaro (OR = 5,0, IC 95% 1,3 - 18,6, $p = 0,017$); (d) Partecipazione al sesso di gruppo (OR = 5,2, IC 95% 2,4 - 11,4, $p < 0,0001$); (e) Non usare mai il preservativo durante il sesso (OR = 1,5, IC 95% 1,2 - 2,0, $p = 0,003$); e (f) Utilizzo di droghe ricreative (OR = 1,9, IC 95% 1,1 - 3,5, $p = 0,024$). I fattori che influenzano il comportamento del chemsex includono un facile accesso agli stimolanti, la mancanza di comprensione dei danni del chemsex, la fiducia nei partner sessuali, il desiderio di aumentare il piacere sessuale e la riduzione del dolore durante i rapporti.

Conclusione. Il chemsex tra il gruppo degli uomini che praticano sesso con altri uomini è in aumento e questo probabilmente porta ad un aumento dei tassi di trasmissione dell'HIV e delle infezioni sessualmente trasmesse, nonché a conseguenze sulla salute a lungo termine. Gli operatori sanitari e la comunità devono ridurre la discriminazione e gli atteggiamenti di mentalità ristretta nei confronti delle persone che fanno uso di sostanze durante l'attività sessuale, poiché queste barriere possono impedire loro di cercare informazioni sulla riduzione del danno e di ricevere assistenza professionale per i problemi che devono affrontare.

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