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Substance use and sexual risk behaviour among HIV-infected men who have sex with men

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ABSTRACT

This article discusses the problems of substance use and sexual risk behaviour among HIV-infected men who have sex with men (MSM). Chemsex is defined as using drugs immediately before or during sexual contact to enable, enhance and/or prolong sexual experience. This practice is of concern because it is associated with increased risk of having multiple sexual partners, whose serostatus is unknown. Furthermore, intercourse combined with use of drugs is usually condomless and with higher rates of depression, anxiety, suicide and drug addiction. The rates of marijuana and recreational drugs use and alcohol consumption among HIV-infected individuals are also high and negatively impact each step of the HIV care continuum. People living with stigmatized identities may use substances during sexual intercourse to decrease painful emotions, relieve psychological suffering, and maintain emotional stability and control. Improved understanding of these practices is needed in order to reduce health harms. This literature review helps to highlight that an interdisciplinary concept is obligatory to enable the attainment of a healthy approach to sexual life and there is a need for mental health support which should be among the interventions offered to MSM engaging in chemsex.

KEY WORDS: men who have sex with men, HIV, substance use, chemsex.

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EPIDEMIOLOGY OF HIV/AIDS

According to the World Health Organization, since the beginning of the epidemic of HIV/AIDS, 84.2 million (64.0–113.0 million) people have been infected with the HIV virus and about 40.1 million (33.6–48.6 million) people have died of HIV/AIDS. At the end of 2021 about 38.4 million (33.9–43.8 million) people were living with HIV in the world (two thirds of them in the WHO African Region). There were an estimated 650 000 people who died from HIV-related diseases in 2021. About 1.5 million (1.1–2.0 million) people acquired HIV worldwide in 2021 [1].

HIV can be transmitted via body fluids from infected patients, such as blood, semen, vaginal secretions and breast milk. A HIV-positive mother can transmit HIV to her child during pregnancy, delivery and breastfeeding. Saliva, tears, urine and faeces, unless containing blood, are not infectious for this virus; hence people cannot become infected with HIV through ordinary day-to-day

contact (e.g., hugging, shaking hands, sharing personal objects). Behaviours and conditions that increase the risk of acquiring HIV include: having unprotected sexual contact (anal, vaginal or oral sex), multiple partners, engaging in use of alcohol and drugs, chemsex, sharing needles, syringes, or other drug injection equipment, having other sexually transmitted infections (e.g. syphilis, chlamydia, gonorrhoea), invasive procedures that involve unsterile cutting or piercing, unsafe blood transfusion [2, 3].

According to the Centers for Disease Control and Prevention, of the 34 800 estimated new HIV infections in the United States in 2019, 70% were among gay and bisexual men [4]. In 2020, 14 971 new HIV cases were reported in 29 countries of the European Union and the European Economic Area (EU/EEA); the countries with the highest rates were Malta (15.9 per 100 000), Latvia (13.5 per 100 000), Cyprus (11.8 per 100 000), and Estonia (10.8 per 100 000). The predominant mode of HIV

transmission reported in the EU/EEA was sex between men, accounting for 39% (5815) of all new HIV infections in 2020 and more than half (53%) of cases where the route of transmission was known. Sex between men accounted for more than 60% of new HIV infections in eight countries (Croatia, Cyprus, Iceland, Hungary, Netherlands, Slovakia, Poland, Spain) among those with a known mode of HIV transmission [5]. These statistics indicate that the main way of HIV transmission in the EU/EEA and in the United States is sex between men. Men who have sex with men (MSM) are a heterogeneous group; it refers to any man who has sex with a man, whether he identifies as homosexual, bisexual or heterosexual. Data show that MSM are more likely to engage in risky sexual behaviour than others [6]. Risky sexual behaviour is defined as a sexual activity that increases the probability of acquiring sexually transmitted infections such as HIV, gonorrhoea, syphilis, chlamydia, or herpes.

HIGH-RISK SEXUAL BEHAVIOUR: CHEMSEX

There is a growing concern about chemsex in the MSM group. Chemsex is defined as using crystal methamphetamine, mephedrone and/or γ -hydroxybutyrate/ γ -butyrolactone (GHB/GBL) immediately before or during sexual contact to enable, enhance and/or prolong sexual experience [7]. Also the use of new psychoactive substances with often unknown chemical composition and highly addictive potential has been observed among MSM in recent years [8]. Chemsex is associated with increased risk of having multiple sexual partners, whose serostatus is unknown; furthermore, intercourse combined with use of these drugs is usually condomless and with higher rates of depression, anxiety, suicide and drug addiction [9].

A study showed that 27% of MSM reported engaging in chemsex within the previous 12 months; half of them had taken two or more drugs during the last chemsex occasion and 23% of them reported that they/their partners had lost consciousness as a result of chemsex [6]. Glynn *et al.* also found that MSM who engaged in chemsex were more likely to have had more sexual partners, more partners for anal sex and to have had unprotected anal intercourse; they were also more likely to report having been treated for gonorrhoea over the past 12 months [6]. However Sewell *et al.* reported that chemsex and use of two individual chemsex drugs (mephedrone and GHB/GBL) significantly declined from 31.8% to 11% over time among participants [7]. Another study of HIV-positive MSM accessing nine HIV services in the United Kingdom, Spain, Greece and Italy indicated that 24% of participants self-reported chemsex in the past 12 months [10]. There were high rates of harms from chemsex across all studied countries; HIV-positive MSM reported negative impacts from chemsex on work (25.1%), friends/family (24.3%) and relationships

(28.3%) [10]. A systematic review showed that the prevalence of chemsex among MSM is high, with estimates of recent engagement ranging from 10% to 94% [11]. Bohn *et al.* described aspects of mental health among German MSM who engaged in chemsex and compared the results with a group of MSM who did not practise chemsex. They found significant differences for the mean scores of depression, somatization, and anxiety, as well as lifetime number of traumatic events experienced, which were all higher for the chemsex group. Moreover, MSM who engaged in chemsex reported significantly more incidents of violation of their sexual boundaries as well as a higher rate of HIV diagnoses, compared to those who did not use drugs before or during sexual contact [12]. The literature indicates that chemsex can increase the intensity and duration of a sexual experience; however, the perceived benefits of this practice among HIV-positive MSM have not yet been thoroughly assessed. People living with stigmatized identities (e.g., sexual orientation – men who has sex with men, HIV diagnosis, socioeconomic status) may also use substances during sexual intercourse to build intimacy or strengthen connections that they struggle to find elsewhere. Individuals also used substance to decrease painful emotions, relieve psychological suffering, and maintain emotional stability and control [13]. These findings suggest that a comprehensive, interdisciplinary approach is obligatory to enable the attainment of a healthy approach to sexual life and there is a need for mental health support which should be among the interventions offered to MSM engaging in chemsex.

RECREATIONAL DRUGS AND ALCOHOL CONSUMPTION

HIV-infected MSM are also more likely to use substances such as marijuana or recreational drugs (analgesics, depressants, stimulants, hallucinogens) or exhibit excessive alcohol consumption compared with MSM who are HIV-negative. The rate of marijuana and recreational drug use among HIV-infected individuals is high. Shiau *et al.* found that about three-quarters of HIV-infected people reported ever using marijuana, close to half of them reported ever using cocaine (57.6%), ever using an hallucinogen 49.2%, ever using an inhalant 42.7%, and ever using a non-medical psychotherapeutic 47.4% [14]. In addition, over 80% of HIV-infected individuals reported ever using illegal drugs compared to just under 50% of the HIV-negative people [14]. Another study indicated that approximately 50% of young HIV-infected MSM reported daily or weekly marijuana use [15]. Mor *et al.* found that 73.2% of HIV-infected MSM used recreational drugs or exhibited excessive alcohol consumption [16]. The characteristics of those participants indicated that they were younger, reported earlier sexual debut, were more likely to perform condomless anal sex with casual partners, had multiple sexual partners, were

more commonly involved in paid sex, used psychiatric medications and were more likely to be unsatisfied with their health status compared to those who did not use recreational drugs or consume alcohol excessively [16].

Excessive alcohol consumption includes binge, underage, heavy and pregnant drinking. Binge drinking for men is defined as 5 or more drinks consumed on one occasion. Heavy drinking for men is defined as 15 drinks or more per week. Underage drinking is defined as any alcohol use by those under age 21 [17]. Alcohol use can contribute to poor health outcomes among people living with HIV. Pytell *et al.* evaluated the prevalence of heavy alcohol use among 5046 HIV-infected people: 668 women, 978 men who have sex with women (MSW), and 3400 MSM and found that 21%, 31%, and 37% of them, respectively, reported excessive alcohol consumption. Prevalence of heavy alcohol use was higher among HIV-infected people who experience higher levels of stress, substance use, and stigma [18]. Alcohol consumption does not always predict condomless intercourse, but the acute effects of alcohol use (e.g., impaired judgment, altered cognition and increased sexual desire and confidence) may contribute to risky sexual behaviours [19]. Binge and heavy drinking are associated with high-risk behaviours in MSM, including unsafe sexual practices, e.g., unprotected intercourse (oral and anal sex), multiple partners, and having sexual contact with HIV-serodiscordant partners. The majority of HIV-infected MSM remain sexually active after HIV diagnosis, and data show that approximately 45% of HIV-positive MSM reported engaging in condomless sex at the last sexual contact [20]. The study showed that 67% of MSM reported binge drinking in the last year and it was independently associated with younger age, modest income, never accessing alcohol treatment, being born in the United States and reporting condomless insertive anal sex [19]. These results indicate that MSM with unhealthy alcohol use and who engage in heavy drinking are at significantly increased risk of HIV acquisition.

EFFECTS OF SUBSTANCE USE AND RISKY SEXUAL BEHAVIOUR ON HEALTH

Chemsex, recreational drug use and excessive alcohol consumption among HIV-infected MSM negatively impact each step of the HIV care continuum. The main goal of HIV treatment is to achieve viral suppression, which means the level of HIV RNA in the blood which is very low or undetectable so that the laboratory test cannot measure the amount of the virus. Studies have demonstrated that HIV-infected people reaching and maintaining viral suppression do not transmit the virus to HIV-negative counterparts through unprotected sexual contact, leading to the “Undetectable = Untransmittable (U = U)” prevention campaign [21, 22]. Rodger *et al.* evaluated the risk of HIV transmission through anal intercourse when HIV viral load was suppressed, among

782 serodifferent gay couples followed for almost 1600 eligible couple-years of follow-up, which included more than 76 000 reports of unprotected sexual contact; they found zero cases of within-couple HIV transmission [21]. It is worth underlining that to maintain an undetectable level of HIV RNA, HIV-infected patients must stay engaged in the HIV care continuum.

Data show that HIV-infected MSM who use substances experience higher frequency of treatment nonadherence, which may lead to viral replication [23]. Mor *et al.* found that HIV-infected MSM who used recreational drugs or excessive alcohol reported a lower CD4 count and higher level of HIV RNA than those who did not use substances [16]. Another study also revealed an association between substance use and the loss of durable viral suppression, greater time spent with a viral load > 1,500 copies/ml after antiretroviral treatment initiation, increased risk of viral rebound and increased mortality. Moreover, substance use in combination with other common comorbidities, including viral hepatitis coinfection (hepatitis B virus – HBV, hepatitis C virus – HCV), can hasten liver fibrosis progression in HIV-infected patients. Finally, it can complicate the management of chronic diseases (e.g., diabetes mellitus, hypertension) and mental health disorders, and it increases the risk of pneumonia, osteoporosis, a number of cancers (e.g., liver cancer), and tuberculosis [24].

HIV-infected MSM who are engaging in substance use are at increased risk for acquiring and transmitting sexually transmitted infections (STIs) through blood-borne exposure and sexual activity. A study showed that MSM who reported recreational drug use were more likely to practise risky sexual behaviours and were at higher probability of syphilis infection than their counterparts [25]. Syphilis among HIV-infected MSM is a public health concern. Tsuboi *et al.* estimated that the global pooled prevalence of syphilis among MSM from 2000 to 2020 was unacceptably high, 7.5%, and ranged from 1.9% in Australia and New Zealand to 10.6% in Latin America and the Caribbean [26]. Edwards *et al.* conducted a cross-sectional study among HIV-infected MSM and found that the prevalence of syphilis was 28% (74/264), and 89.2% (66/74) of these infections were asymptomatic. Moreover, analysis showed that those individuals who engaged in intercourse with anonymous partners, those with a previous diagnosis of syphilis, those who used marijuana in the last 12 months and those who consumed more than 6 drinks of alcohol in one sitting multiple times were more likely to be diagnosed with syphilis [27]. A large analysis using data from 16 065 United Kingdom-based respondents to the European MSM Internet Survey showed that MSM who reported using methamphetamines or gamma-hydroxybutyrate (GHB) during the previous year were more likely to have gonorrhoea infection compared to counterparts who did not use the substance [28]. It is worth underlining that

antimicrobial resistance of *Neisseria gonorrhoeae* has increased rapidly in recent years and has significantly complicated the ability of providers to treat gonorrhoea successfully in some regions. Untreated infection caused by the bacteria *N. gonorrhoeae* can lead to serious complications in both women and men. In men, gonorrhoea may lead to epididymitis, infertility and disseminated gonococcal infection (arthritis, tenosynovitis, and/or dermatitis) [29]. Recreational drug use was also a risk factor for chlamydia diagnosis. Data show that STI incidence among HIV-infected MSM should be closely monitored, especially regarding emergence of resistant bacteria.

TOBACCO USE

Compared to the general population, the rate of tobacco use among HIV-infected individuals is higher, especially among specific subgroups, including those who use alcohol and/or other substances, those who have mental health problems, and among individuals with lower socioeconomic status [24]. Tobacco smoking is associated with a greater risk for lung cancer and other smoking-related cancers, cardiovascular disease, and pulmonary disease. Santos *et al.* evaluated the prevalence of cigarette and e-cigarette smoking among MSM and they found a high rate of smoking, particularly among HIV-positive MSM [30]. This study indicated that 41% of MSM smoked overall, while the prevalence of smoking was 47% among HIV-infected MSM; they also found that MSM who use tobacco were more likely to be racial and ethnic minorities, have lower socioeconomic status, and report more alcohol and substance use [30]. These results underline the significant health disparities that persist among MSM subgroups.

INTERVENTIONS TO REDUCE HEALTH HARMS

Physicians should routinely ask HIV-infected MSM about their sexual behaviours and symptoms indicated for common STIs and provide education and counselling regarding safer sex. Compared with other areas, such as promoting condom use, STI screening, and alcohol and drug abuse treatment programmes, there are limited data about the effectiveness of interventions or health education programmes which aim to reduce the engagement in chemsex. There is a need for holistic centres that specialise in advice, prophylaxis, treatment and mental health support tailored to HIV-infected MSM who engage in risky sexual behaviour.

LIMITATIONS

The literature included in this review provides important knowledge about substance use and risky sexual behaviour among MSM and helps to raise health care providers' awareness of these practices, but the limitations of these data also need to be noted. There are currently limited data about the prevalence of chemsex among MSM at national and international levels. The present

review is also limited by the small number of studies that have estimated the mental health of MSM who use drugs for sexual purposes. Therefore, the results of the analysed studies should not be generalized to the whole HIV-infected MSM community.

CONCLUSIONS

Our paper highlights problems of the substance use and risk sexual behaviour among HIV-infected MSM. Improved understanding of these practices is needed in order to reduce health harms. Data provide further evidence of the benefits of asking HIV-infected MSM about substance use (recreational drugs and/or excessive alcohol use) and sexual risk behaviour (chemsex, condomless intercourse) during consultations and tailoring interventions such as more frequent STI screening, encouraging use of condoms, promoting safer sex, substance abuse counselling and mental health support.

DISCLOSURE

The authors report no conflict of interest.

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AUTHORS' CONTRIBUTIONS

MB and MI prepared the concept of the paper. MB prepared the first draft of the article. Both authors were involved in developing the concept of the article, researching the literature, and contributed to the final version of the publication.