

Chemsex and symptoms of anxiety and depression among gay, bisexual, and other men who have sex with men (GBM) in Montréal: Results from the **ENGAGE** study

Clément Conil¹, Gabriel Girard¹, Jorge Flores-Aranda², Herak Apelian^{3,9}, Marc Messier-Peet^{3,9}, Nathan Lachowsky⁴, Daniel Grace⁶, Trevor Hart⁷, Gilles Lambert^{3,8}, Joseph Cox^{3,5,9}

¹Université de Montréal, ²Université du Québec à Montréal, ³Direction régionale de santé publique de Montréal, ⁴University of Victoria, ⁵McGill University, ⁶University of Toronto, ⁷Ryerson University, ⁸Institut national de santé publique du Québec, ⁹Research Institute-McGill University Health Centre, Montréal

Conflict of Interest Disclosure: I have no conflicts of interest

Contact: clement.conil@cri-paris.org

Background

- ▶ Compared to their heterosexual counterparts, GBM are at higher risk of anxiety, depression and problematic substance use (1).
- ▶ Chemsex is defined as the use of methamphetamine, mephedrone, gamma-Hydroxybutyric acid (GHB), ketamine and sometimes cocaine, erectile drugs and ecstasy/MDMA, during or before sex to enhance, facilitate and arouse sexual intercourse. Chemsex usually involves long sessions of sexual relations with multiple partners, referred to as “sex parties” (2).
- ▶ Chemsex engagement has been associated with high risk sexual practices among GBM (3); depressive symptoms among HIV- GBM (4) and lifetime history of anxiety and/or depression among HIV+ GBM (5).

Objectives

- ▶ **Evaluate the association of chemsex (main predictor) with symptoms of anxiety and depression (two outcomes) among HIV- and HIV+ GBM.**

Methods

- ▶ ENGAGE-Montréal recruited 1179 sexually active GBM ≥ 16 years old via respondent driven sampling (RDS) in 2017-2018. Sociodemographic, sexual behavior, substance use and mental health data were collected.
- ▶ Main variables were defined as follow:
 - ▶ Presence of anxiety and depression symptoms: a score of ≥ 8 on either the anxiety- or depression-subscale of the Hospital Anxiety and Depression Scale.
 - ▶ Chemsex engagement: use of crystal methamphetamine, cocaine, GHB, ecstasy or ketamine with at least one of the last 5 sexual partners in the last 6 months.
- ▶ Two logistic multivariate models were built to assess the association of chemsex (main predictor) with symptoms of anxiety and depression (two outcomes). Statistical interaction between self-reported HIV status and chemsex participation were tested in each multivariate model adjusting for potential confounders. Variables significantly associated with both chemsex and anxiety/depression were included as potential confounders. Adjusted odds ratios (aOR) and 95%CI are reported; analyses were RDS-adjusted.

Results (1)

Figure 1: RDS-II adjusted estimates of anxiety and depression symptoms stratified by chemsex engagement

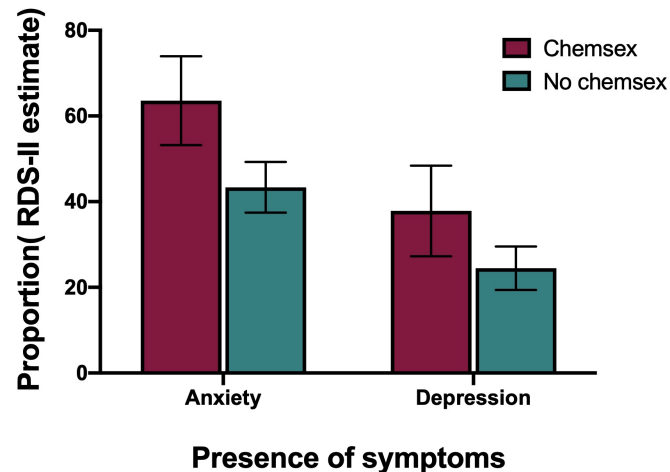
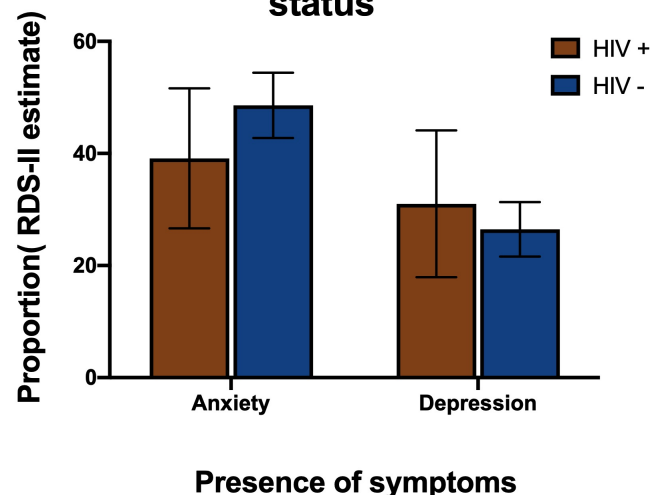


Figure 2: RDS-II adjusted estimates of anxiety and depression symptoms stratified by reported HIV status



► Main sample characteristics (n=1179)

	n	%	RDS-II estimates (% or mean) (95% CI)
Chemsex (any chemsex substance used during/before sex)			
Yes	284	24.1	18.7 (14.8 - 22.6)
No	893	75.7	81.3 (77.4 - 85.1)
Age (years)			
18-25	205	17.4	20.1 (16.1 - 24.1)
26-35	422	35.8	35.9 (31.8 - 41.0)
36-45	189	16.0	15.5 (11.5 - 19.5)
46-55	191	16.2	14.2 (11.1 - 17.4)
> 55	172	14.6	14.3 (11.2 - 14.4)
Education			
≤ secondary school	243	20.6	25.3 (21.0 - 29.6)
CEGEP or Technical	413	35.0	35.0 (30.0 - 40.0)
University	523	44.4	40.0 (34.8 - 44.8)
Reported gender			
Man	1089	92.4	88.4 (84.8 - 92.1)
Trans man	14	1.2	1.5 (0.0 - 3.2)
Genderqueer	31	2.6	2.2 (1.0 - 3.5)
Two-spirit	25	2.1	4.9 (2.5 - 7.3)
Other	20	1.7	2.9 (0.8 - 5.0)
ASSIST score alcohol			
< 11	675	57.3	64.7 (59.5 - 69.9)
≥ 11	348	29.5	35.3 (30.1 - 40.5)
Sexual abuse in lifetime			
Yes	260	22.1	25.1 (20.7 - 29.5)
No	830	70.4	74.9 (70.5 - 79.3)
HIV status – reported			
Positive	211	17.9	13.7 (10.2 - 17.2)
Negative	968	82.1	86.3 (82.9 - 89.8)

Results (2)

Figure 3: aOR for presence of anxiety symptoms

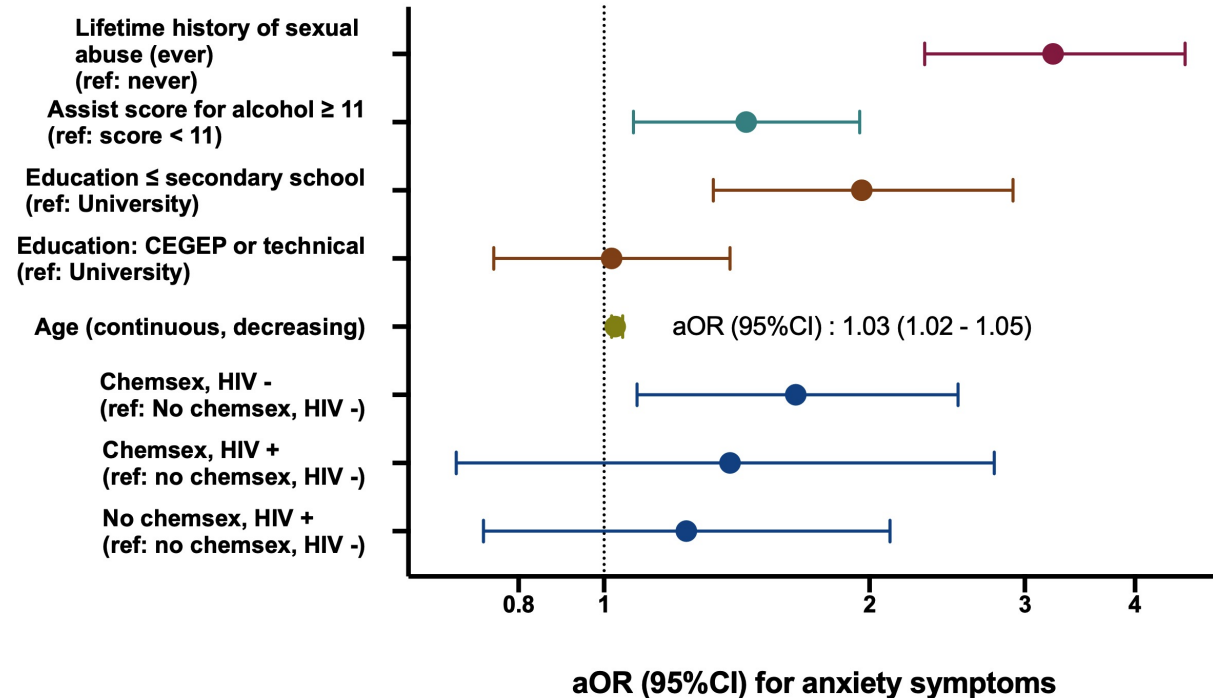
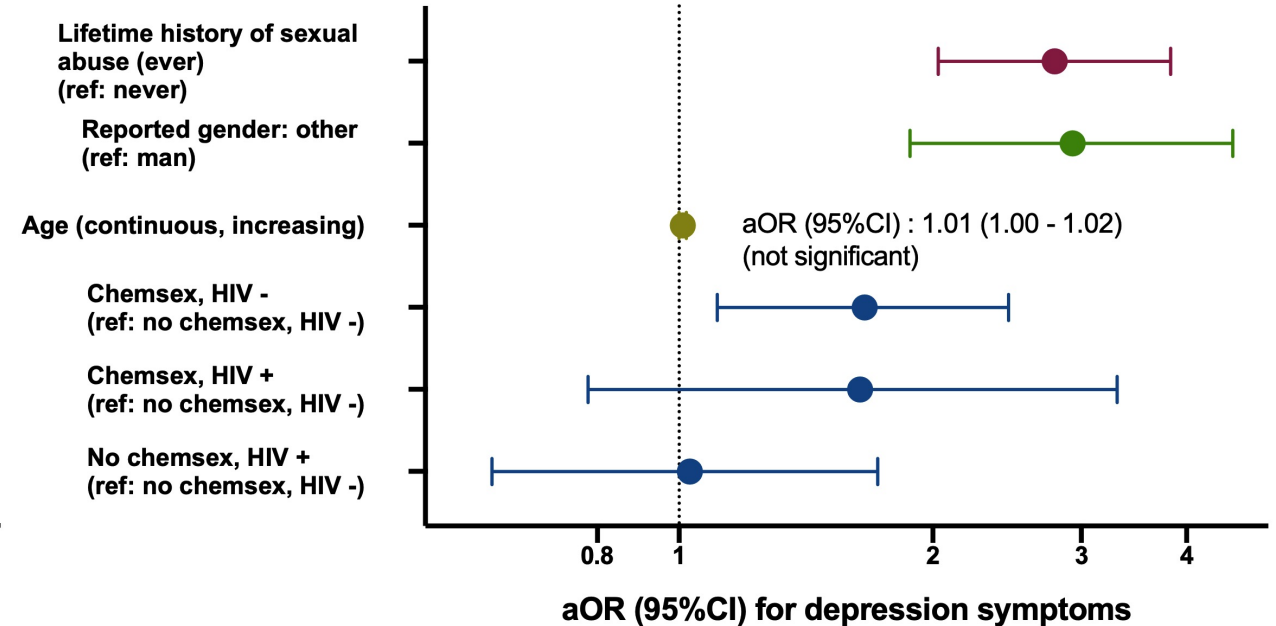


Figure 4: aOR for presence of depression symptoms



Both multivariate logistic models shown in figure 3 and figure 4 included only the displayed variables.

KEY FINDINGS

- Engaging in chemsex is associated with anxiety and depression symptoms among HIV- GBM but not for HIV+ GBM.
- Anxiety symptoms are associated with lifetime history of sexual abuse, alcohol misuse, education \leq high school and a younger age.
- Depression symptoms are associated with a lifetime history of sexual abuse and with not identifying as a cis-gendered male.

Discussion

- ▶ Chemsex engagement may be linked with poorer mental health among HIV- GBM.
- ▶ Harm reduction interventions about chemsex might integrate mental health aspects. Chemsex engagement might be considered as an associated factor to identify individuals at risk for anxiety and depression factor among HIV- GBM.
- ▶ Lifetime history of sexual abuse was strongly associated with anxiety and depression symptoms; a factor to consider to further understand the association between chemsex and mental health.
- ▶ Further analyses could explore some chemsex related behavior (poly-substance use, injection etc.) that may further explain the associations observed with anxiety and depression symptoms.
- ▶ Strength and limitations:
 - ▶ Haltikis et al. conceptual-framework (6) was used to select potential confounders.
 - ▶ Cross-sectional data: temporality cannot be known.
 - ▶ Mental health was assessed by using self-reported data on symptoms of anxiety and depression.
 - ▶ Chemsex engagement assessed only in the past 6 months with the last 5 sexual partners. Number of partners, number of substances and nature of polysubstance use are not taken in account.

References

- ▶ (1) King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, 8(1).
- ▶ (2) 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.
- ▶ (3) Tomkins, A., George, R., & Kliner, M. (2018). Sexualised drug taking among men who have sex with men: A systematic review. *Perspectives in Public Health*, 1757913918778872.
- ▶ (4) Sewell, J., Cambiano, V., Speakman, A., Lampe, F. C., Phillips, A., Stuart, D., Gilson, R., Asboe, D., Nwokolo, N., Clarke, A., & Rodger, A. J. (2019). Changes in chemsex and sexual behaviour over time, among a cohort of MSM in London and Brighton: Findings from the AURAH2 study. *International Journal of Drug Policy*, 68, 54–61
- ▶ (5) Pufall, E. L., Kall, M., Shahmanesh, M., Nardone, A., Gilson, R., Delpech, V., Ward, H., & 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
- ▶ (6) Halkitis, P. N., Wolitski, R. J., & Millett, G. A. (2013). A holistic approach to addressing HIV infection disparities in gay, bisexual, and other men who have sex with men. *American Psychologist*, 68(4), 261.

We would like to thank Engage participants, our community and public health partners, academic partners and funders (<https://www.engage-men.ca/>).