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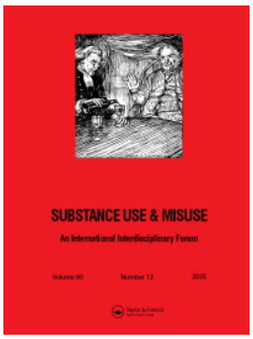

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ORIGINAL ARTICLE

Chemsex: Associations with Sexual, Psychosocial and Social Health in Australian Gay and Bisexual Men

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ABSTRACT

Introduction: Chemsex, the use of psychoactive substances to enhance sexual experience, is most prominent in gay, bisexual and other men who have sex with men (GBMSM). This study explores the prevalence of chemsex in Australian GBMSM ($N=632$) and its associations with psychosexual and psychosocial health.

Methods: A cross-sectional online survey was conducted. Measures included demographics, psychological distress, attitudes toward sexuality (Sex-Positivity-Negativity Scale), sexual self-esteem, LGBT Community Connectedness, and sexual behaviors. Data were analyzed using descriptive statistics, ANOVA, and chi-square tests.

Results: One-third (32.3%) reported engaging in chemsex in the past year. Those engaged in chemsex were younger and more likely to identify as Indigenous Australians. They reported higher levels of psychological distress, sex negativity, sexual self-esteem and satisfaction with their sex life. Men engaged in chemsex reported a lower degree of connectedness to the LGBT community and were more likely to report adventurous sexual behaviors, including group sex and creating pornographic imagery.

Discussion: The association between chemsex and health is complex. While some men report higher sexual self-esteem and satisfaction, their reported involvement in chemsex also correlates with increased psychological distress and lower community connectedness; however, the directionality of associations is unclear and may reflect complex or bidirectional dynamics.

Conclusions: Engagement in chemsex is common among Australian GBMSM and is associated with a range of mental health, sexual wellbeing, and social connection outcomes. These findings highlight the importance of developing informed, community-based public health strategies that reflect the complexity of chemsex practices and diverse experiences of men engaged in chemsex.

KEYWORDS

Sexual and gender minorities; sexual behaviors; sexual health; substance use; sex research; sexual health

Introduction

Gay, bisexual, and other men who have sex with men (GBMSM) often navigate complex health disparities, including at the intersection of sexual health and substance use (Bourne et al., 2015; Gonzales & Henning-Smith, 2017; McDaid et al., 2021). Chemsex, the practice of using psychotropic substances with the intention of enhancing sexual experiences, has emerged as a notable sub-cultural phenomenon within this community, including in Australia (Demant et al., 2022; Khaw et al., 2021). Chemsex, sometimes also referred to as "party and play" or "wired sex," includes the use of one or more substances, commonly crystal methamphetamine, ketamine, cocaine, mephedrone, GHB (gamma-hydroxybutyrate) and/or GBL (gamma-butyrolactone). Tobacco, alcohol, and/or poppers are generally not considered substances of the chemsex-spectrum (Bourne et al., 2015; Demant & Oviedo-Trespalacios, 2019).

While substance use to facilitate or enhance sexual pleasure has been reported across all genders and sexual orientations, the chemsex phenomenon is more prevalent among GBMSM (Demant et al., 2022). Australian research established generally higher levels of illicit substance use in this group compared with heterosexual men, including those commonly associated with chemsex (Bui et al., 2018; Demant et al., 2017). However, the prevalence of chemsex engagement itself is less researched. An Australian study with a sample of GBMSM attending sexual health clinical settings in Adelaide reported that 29% of participants engaged in chemsex in the past six months (Khaw et al., 2021). In contrast, non-clinical studies commonly report lower levels, with 9% reporting chemsex in the past six months in a

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cross-sectional online survey in Malaysia (Maviglia et al., 2022), while a study from the United Kingdom and Ireland found that 18% of participants engaged in chemsex in their lifetime with less than 10% (8.2%) engaging in chemsex in the past year (Frankis et al., 2018). Studies have also reported that not all sexual minority men are equally likely to engage in chemsex, with studies consistently reporting that men living with HIV are more likely to engage in chemsex as well as those engaging in other types of substance use (Bohn et al., 2020; Jaspal, 2022; Khaw et al., 2021).

The primary drivers for participation in chemsex have been linked to the enhancement of sexual pleasure through the experience itself as well as through increases in sex drive, sexual confidence and perceived improvement in sexual performance (Berg et al., 2020; Jaspal, 2022); in this context, substances can be perceived as "lubricating social contacts" (Bourne et al., 2018). Chemsex, beyond sexual pleasure, is also a sub-cultural response potentially linked to sexual identity oppression, affirming queer communities and identities (Florêncio, 2023; Lea et al., 2019). As such, chemsex may be linked to the historic criminalization of homosexuality and the ongoing marginalization and oppression of gay communities, potentially impacting gay sex enjoyment for some (Demant et al., 2022). Furthermore, it also reflects a more liberal stance on substance use within queer communities (Race, 2009; Race et al., 2017).

Chemsex is associated with enhanced sexual pleasure and social connection; however, it also has the potential to pose serious risks to men's psychosocial, sexual and physical health. The available literature consistently highlights the health risks associated with chemsex, including an increased likelihood of acquiring sexually transmissible infections, including HIV, due to practices such as unprotected sex during chemsex encounters as well as needle sharing (Maxwell et al., 2019; Smiles et al., 2023). Beyond sexual health, chemsex drug use is associated with both acute and chronic physical and mental health issues, such as dependency (Bourne et al., 2015; Li et al., 2021), potential overdose leading to death (Cartiser et al., 2021; Stevens et al., 2020), and exacerbation of existing mental health conditions (Amundsen et al., 2022; Íncera-Fernández et al., 2021). Socially and psychological correlates include isolation, deterioration of intimate relationships (Hibbert et al., 2019), and increased mental health problems, including depression and anxiety (Íncera-Fernández et al., 2021). Stigma surrounding drug use and non-normative sexual practices also discourages help-seeking help, leading to an underutilization of healthcare and support services (Demant et al., 2022).

While there is a growing body of research on the harms and some potential benefits associated with chemsex, the literature remains uneven. Key areas such as nuanced behavioral and mental health correlates, community engagement, and positive experiences are under-explored or inconsistently addressed across studies. These gaps make it difficult to build a cohesive understanding of chemsex and its implications for public health. These inconsistencies underscore the need for research that builds a more nuanced understanding of the relationships between chemsex and health outcomes. This may assist in identifying patterns in mental health, sexual wellbeing, and social connection that can help understand modifiable factors that may serve as effective targets for harm reduction and community-based interventions. Consequently, the aim of this study is to quantify the associations between chemsex engagement and psychosocial and psychosexual health for GBMSM.

Materials and methods

Procedure

We conducted an anonymous cross-sectional online survey among Australian men aged 18 or over who identify as gay, bisexual or another sexual orientation other than heterosexual. Recruitment was managed through social media platforms (e.g., Facebook groups) and paid advertisement on Grindr, a geo-social networking app geared toward gay and bisexual men. A prize draw of twenty retail vouchers (AU$25) was offered to participants as an incentive. The present study uses the data as a secondary analysis. The original study was based on the use of pornography, whereby using any kind of pornography within the past 12 months was an additional eligibility criterion. Chemsex as a topic was not mentioned in recruitment materials for the study. There were no other eligible or exclusion criteria.

Ethical approval to conduct the study was granted through the University of Technology Sydney Health and Medical Research Ethics Committee (ETH22-7691). All participants provided informed consent.

Measures

Demographics

Demographic information included age in years, Aboriginal/Torres Strait Islander status, relationship status and type of relationship (e.g., monogamous or not) and sex recorded at birth. Identification as a man (cis or trans) with a sexually minoritized identity was an eligibility criteria to participate in the study and sexual orientation. Participants self-identified using a multiple-choice question with options including gay, bisexual, queer, pansexual, asexual, and an open-text "Not on the list" category.

Mental health, sexual wellbeing, and community connectedness

In this study, we use the term sexual wellbeing to refer to factors such as sexual self-esteem, sexual satisfaction, and attitudes toward sexuality. Mental health and social wellbeing refers to psychological distress and feelings of connection to the LGBTQ+ community.

Psychological distress was measured using the validated Kessler-10 Psychological Distress scale (Kessler & Mroczek, 1994). This scale consists of ten items inquiring about different aspects of psychological distress on a Likert-scale from 1 (none of the time) to 5 (all of the time). The scale results in a final score between 10 and 50, with values over

15 commonly interpreted as psychological distress being more than low (Andrews & Slade, 2001).

Understandings of and attitudes toward sexuality ("erotophobia" and "erotophilia") utilized the Sex-Positivity-Negativity Scale (Hangen & Rogge, 2022). This scale is comprised of 16 descriptors that measure individuals' reactions to sex and sexuality using keywords such as "Fun," "Enriching," or "Irritating," rated on a six-point Likert-scale ranging from 1 (not at all) to 6 (extremely). It generates two distinct scores for sex positivity and negativity on a scale of 1 to 6, where higher scores denote stronger sentiments in the respective domain.

The concept of sexual self-esteem was measured through the sexual self-esteem scale introduced by Snell et al. (1992) as modified by Lammers and Stoker (2019). This measure includes five statements (e.g., "I am better at sex than most people") rated on a five-point Likert scale Disagree (-2) to agree (+2), culminating in a score between −10 and +10, where elevated scores reflect greater sexual self-esteem.

The degree of connectedness to the LGBTQ+ Community was measured using a scale measurement by Demant, Oviedo-Trespalacios, et al. (2018), which is an adaptation of the original scale by Frost and Meyer (2012). This scale uses eight statements associated with different aspects of a socio-political connectedness to the LGBTQ+ community (e.g., "You feel you're a part of the LGBT Community."). Items are scored on a Likert-scale from 1 (Strongly agree) to 4 (Strongly disagree), yielding an aggregate score from 8 to 32, with higher values indicating stronger community connectedness.

Sexual behaviors

Participants were asked provide responses to a range of items relating to their sexual Behaviors. These included the number of sexual partners in the past 12 months (ranging from none to more than 10), whether they engaged in group sex (ranging from never to more than 10 times), and whether they had created pornographic imagery of themselves ("Yes" or "No").

Chemsex engagement

Participants were asked about their engagement in chemsex in the past 12 months (Never, Once or a couple of times, Monthly, Weekly). The concept chemsex was not predefined for participants although alternatively used terms were mentioned (e.g., Party and Play or wired sex).

Analyses

Analyses were conducted in IBM SPSS Statistics v28. Descriptive statistics are reported as frequencies and percentages for categorical variables, as means with Standard Deviation (SD), or as medians with interquartile range (IQR) for continuous variables. Differences between participants who recently used chemsex versus those who did not were analyzed using analyses of variance and chi-square tests. If normal distribution assumptions were not met, a data transformation was applied; a log transformation has been applied to the Kessler-10 Psychological Distress Scale due to it being strongly positively skewed. Effect sizes were measured using η^2 for ANOVAs and Cramér's V for chi-square tests. The internal consistency of scales was analyzed using Cronbach's alpha with all scales showing high to excellent internal consistency ranging from 0.883 to 0.941.

To further understand which GBMSM engage in chemsex, a hierarchical segmentation analysis *via* decision trees was used. A decision tree is an iterative classification analysis that identifies the variables that best discriminate between known groups (in this case, those who engage in chemsex or not). The first step identifies the variable that best distinguishes men who engaged in chemsex in the previous 12 months when entering all variables simultaneously. The next step identifies the next best variable that distinguishes between members of the largest group derived in step 1, and so forth until entering more variables no longer significantly improves classification (i.e., $p = 0.05$). This approach serves to divide the sample into groups based on variables that best distinguish men who engage in chemsex use or not.

Results

Of 747 participants who started the survey, 54 were removed due to not meeting eligibility criteria, and a further 61 were excluded as these either did not provide information on basic demographic variables (e.g., age, gender, sexual orientation) or did not reply to questions relating to chemsex. The final sample size for this analysis is $N = 632$.

Overall, 32.3% ($n = 204$) engaged in chemsex within the past 12 months. Of these, most (68.1%, $n = 139$) engaged in chemsex once or a couple of times, 17.6% ($n = 36$) engaged about once a month, and 14.2% ($n = 29$) engaged more than once a month.

Demographics

All demographics can be found in Table 1. The mean age of participants was 36.5 years (SD = 11.4). All participants identified as men, as per eligibility criteria, with 18 participants (3.1%) having female as their sex recorded at birth. A notable proportion of the sample identified as Aboriginal and/or Torres Strait Islander (8.3%, $n = 49$). Most participants identified as gay (70.6%, $n = 416$), followed by bisexual men (21.9%, $n = 129$), and approximately equal numbers of participants were either in a relationship (43.8%, $n = 258$) or not (43.3%, $n = 255$). Among those who were in a relationship, most lived in relationships that allowed either both (46.2%, $n = 154$) or at least one partner (23.1%, $n = 77$) to engage in sex with people outside their relationship.

Significant differences were found between those who recently engaged in chemsex or not. Across demographic variables, those who recently engaged in chemsex were younger ($F(1, 587) = 12.659$, $p < 0.001$, $\eta^2 = 0.021$), more likely to identify as Aboriginal or Torres Strait Islander

Table 1. Demographics.

Variable		Overall sample $N=632$	Recent chemsex $n=204$	No recent chemsex $n=385$	Test statistic*
Age in years		36.5 (95%CI: 35.5, 37.4)	34.2 (95%CI: 32.6, 35.7)	37.7 (95%CI: 36.5, 38.8)	$F(1, 587)=12.659$, $p<0.001$, $\eta^2=0.021$
Sexual Orientation	Gay	70.6% ($n=416$)	73.5% ($n=150$)	69.1% ($n=266$)	X^2 (3,589) = 6.936, $p=0.074$; Cramér's $V=0.118$
	Bisexual	21.9% ($n=129$)	17.2% ($n=35$)	24.4% ($n=94$)	
	Queer	5.1% ($n=30$)	7.4% ($n=15$)	3.9% ($n=15$)	
	Any other	2.4% ($n=14$)	2.9% ($n=4$)	2.6% ($n=10$)	
Aboriginal and/or Torres Strait Islander	Yes	8.3% ($n=49$)	15.7% ($n=32$)	4.4% ($n=17$)	X^2 (1,589) = 22.208 $p<0.001$; Cramér's $V=0.194$
	No	91.7% ($n=540$)	84.3% ($n=172$)	95.6% ($n=368$)	
Relationship Status	Yes, one partner	43.8% ($n=258$)	48.0% ($n=98$)	41.6% ($n=160$)	X^2 (2,589) = 48.159, $p<0.001$; Cramér's $V=0.286$
	Yes, more than one partner	12.9% ($n=76$)	24.0% ($n=49$)	7.0% ($n=27$)	
	No/Unsure	43.3% ($n=255$)	27.9% ($n=57$)	51.4% ($n=198$)	
Relationship – Monogamy	Monogamous	30.6% ($n=102$)	30.6% ($n=45$)	30.6% ($n=57$)	X^2 (2,333) = 2.844, $p=0.241$; Cramér's $V=0.095$
	Both have other partners	46.2% ($n=154$)	50.3% ($n=74$)	43.0% ($n=80$)	
	Only one has other partners	23.1% ($n=77$)	19.0% ($n=28$)	26.3% ($n=49$)	
Sex recorded at birth	Male	96.9% ($n=570$)	96.1% ($n=196$)	97.4% ($n=374$)	X^2 (2,588) = 0.779, $p=0.377$; Cramér's $V=0.047$
	Female	3.1% ($n=18$)	3.9% 9$n=8$)	2.6% ($n=10$)	

*Analysis of Variance (ANVOA) or Chi-square test.

Table 2. Psychosexual wellbeing.

Variable	Overall sample	Recent chemsex	No recent chemsex	Test statistic*
Kessler-10	21.7 (95%CI: 20.9, 22.4)	24.0 (95%CI: 22.7, 25.3)	20.4 (95%CI: 19.6, 21.3)	$F(1, 553)=20.962$, $p<0.001$, $\eta^2=0.037$
Sex Positivity	5.0 (95%CI: 4.9, 5.0)	5.0 (95%CI: 4.9, 5.1)	4.9 (95%CI: 4.8, 5.0)	$F(1, 546)=1.628$, $p=0.203$, $\eta^2=0.003$
Sex Negativity	2.5 (95%CI: 2.4, 2.6)	2.9 (95%CI: 2.7, 3.1)	2.3 (95%CI: 2.2, 2.4)	$F(1, 538)=38.697$, $p<0.001$, $\eta^2=0.032$
Sexual Self-esteem	3.8 (95%CI: 3.4, 4.2)	5.3 (95%CI: 4.8, 5.8)	3.0 (95%CI: 2.4, 3.5)	$F(1, 580)=30.919$, $p<0.001$, $\eta^2=0.051$
LGBT Community Connectedness	18.2 (95%CI: 17.7, 18.6)	17.2 (95%CI: 16.5, 18.0)	18.7 (95%CI: 18.0, 19.3)	$F(1, 552)=7.095$, $p=0.005$, $\eta^2=0.014$
Overall satisfaction with sex life	7.0 (95%CI: 6.8, 7.2)	7.5 (95%CI: 7.2, 7.8)	6.7 (95%CI: 6.5, 7.0)	$F(1, 584)=14.028$, $p<0.001$, $\eta^2=0.023$

*Analysis of Variance (ANOVA).

(X^2 (1,589) = 22.208, $p<0.001$; Cramér's $V=0.194$), and more likely to be in a relationship with more than one partner (X^2 (2,589) = 48.159, $p<0.001$; Cramér's $V=0.286$). No relationships between recent engagement in chemsex and other demographic variables were detected.

Mental health, sexual wellbeing, and community connectedness

All psychosexual wellbeing results can be found in Table 2. The mean Kessler-10 score in the sample was 21.7 (SD = 8.9), with a significant difference between groups with those recently engaged in chemsex showing higher levels of psychological distress ($F(1, 553)=20.962$, $p<0.001$, $\eta^2=0.037$). The sex positivity and sex negativity scores were 5.0 (SD = 0.8)) and 2.5 (SD = 1.2)), respectively. While no significant differences were found for sex positivity, those recently engaged in chemsex had a significantly higher sex negativity score ($F(1, 538)=38.697$, $p<0.001$, $\eta^2=0.032$). The mean sexual self-esteem score was 3.8 (SD = 4.9) across the whole sample, with those recently engaged in chemsex showing a significantly higher sexual self-esteem score ($F(1, 580)=30.919$, $p<0.001$, $\eta^2=0.051$). The mean LGBT Community Connectedness score in the sample was 18.2 (SD = 5.7)) and was significantly lower among those recently engaged in chemsex ($F(1, 552)=7.095$, $p=0.005$, $\eta^2=0.014$). Overall satisfaction with their sex life was 7.0 out of ten (SD = 2.4), with a significantly higher level of satisfaction among those engaged in chemsex compared to those who did not engage in chemsex recently ($F(1, 584)=14.028$, $p<0.001$, $\eta^2=0.023$).

Sexual behaviors

Almost a third of the participants in the sample had more than ten sexual partners in the past 12 months (30.7%, $n=180$), while 30 had none (5.1%), with the rest in between these values (see Table 3). No significant difference was found between recent engagement in chemsex and the number of sexual partners with those engaged in chemsex being more likely to report higher numbers of sexual partners (X^2 (4,587) = 4.309, $p=0.366$, Cramér's $V=0.086$). A significant difference was found regarding engagement in group sex, with those engaged in chemsex also being more engaged in group sex (X^2 (4,587) = 32.499, $p<0.001$; Cramér's $V=0.235$). Most people had engaged in the creation of pornographic imagery of themselves (71.3%, $n=420$), with those engaged in chemsex being more likely to have done so (X^2 (1,589) = 36.446, $p<0.001$; Cramér's $V=0.249$).

Hierarchical analysis

A decision tree analysis showed that participants who engage in chemsex can be identified by several categories (see Figure 1). The tree had three levels and six terminal nodes, with a classification risk of 25.3% (SE = 1.8%) and cross-validated risk of 29.9% (SE = 1.9%; calculated with 20 folds) indicating that the model misclassified approximately

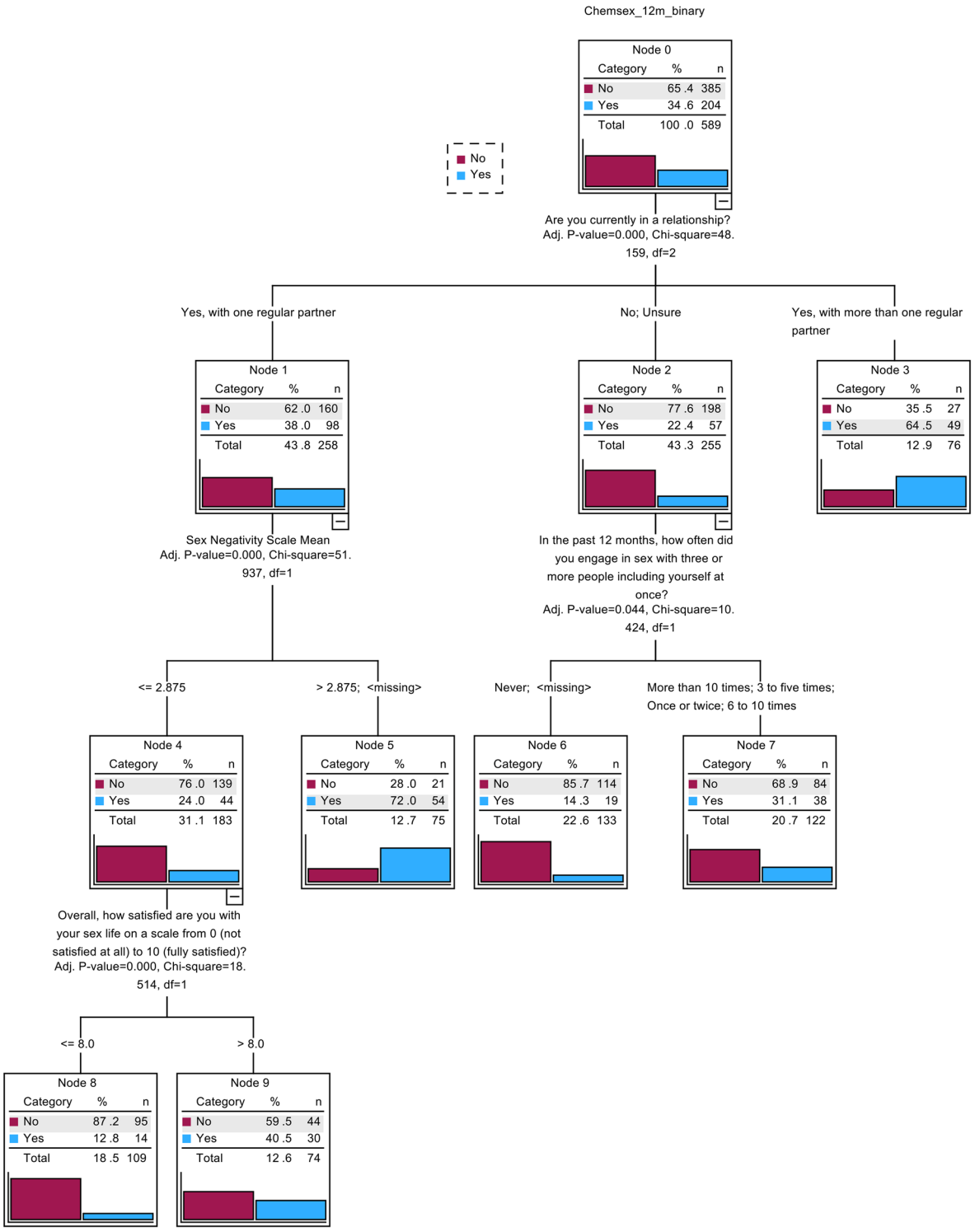

Figure 1. Decision Tree Analysis of Recent Chemsex Involvement.

25–30% of cases, which is within an acceptable range for this type of analysis and suggests sound model reliability. The first category was relationship status (X^2 (2) = 48.159, $p < 0.001$), whereby men in relationships with more than one regular partner had a higher proportion of engaging in chemsex (64.5% vs 35.5%).

Men who were not in a relationship, or were unsure of their relationship status, had a low proportion of engaging in chemsex (22.4% vs 77.6%). This group was further divisible into those who had sex with three or more people (including themselves) on one occasion in the preceding 12 months (X^2 (1) = 10.424, $p = 0.019$). Specifically, men who had sex with multiple people during a single occasion in the preceding 12 months (regardless of how often) had a higher proportion of engaging in chemsex (31.1% vs 68.9%) compared with those who did not have sex with multiple people (14.3% vs 85.7%).

Men who had one regular partner had lower rates of engaging in chemsex (38% vs 62%). This group was further divisible

Table 3. Sexual behaviors.

Variable		Overall sample	Recent chemsex	No recent chemsex	Test statistic*
Number of sexual partners in the past 12 months	None	5.1% ($n=30$)	0% ($n=0$)	7.8% ($n=30$)	X^2 (4,587) = 4.309, $p<0.366$; Cramér's $V=0.086$
	One	17.9% ($n=105$)	21.1% ($n=43$)	16.2% ($n=62$)	
	Two to five	29.3% ($n=172$)	33.3% ($n=68$)	27.2% ($n=104$)	
	Six to ten	17.0% ($n=100$)	14.7% ($n=30$)	18.3% ($n=70$)	
	More than ten	30.7% ($n=180$)	30.9% ($n=63$)	30.5% ($n=117$)	
Engagement in Group sex	Never	44.8% ($n=263$)	28.9% ($n=59$)	53.3% ($n=204$)	X^2 (4,587) = 32.499, $p<0.001$; Cramér's $V=0.235$
	Once or twice	30.7% ($n=180$)	38.2% ($n=78$)	26.6% ($n=102$)	
	Three to five times	12.9% ($n=76$)	17.2% ($n=35$)	10.7% ($n=41$)	
	Six to ten times	5.5% ($n=32$)	7.8% ($n=16$)	4.2% ($n=16$)	
	More than ten times	6.1% ($n=36$)	7.8% ($n=16$)	5.2% ($n=20$)	
Creates pornographic imagery of themselves	Yes	71.3% ($n=420$)	86.8% ($n=177$)	63.1% ($n=243$)	X^2 (1,589) = 36.446, $p<0.001$; Cramér's $V=0.249$
	No	28.7% ($n=169$)	13.2% ($n=27$)	36.9% ($n=142$)	

*Chi-Square Test.

by sex negativity scores (X^2 (1) = 51.937, p 0.001), whereby men with sex negativity scores above 2.875 had a higher proportion of engaging in chemsex (72% vs 28%). Those with scores ≤ 2.875 were further divisible by their sexual satisfaction scores (X^2 (1) = 18.514, $p=0.001$). Specifically, those with a score higher than 8 had relatively higher chemsex engagement (40.5% vs 59.5%) than those with a score ≤ 8 (12.8% vs 87.2%).

Discussion

Approximately one-third of participants reported engaging in chemsex within the preceding 12 months, primarily on an occasional basis (i.e. once or twice). It is difficult to contextualize this finding with the current body of research given the vast ranges in prevalence rates reported by studies from high-income countries. A recent systematic review highlighted that prevalence estimates range from 1% to 80% (Maxwell et al., 2019), depending on definitions of what constitutes chemsex, as well as differences in recruitment strategies and targeted groups with clinical samples and samples from sex-on-premises venues showing higher prevalence rates than general community samples. Given this study's specific focus on GBMSM who consume pornography, it is noteworthy that previous studies suggest that almost all GBMSM consume pornography (Downing et al., 2017), although our recruitment did not specifically target clinical settings or sex-on-premises venues.

The findings of this study showed that most men engaging in chemsex had poorer psychosocial and psychosexual wellbeing in multiple categories when compared with GBMSM who did not engage in chemsex, specifically elevated sex negativity scores and heightened levels of psychological distress. This aligns with existing literature that associates chemsex with an increased prevalence of anxiety and depression diagnoses (Bohn et al., 2020; Gerymski & Magoń, 2023; Pufall et al., 2018) and higher levels of psychological distress among men engaged in chemsex using the same scale measurement as this study (Íncera-Fernández et al., 2021; Ivey et al., 2023).

While much of the public discourse and research around chemsex has focused on risk and harm, our findings also indicate potentially affirming aspects of chemsex engagement. Men who reported recent engagement in chemsex demonstrated significantly higher sexual self-esteem and greater satisfaction with their sex lives. These associations suggest that chemsex may be experienced as a form of sexual enhancement or empowerment for some men. Recognizing these positive correlates is essential to avoid overly pathologizing narratives. As Joloy (2025) argues, dominant responses to chemsex have often been shaped by norms and expectations within mainstream gay culture and moralizing perspectives that marginalize those who engage in chemsex, neglecting the full diversity of experiences, including its potential to foster pleasure, intimacy and connection. These findings call for a more balanced and non-judgmental understanding of chemsex in public health and community contexts. However, it is also important to note that these findings are consistent with other contemporary literature that suggests that chemsex operates as a coping mechanism to stressors by some men that allows for a substance-use enhanced sexual space in which homonegativity-associated minority stress is reduced (Weatherburn et al., 2017), albeit without mitigating the fundamental psychosexual and psychosocial issues underlying this behavior. Some studies have also posed the potential for feelings toward chemsex to transform from engagement initially being used to increase confidence and sexual attractiveness to then switch toward drug dependency and priority over the initial reason for engagement, thus substance use might dominate, potentially leading to less satisfactory sexual experiences (Brooks-Gordon & Ebbitt, 2021). However, due to the cross-sectional nature of our study, it is not possible to infer any temporal or causal relationships. This aspect presents a gap in the current body of evidence and future research should consider study designs that may enable a better understanding of chemsex determinants and outcomes.

This study identified reduced connectedness to the LGBT community among participants engaged in chemsex, aligning with research suggesting greater community connectedness decreases likelihood to engage in chemsex (Tan et al., 2021), a contrast observed with substances like alcohol, which see increased use with greater community connectedness (Demant, Hides, et al., 2018; Phillips et al., 2020). In this context, Tan et al. (2021) propose that strong

community integration and connectedness enhance identity formation and self-acceptance, reducing minority stress (Frost & Meyer, 2012) and, by extension, the reliance on chemsex as a coping mechanism. This association highlights the potential social dimensions of chemsex engagement. While it is not possible to determine directionality from this cross-sectional data, understanding how social connection and stigma operate in these contexts is important. Public health and community-based responses may benefit from addressing the broader social environment in which chemsex occurs. These findings suggest that lower community connectedness may co-occur with chemsex engagement. While causal direction cannot be inferred, further exploration into the role of community inclusion and social support in the lives of GBMSM may help clarify this relationship. Future community-informed responses could consider how experiences of marginalization or exclusion might influence chemsex practices.

Demographic differences emerged between those engaged in chemsex and those not, including younger age and representation among Aboriginal and/or Torres Strait Islander men. No significant differences were found between sexual orientations, sex recorded at birth, or type of current relationship, except for a tendency toward multiple partnerships among GBMSM who engaged in chemsex. The current body of evidence is not consistent concerning the age profile of men engaged in chemsex, with these varying drastically between studies, most likely as a result of sampling methods and frames (Maxwell et al., 2019). Limited literature focuses on chemsex among Aboriginal and/or Torres Strait Islander men, though existing research (Khaw et al., 2021) aligns with our findings of a generally higher use of substances commonly associated with chemsex with as methamphetamine (Wand et al., 2023). Considering the limited research in this area, we are cautious about drawing further conclusions about this difference. Speculatively, it may be related to the intersecting effects of belonging to a sexual minority and being Indigenous, facing both homonegativity and racism, potentially exacerbating the inhibition of same-sex sexuality (Hill et al., 2021). The disproportionately higher engagement in chemsex among younger participants and Aboriginal and/or Torres Strait Islander GBMSM signals the need for targeted public health strategies that consider intersecting social identities and the compounding effects of discrimination and stigma (Demant, Oviedo-Trespalacios, et al., 2018).

Regarding sexual behaviors, participants engaged in chemsex reported a higher likelihood of engagement in group sex and a greater likelihood of producing pornographic content, aligning with existing narratives of chemsex being associated with "adventurous" sexual behaviors such as group sex, (Bourne et al., 2014; Maxwell et al., 2019; Wang et al., 2023). The relationship between chemsex and producing pornographic content, while not extensively researched, suggests a correlation with "adventurous" sexual behaviors.

Lastly, an additional analysis was undertaken to establish which variables best distinguish between men who engage in chemsex or not. Relationship status was a key differentiator among those who engaged in chemsex. Men with multiple regular partners had a higher proportion of chemsex engagement. Conversely, men with one regular partner, those not in a relationship, or who were unsure of their relationship status, had lower proportions of chemsex engagement. Men with one regular partner could further be distinguished based on sexual negativity and sexual satisfaction scores. Men without a regular partner (or unsure of their relationship status) also could be distinguished based on sexual activity with multiple people at once. These findings suggest that psychosexual variables may play a role in distinguishing between different support strategies and/or tailored responses. Two groups reported higher proportions of chemsex engagement in this sample, suggesting that these groups may warrant particular attention in future research and in the development of targeted support resources: men who have multiple regular partners, and men with one regular partner who have high sexual negativity scores. For the latter, clinical practitioners may need to screen chemsex engagement alongside sexual negativity measures. It is worth noting that not all variables significantly associated with chemsex in ANOVAs such as psychological distress or LGBTQ+ community connectedness appeared in the decision tree analysis. This difference reflects the distinct purposes and mechanics of the two methods: while ANOVA identifies group-level mean differences, the decision tree focuses on the most efficient predictors for classifying individuals. Variables such as psychological distress and community connectedness, although important, may not have contributed additional explanatory power beyond the variables already included at earlier splits. Together, these methods provide complementary insights - highlighting both group differences and potential classification pathways.

Strengths and limitations

This study contributes new insights to aspects of chemsex that remain under-explored, particularly in relation to sexual wellbeing, mental health, and community connectedness among Australian GBMSM. A key strength of the study lies in its use of validated, multi-dimensional measures. The use of decision tree analysis further enabled the identification of intersecting factors that may be associated with chemsex engagement, supporting more targeted hypotheses in future research.

Our study has several limitations. The cross-sectional design prevents causal inference between chemsex and the variables measured. The use of a convenience sample may introduce selection bias and limit the generalizability of the findings to the broader GBMSM population. Additionally, pornography viewing in the past 12 months was used as an eligibility criterion for participation. While relevant to the broader project context, this criterion may have excluded individuals who engage in chemsex but do not consume pornography, potentially limiting the representativeness of the sample in relation to the full spectrum of chemsex experiences. Although, this limitation may be minor given the large prevalence of porno consumption among men (Crabbe et al., 2024).

Conclusion

The findings from this study contribute valuable insights into the complex dynamics of chemsex among Australian gay and bisexual men, highlighting the interplay between chemsex practices and psychosexual and psychosocial health. The study underscores the importance of comprehensive, multifaceted health and community-based responses that address the health, psychological, and social aspects of chemsex and the populations that are more likely to engage in chemsex. Our findings highlight clear and modifiable targets for intervention—including mental health support, sexual wellbeing, and community connection—that can inform comprehensive, multifaceted, and community-based responses to chemsex among GBMSM. By identifying these key areas, this study provides an empirical foundation for the development of effective harm reduction and support strategies.

Further research is needed to explore the long-term effects of chemsex on health and well-being, as well as to identify effective reducing harm approaches and support frameworks to support the wellbeing of men who engage in chemsex. Considering the overrepresentation of Aboriginal and Torres Strait Islander men among those who engage in chemsex, it is important to consider this already vulnerablized group in the development of inclusive support initiatives.

Ethical approval

Each author certifies that their contribution to this work meets the standards of the International Committee of Medical Journal Editors.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, Daniel Demant, upon reasonable request.

References

Amundsen, E., Haugstvedt, Å., Skogen, V., & Berg, R. C. (2022). Health characteristics associated with chemsex among men who have sex with men: Results from a cross-sectional clinic survey in Norway. *PloS One*, *17*(10), e0275618. https://doi.org/10.1371/journal.pone.0275618

Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler psychological distress scale (K10). *Australian and New Zealand Journal of Public Health*, *25*(6), 494–497. https://doi.org/10.1111/j.1467-842x.2001.tb00310.x

Berg, R. C., Amundsen, E., & Haugstvedt, Å. (2020). Links between chemsex and reduced mental health among Norwegian MSM and other men: Results from a cross-sectional clinic survey. *BMC Public Health*, *20*(1), 1785. https://doi.org/10.1186/s12889-020-09916-7

Bohn, A., Sander, D., Köhler, T., Hees, N., Oswald, F., Scherbaum, N., Deimel, D., & Schecke, H. (2020). Chemsex and mental health of men who have sex with men in Germany. *Frontiers in Psychiatry*, *11*, 542301. https://doi.org/10.3389/fpsyt.2020.542301

Bourne, A., Ong, J., & Pakianathan, M. (2018). *Sharing solutions for a reasoned and evidence-based response: Chemsex/party and play among gay and bisexual men* (Vol. 15, pp. 99–101). CSIRO Publishing.

Bourne, A., Reid, D., Hickson, F., Torres-Rueda, S., Steinberg, P., & Weatherburn, P. (2015). "Chemsex" and harm reduction need among gay men in South London. *The International Journal on Drug Policy*, *26*(12), 1171–1176. https://doi.org/10.1016/j.drugpo.2015.07.013

Bourne, A., Reid, D., Hickson, F., Torres-Rueda, S., & Weatherburn, P. (2015). 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*, *91*(8), 564–568. https://doi.org/10.1136/sextrans-2015-052052

Bourne, A., Reid, D., Hickson, F., Torres Rueda, S., & Weatherburn, P. (2014). *The Chemsex study: drug use in sexual settings among gay and bisexual men in Lambeth, Southwark and Lewisham*. https://researchonline.lshtm.ac.uk/id/eprint/2197245/

Brooks-Gordon, B., & Ebbitt, E. (2021). The Chemsex 'Consent Ladder' in male sex work: perspectives of health providers on derailment and empowerment. *Social Sciences*, *10*(2), 69. https://doi.org/10.3390/socsci10020069

Bui, H., Zablotska-Manos, I., Hammoud, M., Jin, F., Lea, T., Bourne, A., Iversen, J., Bath, N., Grierson, J., Degenhardt, L., Prestage, G., & Maher, L. (2018). Prevalence and correlates of recent injecting drug use among gay and bisexual men in Australia: Results from the FLUX study. *The International Journal on Drug Policy*, *55*, 222–230. https://doi.org/10.1016/j.drugpo.2018.01.018

Cartiser, N., Sahy, A., Advenier, A.-S., Franchi, A., Revelut, K., Bottinelli, C., Bévalot, F., & Fanton, L. (2021). Fatal intoxication involving 4-methylpentedrone (4-MPD) in a context of chemsex. *Forensic Science International*, *319*, 110659. https://doi.org/10.1016/j.forsciint.2020.110659

Crabbe, M., Flood, M., & Adams, K. (2024). Pornography exposure and access among young Australians: a cross-sectional study. *Australian and New Zealand Journal of Public Health*, *48*(3), 100135. https://doi.org/10.1016/j.anzjph.2024.100135

Demant, D., Carroll, J.-A., Saliba, B., & Bourne, A. (2022). Information-seeking behaviours in Australian sexual minority men engaged in chemsex. *Addictive Behaviors Reports*, *16*, 100399. https://doi.org/10.1016/j.abrep.2021.100399

Demant, D., Hides, L., Kavanagh, D. J., White, K. M., Winstock, A. R., & Ferris, J. (2017). Differences in substance use between sexual orientations in a multi-country sample: Findings from the Global Drug Survey. *Journal of Public Health*, *39*(3), 532–541.

Demant, D., Hides, L., White, K. M., & Kavanagh, D. J. (2018). Effects of participation in and connectedness to the LGBT community on substance use involvement of sexual minority young people. *Addictive Behaviors*, *81*, 167–174. https://doi.org/10.1016/j.addbeh.2018.01.028

Demant, D., Oviedo-Trespalacios, O., Carroll, J.-A., Ferris, J. A., Maier, L., Barratt, M. J., & Winstock, A. R. (2018). Do people with intersecting identities report more high-risk alcohol use and lifetime substance use? *International Journal of Public Health*, *63*(5), 621–630. https://doi.org/10.1007/s00038-018-1095-5

Demant, D., & Oviedo-Trespalacios, O. (2019). Harmless? A hierarchical analysis of poppers use correlates among young gay and bisexual men. *Drug and Alcohol Review*, *38*(5), 465–472. https://doi.org/10.1111/dar.12958

Downing, M. J., Schrimshaw, E. W., Scheinmann, R., Antebi-Gruszka, N., & Hirshfield, S. (2017). Sexually explicit media use by sexual identity: A comparative analysis of gay, bisexual, and heterosexual

men in the United States. *Archives of Sexual Behavior*, *46*(6), 1763–1776. https://doi.org/10.1007/s10508-016-0837-9

Florêncio, J. (2023). Chemsex cultures: Subcultural reproduction and queer survival. *Sexualities*, *26*(5-6), 556–573. https://doi.org/10.1177/1363460720986922

Frankis, J., Flowers, P., McDaid, L., & Bourne, A. (2018). 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. *Sexual Health*, *15*(2), 144–150. https://doi.org/10.1071/SH17159

Frost, D. M., & Meyer, I. H. (2012). Measuring community connectedness among diverse sexual minority populations. *Journal of Sex Research*, *49*(1), 36–49. https://doi.org/10.1080/00224499.2011.565427

Gerymski, R., & Magoń, W. (2023). Chemsex and sexual well-being in young polish men. *International Journal of Environmental Research and Public Health*, *20*(12), 6163. https://doi.org/10.3390/ijerph20126163

Gonzales, G., & Henning-Smith, C. (2017). Health disparities by sexual orientation: Results and implications from the behavioral risk factor surveillance system. *Journal of Community Health*, *42*(6), 1163–1172. https://doi.org/10.1007/s10900-017-0366-z

Hangen, F., & Rogge, R. D. (2022). Focusing the Conceptualization of erotophilia and erotophobia on global attitudes toward sex: Development and validation of the Sex Positivity–Negativity Scale. *Archives of Sexual Behavior*, *51*(1), 521–545. https://doi.org/10.1007/s10508-021-02085-7

Hibbert, M. P., Brett, C. E., Porcellato, L. A., & Hope, V. D. (2019). Psychosocial and sexual characteristics associated with sexualised drug use and chemsex among men who have sex with men (MSM) in the UK. *Sexually Transmitted Infections*, *95*(5), 342–350. https://doi.org/10.1136/sextrans-2018-053933

Hill, B., Uink, B., Dodd, J., Bonson, D., Eades, A.-M., & Bennett, S. (2021). *Breaking the silence: Insights into the lived experiences of WA Aboriginal/LGBTIQ+ people: Community summary report 2021*. https://www.ecu.edu.au/__data/assets/pdf_file/0005/931784/BTS_Community_final.pdf

Íncera-Fernández, D., Gámez-Guadix, M., & Moreno-Guillén, S. (2021). Mental health symptoms associated with sexualized drug use (Chemsex) among men who have sex with men: A systematic review. *International Journal of Environmental Research and Public Health*, *18*(24), 13299. https://doi.org/10.3390/ijerph182413299

Ivey, K., Bernstein, K. T., Kirkcaldy, R. D., Kissinger, P., Edwards, O. W., Sanchez, T., & Abara, W. E. (2023). Chemsex drug use among a national sample of sexually active men who have sex with men–American men's internet survey, 2017–2020. *Substance Use & Misuse*, *58*(5), 728–734.

Jaspal, R. (2022). Chemsex, identity and sexual health among gay and bisexual men. *International Journal of Environmental Research and Public Health*, *19*(19), 12124. https://doi.org/10.3390/ijerph191912124

Joloy, D. (2025). The 'good gay' versus chemsex: the articulation of a homonormative response. *Sexualities*, *28*(1–2), 5–23. https://doi.org/10.1177/13634607231158065

Kessler, R., & Mroczek, D. (1994). *Final versions of our non-specific psychological distress scale*. Survey Research Center of the Institute for Social Research, University of Michigan.

Khaw, C., Zablotska-Manos, I., & Boyd, M. A. (2021). Men who have sex with men and chemsex: A clinic-based cross-sectional study in South Australia. *Sexuality Research and Social Policy*, *18*(4), 1014–1022. https://doi.org/10.1007/s13178-020-00505-2

Lammers, J., & Stoker, J. I. (2019). Power affects sexual assertiveness and sexual esteem equally in women and men. *Archives of Sexual Behavior*, *48*(2), 645–652. https://doi.org/10.1007/s10508-018-1285-5

Lea, T., Hammoud, M., Bourne, A., Maher, L., Jin, F., Haire, B., Bath, N., Grierson, J., & Prestage, G. (2019). Attitudes and perceived social norms toward drug use among gay and bisexual men in Australia. *Substance Use & Misuse*, *54*(6), 944–954. https://doi.org/10.1080/10826084.2018.1552302

Li, C.-W., Ku, S. W.-W., Huang, P., Chen, L.-Y., Wei, H.-T., Strong, C., & Bourne, A. (2021). Factors associated with methamphetamine dependency among men who have sex with men engaging in chemsex: Findings from the COMeT study in Taiwan. *The International Journal on Drug Policy*, *93*, 103119. https://doi.org/10.1016/j.drugpo.2021.103119

Maviglia, F., Wickersham, J. A., Azwa, I., Copenhaver, N., Kennedy, O., Kern, M., Khati, A., Lim, S. H., Gautam, K., & Shrestha, R. (2022). Engagement in chemsex among men who have sex with men (MSM) in Malaysia: Prevalence and associated factors from an online national survey. *International Journal of Environmental Research and Public Health*, *20*(1), 294. https://www.mdpi.com/1660-4601/20/1/294 https://doi.org/10.3390/ijerph20010294

Maxwell, S., Shahmanesh, M., & Gafos, M. (2019). Chemsex behaviours among men who have sex with men: A systematic review of the literature. *The International Journal on Drug Policy*, *63*, 74–89. https://doi.org/10.1016/j.drugpo.2018.11.014

McDaid, L., Flowers, P., Ferlatte, O., Young, I., Patterson, S., & Gilbert, M. (2021). Sexual health literacy among gay, bisexual and other men who have sex with men: A conceptual framework for future research. *Culture, Health & Sexuality*, *23*(2), 207–223. https://doi.org/10.1080/13691058.2019.1700307

Phillips, G., II, Felt, D., McCuskey, D. J., Marro, R., Broschart, J., Newcomb, M. E., & Whitton, S. W. (2020). Engagement with LGBTQ community moderates the association between victimization and substance use among a cohort of sexual and gender minority individuals assigned female at birth. *Addictive Behaviors*, *107*, 106414. https://doi.org/10.1016/j.addbeh.2020.106414

Pufall, E., Kall, M., Shahmanesh, M., Nardone, A., Gilson, R., Delpech, V., Ward, H., Group, P. V. S., Hart, G., & Anderson, J, Positive Voices study group. (2018). Sexualized drug use ('chemsex') and high-risk sexual behaviours in HIV-positive men who have sex with men. *HIV Medicine*, *19*(4), 261–270. https://doi.org/10.1111/hiv.12574

Race, K. (2009). *Pleasure consuming medicine: The queer politics of drugs*. Duke University Press.

Race, K., Lea, T., Murphy, D., & Pienaar, K. (2017). The future of drugs: recreational drug use and sexual health among gay and other men who have sex with men. *Sexual Health*, *14*(1), 42–50. https://doi.org/10.1071/SH16080

Smiles, C., O'Donnell, A., & Jackson, K. (2023). Needle exchange practitioners accounts of delivering harm reduction advice for chemsex: implications for policy and practice. *Drugs: Education, Prevention and Policy*, *30*(3), 250–258. https://doi.org/10.1080/09687637.2022.2027345

Snell, W. E., Jr, Fisher, T. D., & Schuh, T. (1992). Reliability and validity of the Sexuality Scale: A measure of sexual-esteem, sexual-depression, and sexual-preoccupation. *The Journal of Sex Research*, *29*(2), 261–273.

Stevens, O., Moncrieff, M., & Gafos, M. (2020). Chemsex-related drug use and its association with health outcomes in men who have sex with men: a cross-sectional analysis of Antidote clinic service data. *Sexually Transmitted Infections*, *96*(2), 124–130. https://doi.org/10.1136/sextrans-2019-054040

Tan, R. K. J., O'Hara, C. A., Koh, W. L., Le, D., Tan, A., Tyler, A., Tan, C., Kwok, C., Banerjee, S., & Wong, M. L. (2021). Social capital and chemsex initiation in young gay, bisexual, and other men who have sex with men: the pink carpet Y cohort study. *Substance Abuse Treatment, Prevention, and Policy*, *16*(1), 18. https://doi.org/10.1186/s13011-021-00353-2

Wand, H., Reilly, R., McKetin, R., Quinn, B., Roe, Y., Conigrave, K., Ezard, N., Butt, J., Treloar, C., Sivak, L., Shackleford, I., Dunlop, A., & Ward, J. (2023). Investigating associations between methamphetamine use, mental health and risky sexual behaviours amongst Aboriginal and Torres Strait Islander peoples. *Mental Health & Prevention*, *30*, 200267. https://doi.org/10.1016/j.mhp.2023.200267

Wang, H., Jonas, K. J., & Guadamuz, T. E. (2023). Chemsex and chemsex associated substance use among men who have sex with men in Asia: A systematic review and meta-analysis. *Drug and Alcohol Dependence*, *243*, 109741. https://doi.org/10.1016/j.drugalcdep.2022.109741

Weatherburn, P., Hickson, F., Reid, D., Torres-Rueda, S., & Bourne, A. (2017). Motivations and values associated with combining sex and illicit drugs ('chemsex') among gay men in South London: Findings from a qualitative study. *Sexually Transmitted Infections*, *93*(3), 203–206. https://doi.org/10.1136/sextrans-2016-052695