

Factors associated with sub-optimal HIV testing among gay, bisexual, and other men who have sex with men (GBM) at high risk for HIV living in Montreal, Vancouver and Toronto

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Introduction

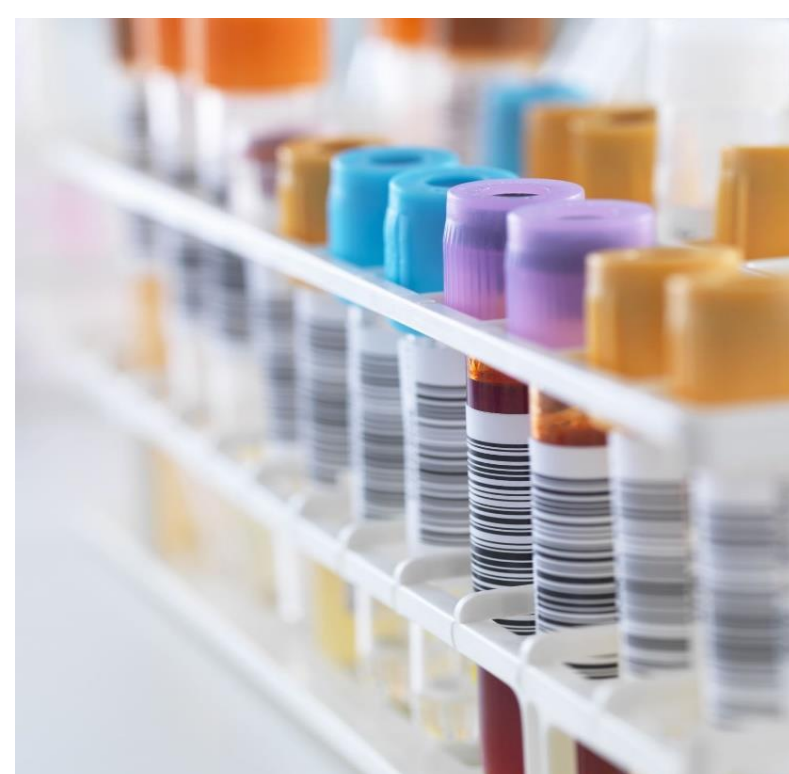
Advancements in prevention and treatment have allowed HIV to transition from an acute disease to a chronic manageable condition in many countries. However, HIV continues to disproportionately impact gay, bisexual, and other men who have sex with men (GBM). They represent 39-53% of HIV cases in Canada [1,2].



Most Canadian guidelines recommend that GBM

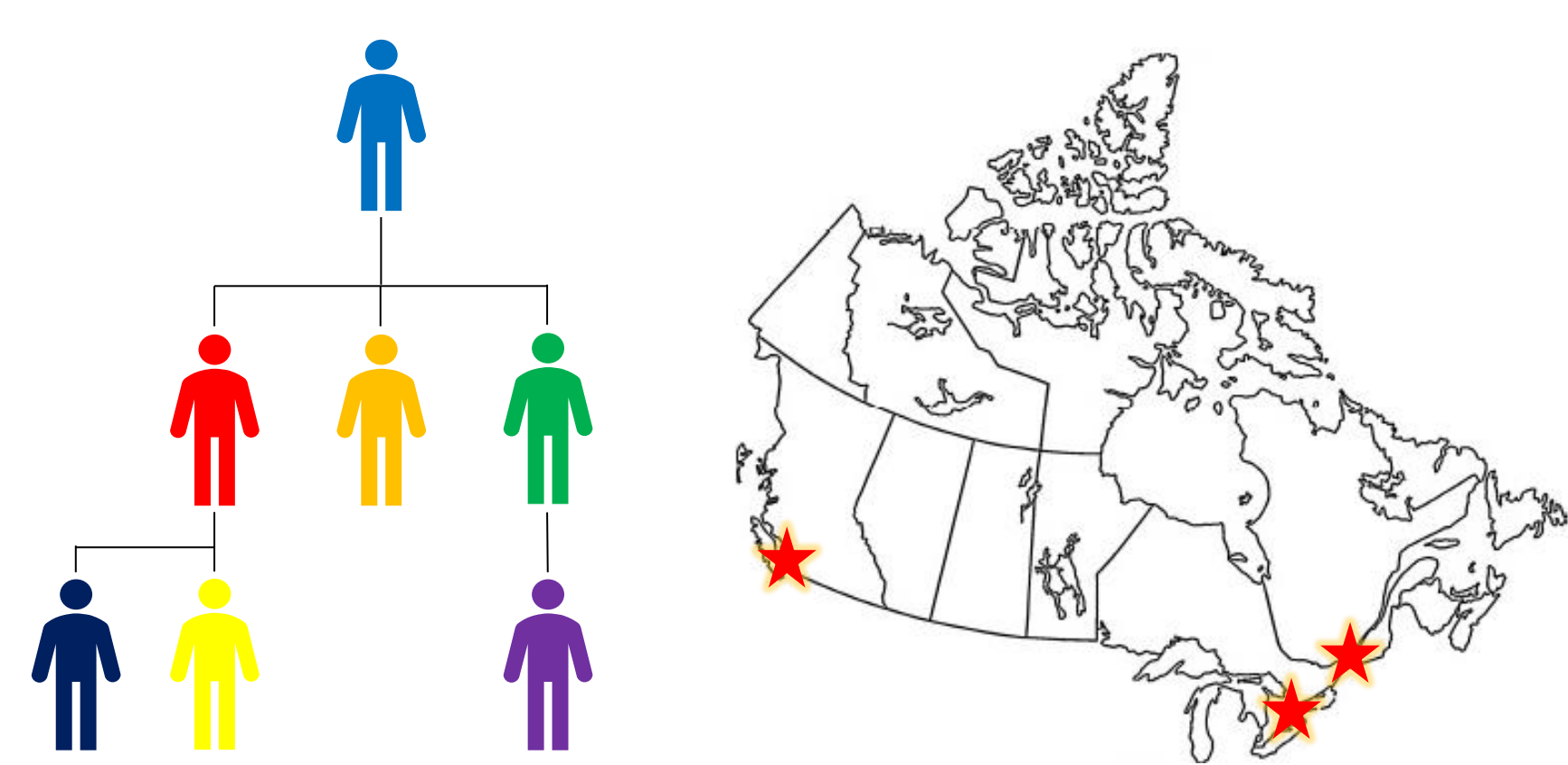
- Test for HIV every 3-6 months if they have had ≥3 partners in the past year or engage in other high-risk behaviour (i.e. injection drug-use). [3-5]

However, a recent survey estimated that one third of Canadian GBM had not been tested for HIV in the past year [6].



Using baseline data from the Engage Study, an ongoing cohort study of Canadian GBM, we sought to analyse what factors act as barriers to adhering to HIV screening guidelines.

The Engage Cohort Study



GBM were recruited from 2017-2019 in Montreal, Vancouver, and Toronto using respondent-driven sampling. Initial seeds were purposefully selected to obtain a diverse sample.

Participants

- Were 16+ years old, identified as a man, and reported at least one sexual encounter with a man in the previous six months.
- Completed a questionnaire on demographics, service use, relationships and community context, sexual behaviours, substance use and mental health.

Analysis

Analysis objectives:

- Determine the proportion of GBM at high-risk of acquiring HIV who have not been tested within the past six months (P6M) in three major Canadian cities.
- Examine individual-level factors that may be associated with not being tested in P6M.

What Was Our Definition of "High-Risk"?

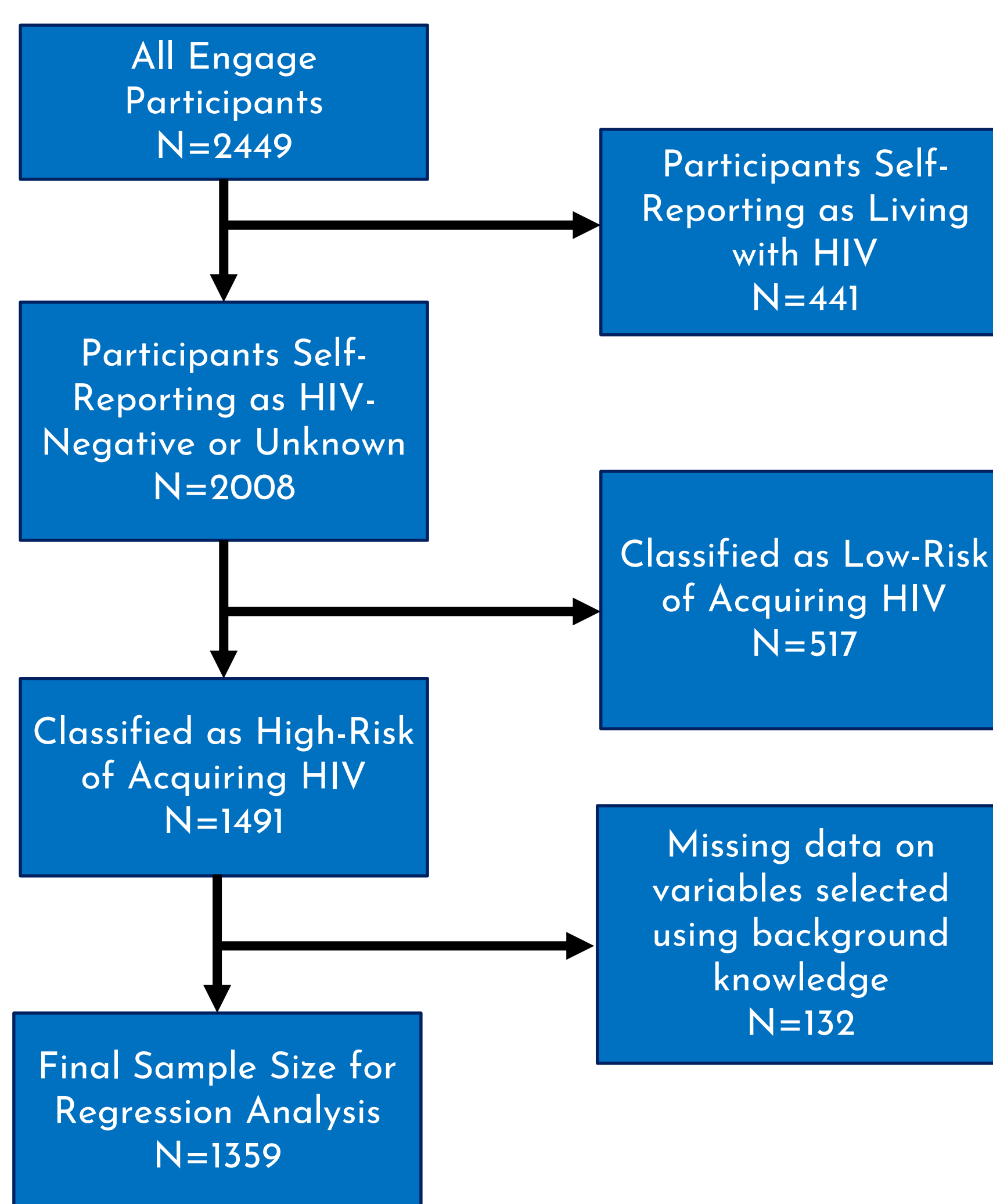
- ✓ 6+ male partners in P6M
- OR
- ✓ HIRI-MSM Score ≥ 10

Three different multivariable logistic regression models (one per city) were run to account for differences in culture and public health policy between cities which may impact testing behaviours.

Variable Selection Process

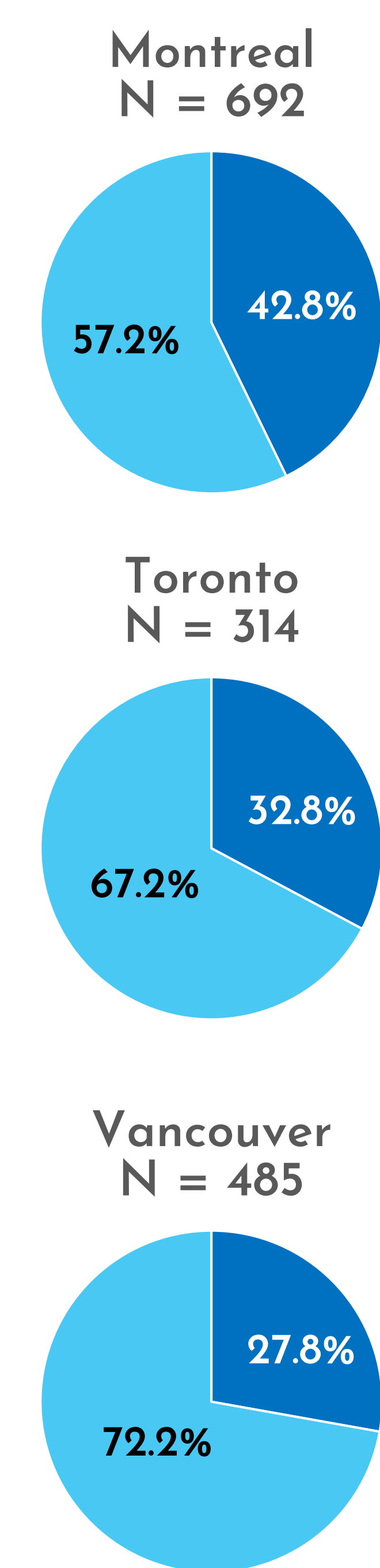
1. Background knowledge and literature review
2. Quality of Evidence (High vs. Low)
3. Missingness (<5%)
4. Correlation (<0.3)
5. Presence of Meaningful Cut-Off Threshold for Dichotomization (High vs. Low)
6. AIC Criterion for each model

Sample Selection



Results

Testing by City



Factors	Montreal (N=617) aOR (95% CI)	Toronto (N=291) aOR (95% CI)	Vancouver (N=439) aOR (95% CI)
Age	1.03 (1.01-1.05)	NR	NR
Gender Identity			
Cisgender	Reference	NR	NR
Transgender / Non-Cisgender	2.11 (0.82-5.44)		
Sexual Orientation			
Gay	Reference	Reference	Reference
Other	0.52 (0.27-0.99)	3.25 (1.09-10.0)	4.53 (1.51-13.67)
Language			
Not English or French	NR	NR	Reference
English or French			0.14 (0.04-0.45)
Born in Canada			
Yes	Reference	NR	Reference
No, less than 5 years in Canada	0.83 (0.44-1.57)		0.25 (0.09-0.66)
No, between 5-10 years in Canada	1.32 (0.54-3.16)		0.74 (0.20-2.38)
No, more than 10 years in Canada	0.26 (0.11-0.6)		0.09 (0.02-0.28)
Education			
Post-Secondary	NR	NR	Reference
Less than Post-Secondary			4.50 (1.90-10.92)
Income			
\$20,000/yr and above	NR	NR	Reference
Less than \$20,000/yr			0.29 (0.13-0.63)
Has Medical Insurance			
Yes	Reference	Reference	NR
No	0.59 (0.35-0.99)	0.29 (0.10-0.74)	
Healthcare Provider Aware of MSM Status			
Out to Provider	Reference	Reference	Reference
Not Out to Provider	4.05 (1.79-9.42)	4.54 (1.19-18.29)	0.96 (0.37-2.47)
No Provider	2.24 (1.30-3.91)	2.48 (0.98-6.38)	3.51 (1.56-8.26)
Has Experienced Discrimination in Health Services			
No	NR	Reference	Reference
Yes		0.4 (0.15-0.99)	0.54 (0.25-1.13)
Received Info from Health Professional in P6M			
No	Reference	Reference	Reference
Yes	0.13 (0.08-0.22)	0.10 (0.03-0.26)	0.06 (0.03-0.12)
Problematic Substance Use in P6M			
Yes	NR	Reference	Reference
No		0.42 (0.15-1.11)	1.88 (0.90-3.92)
Main Partner			
No	Reference	NR	Reference
Yes	1.44 (0.91-2.30)		1.75 (0.91-3.48)
Openness About Being GBM			
Not Out to Most People	Reference	Reference	NR
Out to Most People	1.73 (0.92-3.30)	0.31 (0.089-1.011)	
Transactional Sex in P6M			
Yes	Reference	NR	Reference
No	1.56 (0.74-3.37)		4.19 (1.13-18.72)

aOR, adjusted odds ratio, 95% CI, 95% confidence interval. NR, not retained in the city's model.
 Variables included in analysis but not presented here: Perception of HIV, Levesque Trajectory Factors
 Variables considered but not retained: Ethnicity, Citizenship, Employment, Social Support, Marital Status, Number of Male Partners (P6M), Number of New Male Partners (P6M), LGBT POC Microaggressions, Sexual Compulsivity, Collective Self-Esteem, Sexual Altruism, HAART Optimism, Self-Assessed HIV Risk, Less Worried About HIV Due to Improved Treatment, Depression, Self-Assessed Mental Health, Condomless Sex P6M, PrEP Use P6M, Other STI Testing P6M.

Key Findings

- ### Factors Associated with NOT Testing For HIV Among High-Risk GBM (All 3 Cities)
- Not Having a Primary Healthcare Provider
 - Did Not Receive Sexual Health Information from Healthcare Professional in P6M

- ### Factors Associated with NOT Testing For HIV Among High-Risk GBM (2/3 Cities)
- Not Being Out to Primary Healthcare Provider (Montreal/Toronto)
 - Not Identifying As Gay (Toronto/Vancouver)

Discussion

- Over a quarter of GBM at high-risk of acquiring HIV in each of the three cities were not tested in the past six months.
- Providing GBM, regardless of sexual orientation, with access to non-judgemental healthcare providers who can evaluate risk and recommend screening appears important for adherence to HIV screening guidelines.
- Limitations: Homogenous (white/gay/cisgender) population, urban population, limited sample size in Vancouver and Toronto.

References

1. PHAC. Estimates of HIV incidence, prevalence and Canada's progress on meeting the 90-90-90 HIV targets 2018, 2020-2. Haddad N, Weeks A, Robert A, Totten S. HIV in Canada-surveillance report, 2019. Can Commun Dis Rep. 2021;47(1):77-86. 3. HIV Testing Guidelines for the Province of British Columbia. Government of British Columbia 2015. 4. Guide québécois de dépistage. Infections transmissibles sexuellement et par le sang. Gouvernement du Québec. 2019. 5. Bureau A. Ontario HIV Testing Frequency Guidelines: Guidance for Counselors and Health Professionals. 2012. 6. Brogan N, Paquette DM, Lachowsky NJ, Blais M, Brennan DJ, Hart TA, et al. Canadian results from the European Men-who-have-sex-with-men Internet survey (EMIS-2017). Can Commun Dis Rep. 2019;45(11):271-82.