

Substance Use, Mental Health, and HIV Risk Behavior Among MSM in Vancouver, Canada

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Background

- Syndemic factors (e.g., substance use and mental health) are associated with HIV risk behavior among gay bisexual and other men who have sex with men (herein referred to as "MSM")
- However, some evidence examining both mental health and substance use on sexual HIV risk behavior is mixed

Objectives

1. To develop population-weighted estimates of self reported substance use and doctor-diagnosed mental health conditions among MSM in Vancouver
2. To determine what substance use and mental health factors were associated with HIV risk

Methods

Eligibility Criteria:

- Aged 16 years or greater
- Gender identify as male
- Had sex with another man in the past 6 months
- Residing in Metro Vancouver (population of ~2.5 million)
- Understand and complete questionnaires written in English

Study Details

- Used respondent-driven sampling
- Participants completed a self-administered computer-based survey followed by a nurse-administered clinical questionnaire

Primary Outcome:

- **sexual HIV risk behavior** was defined as unprotected anal intercourse with a known serodiscordant or unknown serostatus partner in the past 6 months

Explanatory Variables:

- Substance use in the past 6 months
- Alcohol Use Disorders Identification Test (AUDIT)
- Doctor-diagnosed mental health disorder and current treatment
- Hospital Anxiety and Depression Scale (HADS)
- Demographics

Data Analysis

- All analyses were weighted given use of RDS
- Manual backward-stepwise multivariate logistic regression was used to examine independent associations with risky sex (p<0.05 considered significant)

Results: Overall Sample

Of 719 total participants recruited from February 2012 – February 2014, 23.4% were HIV-positive, 68.0% were White, and median age was 33 years (IQR 26-47)

Table 1. Sample Demographics

	n	RDS %
Sexual Identity		
Gay	612	80.7
Bisexual	66	15.3
Other	41	4.0
Race/Ethnicity		
White	539	68.0
Asian	72	9.8
Aboriginal	50	10.5
Latin American	31	7.0
Other	27	4.7
Immigration Status		
Born in Canada	557	74.5
Citizen or Permanent Resident	126	19.0
Refugee or Visa	36	6.5
Neighborhood		
Downtown Vancouver	356	51.9
Other City of Vancouver	223	30.4
Metro Vancouver Area	140	17.7
Formal Education		
No greater than high school	168	34.4
Greater than high school	537	65.6
Current Student		
No	568	81.0
Yes	150	19.0
Annual Income		
<\$30,000	457	74.3
≥\$30,000	262	25.7
Out as Gay		
Yes	575	72.1
Partial	44	7.4
No	18	2.5
Not Gay Identified	82	17.9
Last HIV Test Result		
Negative	520	76.6
Positive	199	23.4
Current Regular Partner		
No	446	62.8
Yes	273	37.2
# Male Anal Sex Partners, P6M		
0	89	14.0
1	107	19.7
2-3	182	23.2
4-7	164	18.8
8+	176	24.3
Any Sex Work, P6M		
No	673	91.3
Yes	46	8.7

P6M = past 6 months

Results: Mental Health

- Of all 719 participants, half (52.1%) had received a doctor-diagnosed mental health condition during their lifetime: Depression, 42.4%; Anxiety, 25.9%; Substance Dependence, 14.8%; and Alcohol Dependence, 6.9%.
- Of those diagnoses, 46.1% were currently receiving treatment
- **A number of MSM reported multiple diagnoses: 23.5% only one diagnosis, 19.0% had two diagnoses, 7.7% had three diagnoses, and 2.8% had four or more diagnoses**
- Figure 1 presents categorized HADS Scores. Median HADS-Depression score was 3 (Q1-Q3: 2-6) and HADS-Anxiety score was 8 (Q1-Q3: 5-11)

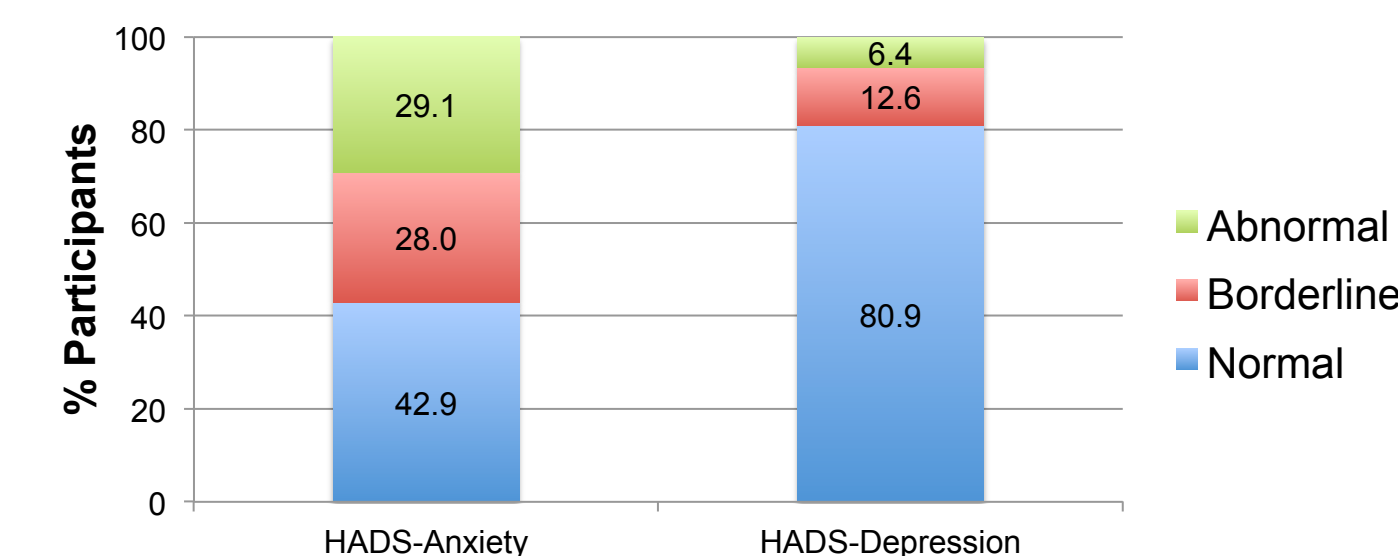


Figure 1. Hospital Anxiety and Depression Scale Scores

Results: Substance Use

- Alcohol, tobacco, and marijuana use were most commonly reported.
- In the past 6 months, alcohol was used at least once a month by 55.8% of MSM and daily by 5.6%.
- One third (37.1%) of MSM were daily or regular tobacco users
- One third (38.5%) also reported using marijuana at least weekly
- Figure 2 presents categorized AUDIT scores (median=6, Q1-Q3: 3-11).

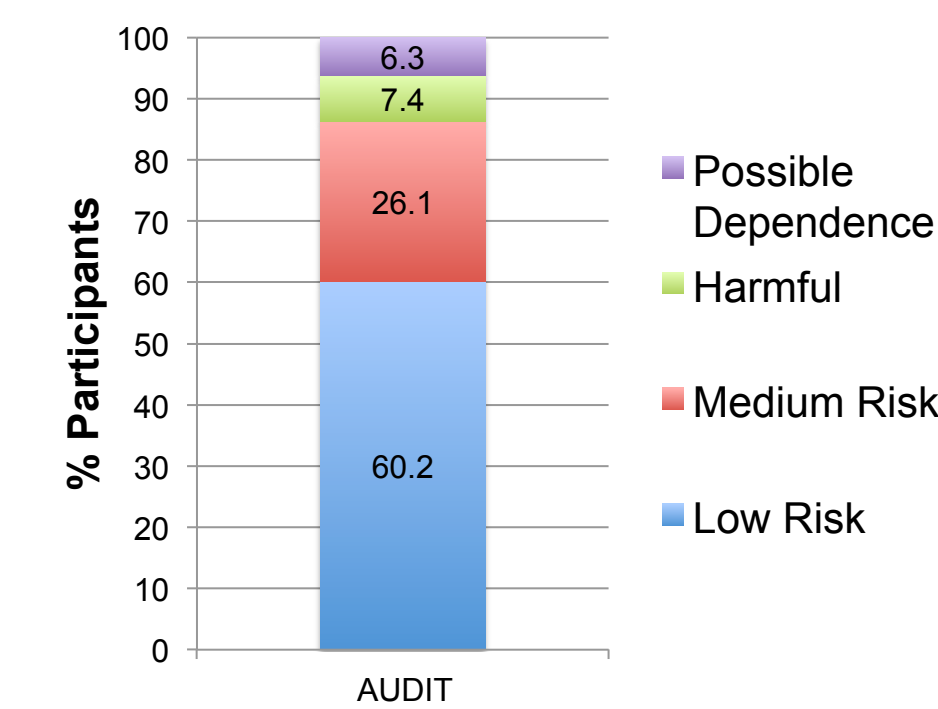


Figure 2. Alcohol Use Disorders Identification Test Scores

Table 2. Substance Use

Used in Past 6 Months...	RDS %
Poppers	34.1
Cocaine	29.5
Crystal methamphetamine	19.5
Ecstasy	18.9
GHB	18.3
Erectile Dysfunction Drugs	17.2
Crack	17.2
Ketamine	12.0
Mushrooms	9.7
Codeine	7.1
Speed	6.2
LSD	5.4
Heroin	4.3

Results: Factors Associated with HIV Risk

- Of all MSM, 35.9% reported sexual HIV risk behavior (n=262/703)
- None of the following were significant explanatory factors in the multivariable model for HIV risk (see Table 3): any lifetime doctor-diagnosed mental health disorder (irrespective of current treatment status), HADS-Depression score, HADS-Anxiety score, and AUDIT score

Table 3. Multivariable model for HIV risk

Ethnicity	HIV Risk		AOR	95% CI
	No RDS %	Yes RDS %		
White	67.1	32.9	1.00	
Asian	71.8	28.2	0.92	0.48 - 1.76
Aboriginal	48.8	51.2	2.42	1.27 - 4.63
Latin American	35.4	64.6	7.30	3.67 - 14.6
Other	82.6	17.4	0.38	0.13 - 1.05
Annual Income				
<\$30,000	66.9	33.1	1.00	
≥\$30,000	57.8	42.2	1.62	1.08 - 2.43
Used Viagra in P6M				
No	70.2	29.8	1.00	
Yes	38.9	61.1	3.01	1.88 - 4.81
Used Poppers in P6M				
No	72.6	27.4	1.00	
Yes, used monthly or less	50.3	49.7	2.65	1.74 - 4.03
Yes, used weekly or more	38.3	61.7	3.45	1.67 - 7.11
Used Crystal in P6M				
No	69.1	30.9	1.00	
Yes, used monthly or less	45.8	54.2	2.57	1.49 - 4.43
Yes, used weekly or more	35.8	64.2	2.17	0.83 - 5.67
Used LSD in P6M				
No	63.2	36.8	1.00	
Yes	80.0	20.0	0.23	0.09 - 0.55
Asks Partner's HIV Status				
<50% of time	57.8	42.2	1.00	
>50% of time	66.1	33.9	0.90	0.60 - 1.37
Always (100% of time)	75.2	24.8	0.35	0.21 - 0.59

AOR = adjusted odds ratio; 95%CI = 95% Confidence Interval; P6M = past 6 months

Conclusions

- Mental health conditions and substance use were prevalent
- Mental health did not contribute independently to HIV risk
- Substance use alone provides a better explanation of HIV risk, alongside disparities by race/ethnicity and income