



# HIV and Improvements in Mental Health among Gay, Bisexual, and other Men who have Sex with Men (gbMSM) in Vancouver

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## Background

- GbMSM face disproportionate mental health disparities compared with their heterosexual counterparts (depression, anxiety, self-harm, etc.) (Brennan et al., 2010)
- Previously in the Momentum Health Study of gbMSM in Metro Vancouver, 19% reported moderate or severe depressive scores, while 57% reported moderate or severe anxiety scores (Card et al. 2018)
- Anxiety and depression are associated with, greater odds of HIV risk behaviour (O'Cleirigh et al., 2013; Alvy et al., 2011) and greater odds of having a detectable viral load among gbMSM living with HIV (Boarts et al., 2006)

**Study Objective: To explore factors associated with improvements in mental health among a sample of gbMSM with abnormal depression and anxiety.**



## Methods, Measures and Analysis



- **Sexually active gbMSM, aged  $\geq 16$  years; recruited through respondent-driven sampling (RDS)**
- **Prospective bio-behavioural cohort**, follow-up of 4 years, complete questionnaire every 6 months and nursing visit
- **PRIMARY OUTCOME: Hospital Anxiety and Depression Scores (HADS):** 14-items (7-items each), range: 0-21 for each, response: 4-point likert scale
- **PRIMARY EXPLANATORY FACTORS:** demographic variables, HIV serostatus, social support, HIV sexual risk behaviors, substance use
- **Inclusion for this analysis:** Momentum cohort participants who report HADS anxiety scores  $\geq 11$  with at least one follow-up of reduced anxiety or HADS depression scores  $\geq 11$  (abnormal) at enrolment or follow-up visits with at least one follow-up of reduced depressive scores
- **Data collected:** February 2012-July 2019
- **Analysis:** Bivariate analysis, Generalized linear mixed modeling with log-link function modeled for visit of transition in mental health scores



# Results

**N=580** participants with follow-up data; median 7 visits  
**43.8%** had a HADS anxiety score at a least one visit  $\geq 11$   
 Of these, 76.8% had anxiety scores  $<11$  at least once  
**16.2%** ever had a HADS depression score  $\geq 11$   
 Of these, 50% had reduced depression scores  $<11$  at least once

Univariable & Multivariable results	Reduced Anxiety (262 never reduced vs 486 reduced scores) *						Reduced Depression (106 never reduced vs 102 reduced scores) *					
	Univariable			Multivariable			Univariable			Multivariable		
<u>Categorical Variables</u>	RR	95% CI	aRR	95% CI	aRR	95% CI	RR	95% CI	aRR	95% CI	aRR	95% CI
<b>Self-assessed HIV transmission risk (Ref. Low)</b>	1.00						1.00					
High/Already think HIV+	1.42	0.93 2.16	<b>1.55</b>	<b>1.04</b>	<b>2.31</b>		1.49	0.43 5.10				
<b>Heard of PrEP (Ref. No)</b>	1.00						1.00					
Yes	1.08	0.82 1.43					1.90	1.07 3.04	<b>2.23</b>	<b>1.26</b>	<b>3.96</b>	
<b>Ask HIV Status (Ref. &lt;50%)</b>	1.00						1.00					
At least 50%	0.87	0.68 1.13					0.62	0.36 1.05	<b>0.46</b>	<b>0.27</b>	<b>0.80</b>	
<b>Condomless Anal Sex P6M (Ref. No anal sex)</b>	1.00						1.00					
No unprotected sex	1.05	0.70 1.58					0.87	0.35 2.16	1.11	0.46	2.67	
Any condomless anal sex (same status only)	1.08	0.74 1.57					1.51	0.81 2.83	<b>2.14</b>	<b>1.17</b>	<b>3.93</b>	
Any high risk sex (condomless anal sex with other or unknown HIV status partner)	1.10	0.79 1.53					0.69	0.35 1.38	0.73	0.37	1.43	
<u>Continuous Variables</u>												
<b>Self-Esteem Score</b>	1.14	1.10 1.17	<b>1.10</b>	<b>1.06</b>	<b>1.14</b>		1.06	0.99 1.12				
<b>Loneliness Emotional Score</b>	0.65	0.58 0.73	<b>0.80</b>	<b>0.70</b>	<b>0.92</b>		0.73	0.57 0.93	<b>0.74</b>	<b>0.59</b>	<b>0.98</b>	
<b>Number of gbMSM seen/spoken to in past month</b>	1.00	1.00 1.00	<b>1.02</b>	<b>1.00</b>	<b>1.04</b>		1.00	1.00 1.00				

\*The intraclass correlation coefficient (ICC) for anxiety scores was 0.707 and 0.649 for depression scores



## Limitations

- We did not measure the degree of HADS score change, only transitions from abnormal to normal/borderline scores
- Findings are not stratified by HIV serostatus, which may help to further explain results

## Conclusions & Next Steps

- Abnormal anxiety scores were more common (43.8%) than abnormal depressive scores (16.2%)
- GbMSM who had high self-perceived HIV transmission/ acquisition were more likely to reduce anxiety scores
- Having heard of PrEP and having had any condomless anal intercourse were associated with improvements in depressive scores at a subsequent visit
- Findings suggest important connections between mental health and physical sexual health (HIV-related factors such as self-perceived risk and sexual behaviours) and social health (number of gbMSM seen/spoken to)