

## DEPRESSION AND HIV INFECTION AMONG MSM: THE PERFECT STORM TOWARD CHEMSEX

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### Abstract

**Introduction:** The chemsex represent a new phenomenon of sexualized-drug-use, mainly observed among European and North American communities of men who have sex with men (MSM). A chemsex session differs to the use of recreational drugs to promote sex by type of drugs utilized (i.e., GHB, crystal n-methylamphetamine and 4-methylmethacathinone), length (i.e., from several hour to some days), number and characteristics of participants (i.e., multiple partners, persons living with HIV-PLWH) and risks for health (i.e., sexually transmitted infections-STI, drug-addiction, overdose, and death).

**Objectives:** An in-depth survey was conducted to assess the prevalence, characteristics, and correlates of chemsex in MSM at risk for STIs.

**Methods:** A validated anonymous self-administered questionnaire, was proposed to consecutive MSM attending at the STI Center of San Gallicano Dermatological Institute in Rome, Italy. After informed consent, all participants were asked to fill out the questionnaire and to place it in a ballot box before leaving the center. The questionnaire was designed to investigate demographic, sexual, substance dependence and preventive behaviors in the participants. Also, the vulnerability for anxiety and depression was investigated in participants using the items of the PHQ-2 and of the GAD-2.

**Results:** From 1st to 30 November 2023, 129 MSM have accepted to fill out the questionnaire. Of the participants, 121 (93.8%) questionnaires were collected and validated. Eight questionnaires were excluded due to errors in filling out, multiple missing responses and cancellations. The median age between PLWH and non-PLWH was 45.5 (IQR=40-57) years and 45.0 (IQR=32-50) years, respectively. Fifty-six out 118 (47.5%) MSM tested for HIV, were PLWH. Chemsex was referred to by 25 (20.7%, C.I. 95%: 14.4-28.7) participants; 15 (26.8%, C.I. 95%: 17.0-39.6) PLWH and 10 (16.1%, C.I. 95%: 0.1-27.2) non-PLWH. MSM who have showed score above threshold ( $\geq 3$ ) to PHQ-2 were 17 (27.4%) and 15 (28.8%) between PLWH and non-PLWH, respectively. Scores above threshold to GAD-2 were measured in 28 (45.2%) and 20 (35.7%) PLWH and non-PLWH, respectively. Multistrata-analysis, using HIV status and scores to PHQ2 and GAD2, showed an association between to be above threshold to PHQ-2 and chemsex, at limit of the statistical significance (AOR= 1.65; 95% CI: 0.98-2.78).

**Conclusions:** Preliminary findings from the survey suggest that a high proportion of MSM at risk for STIs engaged in chemsex, particularly if PLWH. Moreover, depression seems to contribute to making MSM prone to chemsex behavior, despite these results should be reevaluated overtime on the expected larger study population.

**Keywords:** *HIV infection, MSM, chemsex, anxiety, depression.*

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### 1. Introduction

The term “chemsex” commonly refers to the intended use of chemical drugs (i.e. “chems”) during sex to prolong, empower, and intensify sexual experience. This practice is more common among Men who have Sex with Men (MSM) and consists of group sex sessions that could last from hours to days (Maxwell, Shahmanesh, & Gafos, 2019). Chemsex has been traditionally defined as using specific drugs (i.e., methamphetamine MDMA, GHB/GBL, crystal n-methylamphetamine, and 4-methylmethacathinone and ketamine). Nevertheless, the European MSM Internet Survey (EMIS) showed that the use of drugs for sex among MSM could considerably vary across European cities due to the different socio-cultural traditions and habits, various drug legalization policies, and substance availability across the countries (Schmidt et al., 2016). New synthetic cathinones like  $\alpha$ -pyrrolidinophenone ( $\alpha$ -PHP) and the 3,4-methylenedioxy-pyrovalerone (MDPV) are also linked to chemsex practices nowadays (European Drug

Report, 2023). Additionally, other substances, not defined as “chems”, like cocaine, poppers, marijuana, amyl-nitrates, and Erectile Dysfunction Agents (EDA) are reported in many countries as part of recreational drug use for sex contexts (Latini et al., 2019; Strong et al., 2022). The evolving phenomenon of chemsex is a focus of interest in the international scientific scenario because of its relevance in public health. Indeed, recent research calls attention to the association between chemsex and high risk of HIV infection, other sexually transmitted infections (STI) and drug addiction (Tomkins, George, & Kliner, 2019). A large observational study conducted in a pre-pandemic era in Italy (Latini et al., 2019) displays that recreational drugs use for sex seems to be associated with at-risk sexual behaviors (i.e., group sex, condomless sex, online multiple partners searching) that could increase incidence rates of some STI, like syphilis, gonorrhea and viral hepatitis among MSM. Further, according to recent literature reviews, People Living with HIV (PLWH) have a high risk for chemsex behaviors and HIV status seems to play a crucial role in engaging in condomless sex during chemsex practice (Maxwell, et al., 2019). Furthermore, some studies focus on psychological issues in MSM practicing chemsex behaviors; anxiety and depression seem to be important topics among MSM who practice chemsex, combined with psychotic experiences and cognitive impairment (Tomkins, et al., 2019; Bohn et al., 2020). However, despite this current evidence, still few studies exploring characteristics and correlates about mental health among those who practice chemsex (Maxwell, et al., 2019; Field, de Wit, Davoren, O'Reilly, & Den Daas, 2023).

The current study aims to estimate the prevalence, characteristics, and principal correlates of chemsex in MSM at risk for STIs to understand the current changes involved in these conducts. In addition, this survey is intended to screen the psychological vulnerability for anxiety and depression among MSM attending an STIs center in Rome. In this paper, preliminary data from the study collected during the pilot phase was presented.

## 2. Methods

An anonymous self-administered questionnaire was proposed to MSM attendees of the STI/HIV Center of San Gallicano Dermatological Institute in Rome, Italy, between October and November 2023. Inclusion criteria were age at least 18 years old and reading and understanding the Italian language. The questionnaire consisted of nine sections that investigated demographic characteristics, substance use, sexual habits, and STIs history. In addition, the vulnerability for anxiety and depression was investigated in participants using the Italian versions of the Patient Health Questionnaire-2 (PHQ-2) and the Generalized Anxiety Disorder –2 (GAD-2). For this preliminary survey, we used the free Italian versions of both questionnaires can be derived by selecting the first two items of the extended translated versions (PHQ Website, <http://www.phqscreeners.com>). These questionnaires assess the frequency of core depression and anxiety symptoms respectively over the past two weeks (Kroenke, Spitzer, & Williams, 2003; Kroenke, Spitzer, Williams, Monahan, & Lowe, 2007).

Once completed, the participants deposited questionnaires directly in a locked ballot box put outside the consultation room. The study obtained the authorization by the Institutional Ethics Committee.

## 3. Results

From 1st to 30 November 2023, 129 MSM have accepted to fill out the questionnaire and 121 (93.8%) were validated for the data analysis. Eight questionnaires were excluded due to errors in filling out, multiple missing responses, and cancellations. The median age between PLWH and non-PLWH was 45.5 (IQR=40-57) years and 45.0 (IQR=32-50) years, respectively. Fifty-six of 118 (47.5%) MSM tested for HIV, were PLWH. Chemsex was referred to by 25 (20.7%, C.I. 95%: 14.4-28.7) participants; 15 (26.8%, C.I. 95%: 17.0-39.6) PLWH and 10 (16.1%, C.I. 95%: 0.1-27.2) non-PLWH. MSM who have shown scores above the threshold ( $\geq 3$ ) to PHQ-2 were 17 (27.4%) and 15 (28.8%) between PLWH and non-PLWH, respectively. Scores above the threshold to GAD-2 were measured in 28 (45.2%) and 20 (35.7%) PLWH and non-PLWH, respectively. Multistrata-analysis, using HIV status and scores to PHQ-2 and GAD-2, showed an association between being above the threshold to PHQ-2 and chemsex, at the limit of the statistical significance (AOR= 1.65; 95% CI: 0.98-2.78).

## 4. Discussion

This survey aimed to investigate the main characteristics and the prevalence of chemsex-behaviors and drugs use for sex in a clinical sample of MSM also to understand potential changes involved in this widespread scenario. Preliminary findings from the survey suggest that a high proportion of MSM at risk for STIs engaged in chemsex, particularly if PLWH. Our data are consistent with recent reviews of the literature that report a prevalence of MSM engaged in chemsex at 17-27% (Maxwell, et al., 2019). Moreover, in our sample, the most part of chemsexers live with an HIV diagnosis and almost half of PLWH

shown high vulnerability for anxiety. These initial findings confirm what we already know from more studies across Europe. Rosas Cancio-Suárez and colleagues in 2023 show that drug use and chemsex are more frequent among MSM living with HIV in Spain; additionally, Amundsen and colleagues found that in a Netherlands cohort, MSM living with HIV have a three-time higher odds ratio of chemsex engagement (Amundsen, Haugstvedt, Skogen, & Berg, 2022; Rosas, Cancio-Suárez, et al., 2023). The PLWH involvement in chemsex practices is a public health issue due to the impact that this behavior could have on antiretroviral therapy (ART) adherence and immunological parameters control (Strong et al., 2022).

Even though the direction of the association between HIV status and chemsex is still unknown, according to some authors, chemsex and the recreational substances use for sex may be behavioral strategies to relieve anxiety and to cope with the psychological distress due to living with HIV (Tomkins et al., 2019; Strong et al., 2022). In fact, to our knowledge, PLWH are more likely to experience anxiety and depression compared to the general population (Chaudhury, Bakhla, & Saini, 2016). In our sample depression in MSM living with HIV appears to contribute to their involvement in chemsex practices according to previous studies that linked chemsex behaviors with high levels of depression (Maxwell, et al., 2019; Tomkins, et al., 2019; Field, et al., 2023).

## 5. Conclusions

Although the need to extend our sample size to make results more statistically relevant, the preliminary trends observed in this study, highlight the importance of psychological screening in MSM with a special focus on PLWH. Moreover, it seems to be crucial to collect routinely more information about sexual habits, sexual drugs use and chemsex behaviors from MSM attendees STIs centers. Further studies would investigate the intricate interconnection between HIV status, mental health, and chemsex to understand the mechanisms underlying high-risk behaviors and plan public health intervention programs to improve mental health in this population.

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