A Longitudinal Analysis of Cannabis Use and Mental Health Symptoms Among Gay, Bisexual, and Other Men who have Sex with Men (gbMSM) in Vancouver

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Background

- Cannabis-use is commonly reported among gbMSM.
- Anecdotally, some may use it to self-medicate symptoms of anxiety and depression.
- We examined factors associated with regular cannabis-use and associations with symptoms of anxiety and depression among gbMSM who reported being diagnosed with these conditions in Vancouver.

Methods

- We collected data on demographics, drug use, and symptoms of anxiety and depression every six months using a self-administered computer-based survey among a cohort of sexually-active GBMSM aged ≥16 years from February 2012-February 2017.
- The survey included the validated Hospital Anxiety and Depression Scale (HADS) for current symptoms. Scores for each subscale (anxiety and depression) range from 0 to 21 with scores categorized as: normal 0-7, mild 8-10, moderate 11-14, and severe 15-21.
- A nurse-administered questionnaire asked about previous mental health diagnoses.
- We examine factors associated with regular use of cannabis (≥weekly in the previous 3 months) using multivariable generalized linear mixed models (GLMM).
- Among individuals who reported being ever diagnosed with anxiety or depression/bipolar disorders, we examined associations with moderate or severe symptom scores (≥11) on the HADS anxiety or depression sub-scales using GLMM with regular cannabis use forced into models.

Results

- We enrolled 774 participants of whom 223 (28.8%) were HIV positive based on dried blood spot result and self-report.
- 250 (32.3%) reported regular cannabis use at enrollment,
- 200 (26.4%) had ever been diagnosed with an anxiety disorder, and 299 (39.3%) had ever been diagnosed with depression or bipolar disorder at baseline.
- Regular cannabis-use was positively associated with HIV seropositivity (aOR=2.23; 95%CI:1.40-3.54) and ever being diagnosed with a mental health disorder (aOR=1.52; 95%CI:1.00-2.31).
- Among participants diagnosed with anxiety disorder, regular cannabis use was not associated with moderate or severe HADS anxiety scores (aOR=1.12; 95%CI:0.67-1.88). (Table 1)
- Among those diagnosed with depression or bipolar disorder, regular cannabis use was not associated with moderate or severe HADS depression scores (aOR=0.96; 95%CI:0.59-1.58). (Table 2)

Conclusion

- Regular cannabis use was more common among HIV-positive gbMSM and those diagnosed with a mental health disorder.
- However, we did not observe an association with regular cannabis use and symptomatology for anxiety and depression among those diagnosed with these conditions.

Table 1: Factors associated with having moderate or severe symptom scores on HADS Anxiety Subscale among participants previously diagnosed with an anxiety disorder

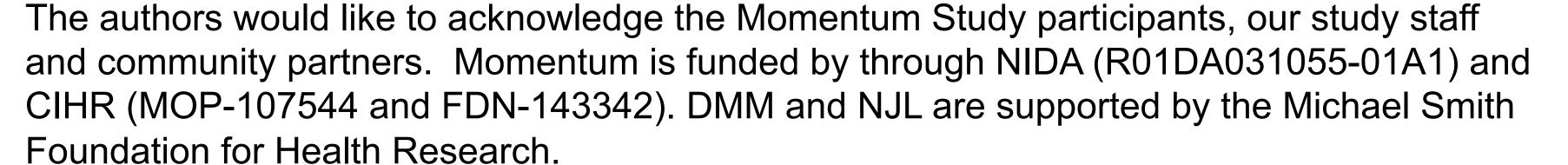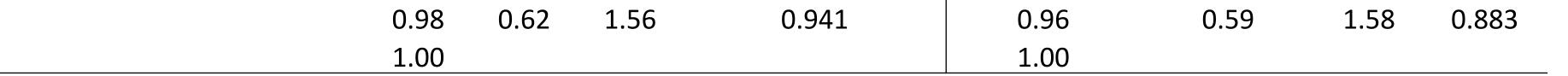|	Univariable				Multivariable			
	OR	95% CI		P-value	aOR	95% CI		P-value
Age (in years)	0.97	0.95	0.99	**0.007**	0.98	0.96	1.00	**0.02**
Ethnicity								
White	1.00				1.00			
Asian	2.35	0.79	6.99	0.125	1.93	0.46	8.04	0.368
Aboriginal	1.40	0.51	3.82	0.513	1.03	0.39	2.73	0.957
Latin American	0.20	0.03	1.58	0.127	0.08	0.01	0.43	**0.004**
Other	0.35	0.05	2.63	0.310	0.30	0.04	2.23	0.238
Currently a student								
No	1.00				1.00			
Yes	0.68	0.40	1.18	0.168	0.58	0.34	0.99	**0.044**
HIV status								
HIV negative	1.00							
HIV positive	0.51	0.30	0.88	**0.015**		Not selected		
Received money in exchange for sex past 6 months								
No	1.00				1.00			
Yes	0.63	0.32	1.24	0.178	0.46	0.22	0.96	**0.037**
Alcohol Use Disorder Identification Test (AUDIT) score	1.07	1.03	1.11	**<0.001**	1.06	1.03	1.10	**0.001**
Currently under treatment for mental health								
No	1.00				1.00			
Yes	1.29	0.91	1.84	0.154	1.41	0.97	2.05	0.069
Cannabis use at least weekly past 3 months								
Yes	1.10	0.66	1.83	0.719	1.12	0.67	1.88	0.652
No	1.00				1.00			
Number of MSM in Vancouver you have seen or spoken to in the past month (per 100 individuals)	0.54	0.33	0.89	**0.015**	0.47	0.25	0.87	**0.016**

Table 2: Factors associated with having moderate or severe symptom scores on HADS Depression Subscale among participants reporting a previous diagnosis of depression or bipolar disorder

	Univariable				Multivariable			
	OR	95% CI		P-value	aOR	95% CI		P-value
Age at interview date (categorical)								
Under 30	0.42	0.19	0.91	**0.027**	0.39	0.18	0.84	**0.016**
30 to 44	1.00				1.00			
45 and over	0.76	0.42	1.37	0.363	0.79	0.43	1.47	0.462
Highest level of education								
High school or less	1.00				1.00			
Greater than high school	0.43	0.25	0.73	**0.002**	0.43	0.25	0.74	**0.002**
HIV status								
HIV negative	1.00							
HIV positive	1.49	0.83	2.69	0.183		Not selected		
Currently under treatment for mental health								
No	1.00				1.00			
Yes	1.70	1.20	2.40	**0.003**	1.73	1.21	2.49	**0.003**
Use of depressants* in past 6 months								
No	1.00				1.00			
Yes	1.50	0.93	2.44	0.098	1.61	0.98	2.64	0.062
Frequency of alcohol use past 6 months								
No use	1.00				1.00			
Once a week or less	0.68	0.39	1.18	0.167	0.68	0.39	1.19	0.174
2 to 4 times a week	0.50	0.24	1.04	0.064	0.49	0.24	1.01	**0.052**
Daily or almost daily	1.23	0.54	2.79	0.619	1.37	0.58	3.25	0.469
Used Smart Phone Apps to Seek Sex in past 6 months								
Never	1.00				1.00			
Less than/About once per month	0.51	0.29	0.90	**0.021**	0.56	0.31	1.00	**0.052**
More than once per month	0.86	0.52	1.42	0.549	1.08	0.67	1.74	0.751
Importance to be connected to and involved in the gay community								
Very/Somewhat Important	1.00				1.00			
Not very important/Not at all important	1.63	1.02	2.59	**0.04**	1.66	1.05	2.61	**0.03**
Cannabis use at least weekly in past 3 months								
Yes	0.98	0.62	1.56	0.941	0.96	0.59	1.58	0.883
No	1.00				1.00			

* Depressants = GHB, Ketamine, non-prescription benzodiazepines and barbiturates, excludes opiates