

Consumption of psychoactive drugs in a sexual context among gay men as a risk factor for HIV/AIDS transmission
*Consumo de psicofármacos en contexto sexual entre hombres homosexuales como factor de riesgo de transmisión del VIH/SIDA**Consumo de drogas psicoativas em contexto sexual entre homens gays como fator de risco para transmissão de HIV/Aids***Roni Robson Silva¹**

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5602.20200057](https://dx.doi.org/10.5935/2675-5602.20200057)**Corresponding author:**

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Armada de Oliveira**Submission:** 09-18-2020**Approval:** 10-25-2020**Abstract**

The aim was to search in the scientific literature what has been produced on the subject and to analyze the impacts of this sexual practice on the physical and mental health of its supporters, as well as its impacts on public health. This is an integrative literature review study, using the PRISMA model, based on two databases (PUBMED, and SciELO). 165 articles were found at PUBMED and no study at SciELO. After the eligibility criteria, 10 studies were included as the final sample of this review. The findings demonstrate that those who practice chemical sex are at significant risk to physical and mental health. The results demonstrate the need to promote support services from the contraction of chemical sex.

Descriptors: Risk Behavior; Anal Intercourse; Sexually Transmitted Disease; Psychoactive Recreational Drugs; Depressive Disorder.**Resumen**

El objetivo fue buscar en la literatura científica lo que se ha producido sobre el tema y analizar los impactos de esta práctica sexual en la salud física y mental de sus partidarios, así como sus impactos en la salud pública. Se trata de un estudio de revisión integradora de la literatura, utilizando el modelo PRISMA, basado en dos bases de datos (PUBMED y SciELO). Se encontraron 165 artículos en PUBMED y ningún estudio en SciELO. Después de los criterios de elegibilidad, se incluyeron 10 estudios como muestra final de esta revisión. Los hallazgos demuestran que quienes practican el sexo químico corren un riesgo significativo para la salud física y mental. Los resultados demuestran la necesidad de promover servicios de apoyo a partir de la contracción del sexo químico.

Descriptorios: Conducta de Riesgo; Coito Anal; Enfermedad de Transmisión Sexual; Drogas Recreativas Psicoactivas; Trastorno Depresivo.**Resumo**

Objetivou-se buscar na literatura científica o que vem sendo produzido sobre o tema e analisar os impactos desta prática sexual da saúde física e mental dos seus adeptos, bem como seus impactos na saúde pública. Trata-se de um estudo de revisão integrativa da literatura, no modelo PRISMA, realizada a partir de duas bases de dados (PUBMED, e SciELO). Foram encontrados 165 artigos na PUBMED e nenhum estudo na SciELO. Após os critérios de elegibilidade, foram incluídos 10 estudos como amostra final desta revisão. As descobertas demonstram que aqueles que praticam sexo químico estão em risco significativo à saúde física e mental. Os resultados demonstram a necessidade de promoção dos serviços de suporte provenientes da contração do sexo químico.

Descriptorios: Comportamento de Risco; Coito Anal; Doença Sexualmente Transmissível; Drogas Recreativas Psicoativas; Transtorno Depressivo.

Introduction

In ancient and indigenous civilizations, plants, such as opium, coca, and cannabis, were widely used for religious rituals, treating spiritual illnesses, hunting, and alleviating hunger. Psychotropic substances have been studied by science throughout history, with the improvement of chemistry in the nineteenth century, scientists were able to isolate numerous active principles enabling the creation of new drugs, such as heroin, morphine, and cocaine itself. Psychoactive substances act on the brain in a variety of ways and can change behavior, mood, and cognition quickly, putting the individual on an exaggerated alert state, causing euphoria and well-being. Several drugs appeared in the perspective of therapeutic use, ecstasy methylenedioxymethamphetamine (MDMA) appeared as a moderator of appetite, being later used as a facilitator in therapeutic and opioid processes, such as morphine, used as an anesthetic, but also in a recreational way, due to effects of analgesia^{1,3}.

The 2018 United Nations Office on Drugs and Crime (UNODC) World Drug Report 2018 states that in 2016 around 275 million people worldwide had used drugs at least once a year (from 204 to 346 million), corresponding to 5.6% of the world population between 15 and 64 years (range: 4.2 to 7.1 percent), or approximately 1 in 18 people. About 31 million people who use drugs suffer from drug-related disorders, which means that their use is so harmful that it needs treatment. Approximately 450,000 people died because of drug use in 2015, of which 167,750 were directly associated with drug use, mainly overdoses. The remainder was indirectly attributed to drug use and included deaths related to HIV and hepatitis C acquired through injection practices⁴⁻⁶. Cocaine and methamphetamine markets are extending beyond their usual regions and, while online drug trafficking, using the darknet network, continues to represent only a fraction of drug trafficking. Certain psychoactive substances have been associated with risk behaviors for the occurrence of sexually transmitted infections (STIs) including mephedrone, crystal methamphetamine and gamma hydroxybutyrate (GHB) Gamma butyrolactone (GBL), Cocaine^{5,7}.

The consequences of this practice, normally without protection, generate serious impacts on public health worldwide, in addition to the risks of infection by STIs, there is the risk of chemical dependency and problems associated with mental disorders, such as anxiety, psychosis and even suicidal tendencies or attacks panic. Although the use of alcohol, drugs and smoking is not considered a direct cause, it is believed that these factors may represent a pattern of behavior. The term "Chemsex" or chemical sex appeared in London in the 2000s to describe drug use before or during sexual events designed to facilitate, enhance, prolong, and sustain the experience. The psychoactive substances most associated with chemsex are crystal meth, GHB / GBL, ecstasy, MDMA, mephedrone, cocaine and ketamine. The concept of "chemsex" is socially constructed and, as such, is subject to the preferences of the participants and the popularity and availability of drugs^{4,8-11}.

In Brazil, the II Household Survey on the Use of Psychoactive Drugs of 2005, the most recent document available that evaluates on a large scale the magnitude of the issue at the national level, with 22.8% of the participants declaring that they had already used some drug by the at least once in your life. The III National Survey on Drug Use by the Brazilian Population (III LNUD) at the center of Fiocruz's institutional mission in 2017 states that psychoactive substances were associated with risky behavior for HIV infection, not only because of the possibility of sharing syringes contaminated by injecting drug use, but also by incapacitating the user to identify and avoid risky circumstances. These include, for example: the practice of unsafe sex, multiple partners, sexual violence or / and exchange of sex for drugs. Specifically, in relation to cocaine, there is a consensus in the literature regarding the increased risk of HIV infection^{3,4,8,12,13}.

In the Brazilian Ministry of Health's 2019 Epidemiological Bulletin on HIV and AIDS, it was found that 51.3% of cases were due to homosexual or bisexual exposure and 31.4% were heterosexual, and 2.0% were among injecting drug users (UDI). In the UK, gay men account for more than half of all new cases of HIV infection, which shows that they are disproportionately affected by the disease compared to the general population. The advent of HIV antiretroviral therapy and pre-exposure prophylaxis (PrEP) provides protection, reducing the risk of subsequent transmission and acquisition. In addition to biological risk, there are growing concerns that risky behavior may be associated with psychosocial risks. The present study is relevant due to the growing evidence that indicates that risky behavior is potentially associated with the mental disorder of gay men who engage in this activity. This highlights that, potentially, there are multiple biopsychosocial risk factors for gay men who engage in this risky practice. It is also important to note that this availability and proliferation of drugs occurred at a specific time in history, which can contribute to the vulnerability of a population; a historic period that included the HIV / AIDS epidemic, dramatic changes in attitudes and associated legalities^{8,11,13-25}. The aim of this study was to search the world scientific literature for what has been produced on this theme and to analyze the association of psychoactive drug consumption as a risk factor to the HIV / AIDS syndemic.

Methodology

It is an integrative literature review study, which is adequate to seek consensus on a specific theme and synthesize the knowledge of a given area through the formulation of a question, identification, selection and critical evaluation of scientific studies contained in databases electronic data. This integrative review of the national literature was developed according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The strategy used comprised systematic searches in the literature in the following databases: National Library of Medicine (PUBMED) and Scientific Electronic Library Online (SciELO). To identify

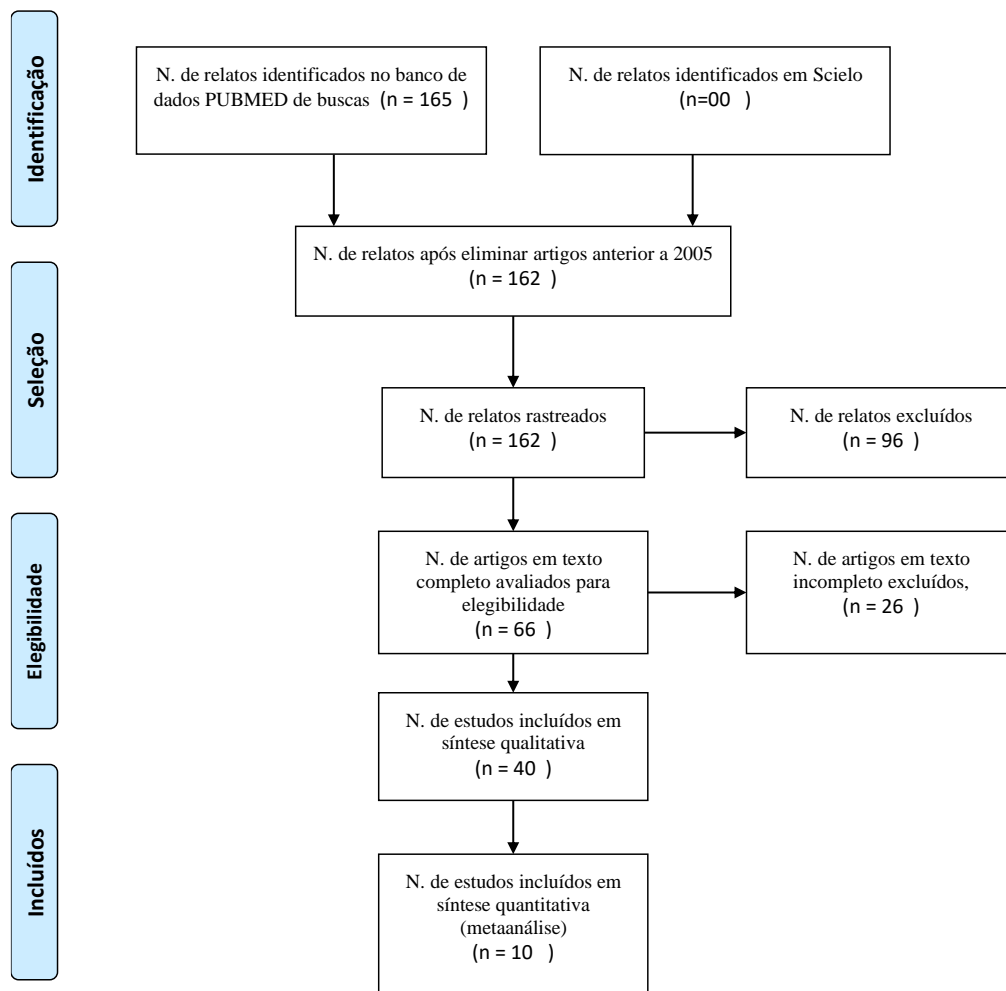


relevant studies, the expression Chemsex was used, keywords included in the resources of Health Sciences Descriptors (DeCS) and some Free Terms that were not found in DeCS or in Medical Subject Headings (MeSH): “Chemsex”, “recreational drugs”, “sexual risk behavior”, “physical health”, “mental health” and “public health”. The combinations between the keywords were performed in each database using the Boolean operators “OR”, “AND” and “NOT AND”.

The inclusion criteria for the studies selected for this review were: publications made available in full in Portuguese, English and Spanish published between 2005 to 2020; primary articles that portrayed the impact of sexual practices enhanced using drugs on physical and mental health and their possible impacts on public health. 165

articles were identified, of which 10 became eligible for this review presented in (Figure 1) by the PRISMA flowchart. The exclusion criteria consisted of absence of an abstract in the online search platforms; repeated articles in the databases; and articles that did not directly address the theme of this review as well as letters to the editor. A form consisting of article identification was elaborated: year and publication period; characterization of studies; authors' titles; research subjects, and synthesis of the results. To select the articles, the titles and abstracts of the selected publications were first read to refine the sample using inclusion and exclusion criteria. The bibliographic references of the articles found were reviewed to identify other potential studies. After that, the selected articles were read in full, so that the predefined eligibility criteria of the study were applied.

Figure 1. Selection of studies for systematic literature review. Rio de Janeiro, RJ, Brazil, 2020



Results

The search in the databases identified 66 relevant articles for reading the title and abstracts. After reading titles and abstracts, 40 studies potentially capable of answering

the clinical question of this review was selected. After analyzing the studies according to the inclusion criteria, 10 studies were selected as the final sample of this review (Figure 1) through the PRISMA flowchart. Ten studies, involving a total of 11,470 participants, were included in this



systematic review (Table 1) and analyzed the impact of psychoactive substance use during sexual practice on the

physical and mental health of its supporters and its possible impacts on public health.

Table 1. Data extracted from articles selected for review. Rio de Janeiro, RJ, Brazil, 2020

Title / year	Authors	Journals	Objective	Outcomes (acquired diseases and / or physical and / or mental signs and / or symptoms)
Recreational drug and excessive alcohol use among HIV-infected men who have sex with men in Central Israel, 2019.	Mor Z. et al.	BMC Public Health	Describe the prevalence of recreational drug and alcohol abuse among men who have sex with men infected with HIV and compare those who used it with those who did not.	Of the 276 HIV-infected men, 202 (73.2%) used recreational drugs and / or alcohol in excess.
Recreational drugs and STI diagnoses among patients attending an STI/HIV reference clinic in Rome, Italy, 2019.	Latini A. et al.	Sexually Transmitted Infections	To evaluate the frequency of recreational drug use and its association with sexual behavior and recent STI diagnoses among patients seeking specialized medical care for an STI or HIV infection.	703 patients between men and women participated, and men who have sex with men represent 50.4% of the total and 73.2% of HIV positive patients. Most frequent STIs among men were syphilis (14.1%), gonorrhea (4.8%), urethritis (3.4%) and hepatitis A (6.5%). Recreational drug use was significantly more frequent among men who have relationships with other men (39.8%) than women (17.6%) and men who have no relationship with other men (22.7%). Cocaine (13.3%) and poppers (13.0%) were the most used sexual drugs.
Sexualized Drug Use (Chemsex) Is Associated with High-Risk Sexual Behaviors and Sexually Transmitted Infections in HIV-Positive Men Who Have Sex with Men: Data from the U-SEX GESIDA 9416 Study., 2018.	González-Baeza A. et al.	AIDS Patient Care and STDs	Calculate the prevalence of sexualized drug use and associated factors in a sample of HIV positive men who have sex with men in Spain.	The study showed 742 men who have sex with men, 60% of whom had unprotected sex, 62% were diagnosed with an STI, and 216 (29.1%) reported recent sexualized drug use. In the multivariate analysis, patients who were involved in the use of sexualized drugs were more likely to have high-risk sexual behaviors and a diagnosis of STI than participants who were not involved.
Low levels of chemsex among men who have sex with men, but high levels of risk among men who engage in chemsex: Analysis of a cross-sectional online survey across four countries, 2018.	Frankis J. et al.	Sexual Health	Establish the prevalence of drug use by chemical sex among men who have sex with men and analyze the extent to which these drugs are used in a sexual context, as well as their associated behaviors and circumstances of use.	2328 men who have sex with men recruited via homosexual social media in Scotland, Wales, Northern Ireland, and the Republic of Ireland participated in the study. Of these, 48.8% reported the use of illicit drugs. 72.9% used sexualized drugs

Chemsex among Men Who Have Sex with Men: A Sexualized Drug Use Survey among Clients of the Sexually Transmitted Infection Outpatient Clinic and Users of a Gay Dating App in Amsterdam, the Netherlands., 2018.	Drückler S.; Van Rooijen, M S; De Vries HJ	Sexually Transmitted Diseases	Explore chemical sex practices, risk behavior and STI prevalence in Amsterdam.	Chemsex was practiced by 866 (17.6%) of 4925 MSM and 159 (1.5%) of 10857 non-MSM among users of gay dating applications. Among users, 29.3% reported greater involvement in chemical sex than among MSM who visited the STI clinic.
Prevalence of drug use during sex amongst MSM in Europe: Results from a multi-site bio-behavioural survey, 2018.	Rosińska M. et al.	International Journal of Drug Policy	Investigate the prevalence and predictors of drug use during a sexual encounter and identify specific prevention needs.	The results of the study showed that 1261 (30.0%) of the participants reported drug use and 436 (11.8%) reported the use of two or more drugs during sexual intercourse. About 966 (23.0%) reported using drugs to improve sexual performance. Respondents who reported drug use were diagnosed more frequently with HIV (10.5%).
Chemsex, risk behaviours and sexually transmitted infections among men who have sex with men in Dublin, Ireland., 2018.	Glynn R, et al.	International Journal of Drug Policy	To assess the prevalence of chemical sex, associated behaviors and STIs among participants at Ireland's only MSM-specific sexual health clinic in Dublin, over a six-week period in 2016.	568 men participated in the study, with a response rate of 90% (510). One in four (27%) reported having engaged in chemical sex in the past 12 months. Half had taken ≥ 2 drugs on their last occasion for chemical sex. One in four (25%) reported that chemsex was negatively impacting their lives and almost a third (31%) reported that they would like help or advice about chemsex.
How can those engaging in chemsex best be supported? An online survey to gain intelligence in Greater Manchester., 2018.	Tomkins A. et al.	International Journal of STD and AIDS	Establish the risks associated with chemical sex, and how support services can best be adapted to meet the needs of those in Manchester, UK.	Fifty-two men who have sex with men completed the survey. Thirty-nine (75%) were HIV positive and 11 (21%) were hepatitis C virus (HCV), all co-infected with HIV / HCV. Nineteen (37%) reported injecting drugs.
Intensive sex partying with gamma-hydroxybutyrate: Factors associated with using gamma-hydroxybutyrate for chemsex among Australian gay and bisexual men-results from the Flux Study. Hammoud, ., 2018.	Mohamed A. et al.	Sexual Health	Examine the factors associated with the use of gamma-hydroxybutyrate, its relationship to risky sexual behavior and the contexts, consequences, and motivations for its use.	3190 men were recruited, with an average age of 35 years, in which 19.5% had a history of use of gamma-hydroxybutyrate and 5.4% reported use in the last 6 months, with 2.7% using it monthly or more frequently. Overdose was observed in 14.7%, being more common among men who used gamma-hydroxybutyrate at least monthly.

Poly drug use, chemsex drug use, and associations with sexual risk behaviour in HIV-negative men who have sex with men attending sexual health clinics., 2017.	Sewell J. et al.	International Journal of Drug Policy	Use data from a multi-center cross-sectional study of HIV negative MSM seen at British GUM clinics to assess the prevalence and factors associated with multiple drug use and chemical drug use and explore associations between drug use and sexual behavior, in particular sex without a condom.	Of the 1484 MSM, 350 (23.6%) reported using multiple drugs and 324 (21.8%) reported using chemical drugs in the last three months. About 852 (57.5%) men reported sex without a condom in the last three months; 430 (29.0%) had cases with ≥ 2 partners, 474 (31.9%) had cases with strangers / HIV + partners; 187 (12.6%) had receptive cases with a partner of unknown status.
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For the evaluation of scientific evidence, it was decided to use the hierarchical classification system for the quality of evidence applied to the methodological data of each study presented. It was possible to verify that all studies presented level 4 of evidence. The quality of evidence is classified into seven levels, namely: level 1, which the evidence comes from systematic review or meta-analysis of all relevant randomized controlled clinical trials or derived from clinical guidelines based on systematic reviews of randomized controlled clinical trials; level 2, which meets evidence derived from at least one well-designed randomized controlled clinical trial; level 3, whose evidence is obtained from well-designed clinical trials without randomization; level 4, that the evidence comes from cross-sectional, cohort and well-designed case-control studies; level 5, which the evidence comes from a systematic review of descriptive and qualitative studies; level 6, whose evidence is derived from a single descriptive or qualitative study; and level 7, that the evidence comes from the opinion of authorities and / or the report of expert committees⁴.

Discussion

Chemsex is a growing public health concern in urban centers worldwide⁵. Despite the increase, a study²⁶ points out the need for studies of interventions regarding sexual and psychological damages, damages in which they are greater due to the criminalization and stigmatization of homosexuality and the use of drugs, preventing participants from being fully involved with treatment services or the provision of health care^{5,6}. This systematic review analyzed the impact of psychoactive drug use during sexual practice on physical and mental health and the impact on public health. These individuals may be involved in risky sexual behaviors, including unprotected sex, and may have STIs, affecting their psychosocial relationship²⁶.

Study¹² analyzed the use of psychoactive drugs used in a sexual context, as well as their associated behaviors and circumstances of use. 2328 gay men recruited via social media participated in the study and the results showed that the chances of reporting chemical sex were significantly higher among men aged 36 to 45 years, single and with HIV positive. Study²⁷ analyzed chemical sex practices, risk behavior and STI prevalence in Amsterdam. The authors assessed through an online gay dating app, in which the results showed that the involvement of gay men with chemical sex was greater than those who visited STI clinics. Both studies pointed out that behaviors are major influencers of drug use during sexual intercourse, especially

in this population.

Despite this, a prospective observational study²⁸ analyzed the factors associated with the use of GHB, its relationship with risky sexual behavior, consequences, and motivations for its use. 3190 men participated in the study, in which the results showed that in every five men (19.5%) had a history of using GHB. Overdose was observed in 14.7%. Factors such as HIV positive, being gay, having more gay friends, greater social involvement with gay men who use drugs, greater number of sexual partners, group sex and condomless sex with casual partners were independently associated with the use of GHB.

Study²² describes that the concepts related to chemical sex and HIV involve a psychosocial context, highlighting the influences of the psychosociocultural challenges of homophobic marginalization and the 'gay scene' on behavior. Multiple influences of stigma, marginalization, minority stress and maladaptive coping, such as drug use, contribute to the risk environments in which sexual behaviors are carried out²⁸.

Authors³¹ investigated the prevalence and predictors of drug use during a sexual encounter. The results of the study showed that 1261 (30.0%) of the participants reported drug use and 436 of 3706 (11.8%) reported the use of two or more drugs during sexual intercourse. About 966 (23.0%) reported using drugs to improve sexual performance. A cross-sectional survey⁶ pointed out that in 276 men who are related to other HIV-infected men, 73.2% used recreational drugs and / or alcohol in excess. Studies^{1,29} describe which psychological points can directly influence the desire to use psychoactive drugs.

Authors²⁵ describe that recreational drug use in the sexual environment may be related to the acquisition of STIs, including hepatitis C, syphilis, and gonorrhoea. They analyzed the risks associated with chemical sex, and how support services can be better adapted to meet the needs of those in need in the city of Manchester / United Kingdom. Initially, the results of the studies showed that of the 52 men who participated in the study, 75% were HIV positive and 11% had hepatitis C. Of the participants, 37% have already injected some drug. The main barrier presented by the participants was to be recognized. The authors describe the need for public policies aimed at care services for drug users during sex.

Study²⁵ describes that men under the influence of substances can change their behavior from constant surveillance of safe sex to more liberal practices, offering risks during sexual intercourse, which may increase STI



transmission. Study³⁰ assessed the frequency of recreational drug use and its association with sexual behavior and recent STI diagnoses among patients seeking specialized medical care. The results showed that in 703 participants, 50.4% were gay men, and of these, 39.8% used recreational drugs. A study³¹ pointed out that in 742 gay men, 60% had unprotected sex, of which 62% were diagnosed with any STI. Of the diagnosed individuals, 29.1% used drugs during intercourse.

Study³² describes that most gay men use multiple drugs. The authors analyzed 1484 HIV-negative or undiagnosed gay men at 20 sexual health clinics in the United Kingdom in 2013-2014. The results showed that 23.6% reported using multiple drugs and 21.8% reported using psychoactive drugs in the last three months. Overall, 57.5% men reported sex without a condom in the last three months, 29% with 2 or more partners.

One of the strengths of our study is the epidemiological and behavioral data presented. However, our study has some limitations, such as: 1) the representativeness of the study population to the general population of gay men. Different studies describe that the involvement of chemical sex in different populations of men who have sex with other men was associated with high-risk behavior. In addition, study describes that substance use has been consistently reported to be more prevalent among gay

men compared to the general population^{2,24,27}. The studies presented methodological heterogeneity, as well as, in their objectives. Despite this, important data could be collected.

Conclusion

The findings show that gay men are more likely to use chemicals such as excessive consumption of alcohol, marijuana, or recreational drugs than the male population in general, in addition, biopsychosocial factors increase the risk of unprotected sex among that population. Practitioners have expectations that the substances will positively affect their sexual encounters. Most of the time, the effects of drugs are used to intensify sexual feelings and achieve greater intimacy.

The results demonstrate the need to promote health services as well as to manage harm and risk reduction since this population is vulnerable to sexually transmitted infections. Psychological issues can influence practice. Guidance and follow-up measures can help to reduce STI cases among these individuals. Field studies addressing the practice of drug use in public health in Brazil are necessary for a better national understanding among people who practice, the prevalence and the necessary measures for better control and care for STI patients.

References

1. Benotsch EG, et al. Attitudes toward methamphetamine use and HIV risk behavior in men who have sex with men. *The American Journal on Addictions*. 2012 jul;21(1):35–42.
2. Bourne A, et al. The Chemsex Study: drug use in sexual setting among gay and bisexual men in Lambert, Southwark & Lewisham. *Londres Sigma Research*. 2014
3. Carlini EA, et al. II levantamento domiciliar sobre o uso de drogas psicotrópicas no Brasil: estudo envolvendo as 108 maiores cidades do país. São Paulo: CEBRID (Centro Brasileiro de Informações sobre Drogas) 2006. 468p.
4. United Nations. World Drug Report 2018 (United Nations publication, Sales No. E.18.XI.9) The United Nations Office on Drugs and crime (UNODC). 2018.
5. Organização Mundial da Saúde. Laboratory diagnosis of sexually transmitted infections, including human immunodeficiency virus. Coordenação de Laboratório do Departamento de DST, Aids e Hepatites Virais. OMS, 2014.
6. Mor Z, et al. Recreational drug and excessive alcohol use among HIV-infected men who have sex with men in Central Israel. *BMC*. 2019;19:1360. <https://doi.org/10.1186/s12889-019-7747-4>
7. Bourne A, et al. Illicit drug use in sexual settings ('chemsex') and HIV/STI transmission risk behaviour among gay men in South London: Findings from a qualitative study. *Sexually Transmitted Infections*. 2015 Jul;91(8):564–568.
8. Silva RR, et al. Os Impactos do Chemsex na saúde pública mundial: um estudo sobre uma perigosa prática sexual entre homens. *Revista Saúde Coletiva Barueri*. 2019;51. <https://doi.org/10.36489/saudecoletiva.2019v9i51p1920-1925>
9. Vargas D, Soares J. Padrões de uso do álcool e questões associadas: uma análise do conhecimento de enfermeiros. *Rev Esc Enferm USP*. 2014;48(2):321-8.
10. Halkitis PN, Singer SN. Chemsex and mental health as part of syndemic in gay and bisexual men. *International Journal of Drug Policy*. 2018
11. Brown SA, et al. Correlates of self-stigma among individuals with substance use problems. *International Journal of Mental Health and Addiction*. 2015 Dec;13(6):687-698.
12. Ministério da Saúde, Fundação Oswaldo Cruz (BR). III Levantamento Nacional sobre o Uso de Drogas pela População Brasileira. Rio de Janeiro (RJ): MS/Fiocruz, 2017.
13. Ministério Da Saúde (BR). Boletim Epidemiológico de HIV e Aids 2019 Secretaria de Vigilância em Saúde. Brasília (DF): MS, 2019.
14. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional De Saúde (PNS) no ano de 2013 Ministério da Saúde Departamento de Vigilância de Doenças e Agravos Não Transmissíveis e Promoção da Saúde. Brasília (DF): IBGE, 2013.
15. Dolling D, et al. An analysis of baseline data from the PROUD study: An open-label randomized trial of pre-exposure prophylaxis. *Trials*. 2016 Mar;17(163).
16. Edmundson C, et al. Sexualized drug use in the United Kingdom: A review of the literature. *The International Journal of Drug Policy*. 2018 May;55:131–148.



17. Hammoud MA, et al. The new MTV generation: Using methamphetamine, Truvada (TM), and Viagra (TM) to enhance sex and stay safe. *The International Journal of Drug Policy*. 2018 May;55:197–204.
18. Hegazi A, et al. Chemsex and the city: Sexualized substance use in gay bisexual and other men who have sex with men attending sexual health clinics. *International Journal of STD & AIDS*. 2016 May;28(4):362–366.
19. Heiligenberg M, et al. Recreational drug use during sex and sexually transmitted infections among clients of a city sexually transmitted infections clinic in Amsterdam, the Netherlands. *Sexually Transmitted Diseases*. 2012 Jul;39(7):518–527.
20. Ibrahim M, et al. Chemsex among gay, bisexual and other men who have sex with men in Singapore and the challenges ahead: A qualitative study; *International Journal of Drug Policy Elsevier*. 2018.
21. Ives R, Ghelan P. Polydrug use (the use of drugs in combination): A brief review. *Drugs Education Prevention & Policy*. 2009 Jul;13:225–232.
22. Maxwell S, et al. Chemsex behaviors among men who have sex with men: A systematic review of the literature; *International Journal of Drug Policy Elsevier*. 2019.
23. Vargas D, Maciel MED. Redução de Danos: Uma Alternativa ao Fracasso; no Combate Às Drogas; *Revista Cogitare Enferm*. 2015 Jan/Mar;20(1):207-10.
24. Salles ACTC, Ceccarelli PR. A invenção da sexualidade; *Periódico Reverso Belo Horizonte*. 2010 Sep;32(60):15-24.
25. Tomkins A, George R, Kilner M. Sexualized drug taking among men who have sex with men: A systematic review. *Perspectives in Public Health*. 2018 May;138(8).
26. Glynn R, et al. Chemsex, risk behaviors' and sexually transmitted infections among men who have sex with men in Dublin, Ireland. *International Journal of Drug Policy*. 2018 Feb;52. <https://doi.org/10.1016/j.drugpo.2017.10.008>
27. Drückler S, Van Rooijen MS, De Vries HJ. Chemsex Among Men Who Have Sex with Men: A Sexualized Drug Use Survey Among Clients of the Sexually Transmitted Infection Outpatient Clinic and Users of a Gay Dating App in Amsterdam, the Netherlands. *Sex Transm Dis*. 2018 May;45(5):325–331. <https://dx.doi.org/10.1097%2FOLQ.0000000000000753>
28. Mohamed A, et al. Intensive sex partying with gamma-hydroxybutyrate: factors associated with using gamma-hydroxybutyrate for chemsex among Australian gay and bisexual men - results from the Flux Study; *Sex Health*. 2018 Apr;15(2):123-134. <https://doi.org/10.1071/sh17146>
29. Rosińska M, et al. Prevalence of drug use during sex amongst MSM in Europe: Results from a multi-site bio-behavioural survey; *International Journal of Drug Policy*. 2018 May;55:231-241. <https://doi.org/10.1016/j.drugpo.2018.01.002>
30. Latini A, et al. Recreational drugs and STI diagnoses among patients attending an STI/HIV reference clinic in Rome, Italy. *Sexually Transmitted Infections BJM*. 2019;95(8). <http://dx.doi.org/10.1136/sextrans-2019-054043>
31. González-Baeza A, et al. Sexualized Drug Use (Chemsex) Is Associated with High-Risk Sexual Behaviors and Sexually Transmitted Infections in HIV-Positive Men Who Have Sex with Men: Data from the U-SEX GESIDA 9416 Study. *AIDS Patient Care STDS*. 2018 Mar;32(3):112-118. doi: 10.1089/apc.2017.0263
32. Sewell J, et al. Poly drug use, chemsex drug use, and associations with sexual risk behaviors in HIV-negative men who have sex with men attending sexual health clinics. *International Journal of Drug Policy*. 2017 May;43. <https://doi.org/10.1016/j.drugpo.2017.01.001>

