

# Is Dating App/Website Use Associated with Sexual Behaviour at Risk for STBBI Transmission? Results from Engage-Montréal

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## Introduction

### Dating Apps and Websites

- Dating apps and websites have become ubiquitous in heterosexual and LGBTQ+ communities
- Users seek a variety of things on these apps and websites (e.g. romantic partners, casual sex, roommates, friendships, drugs, etc...)
- Grindr, Tinder, and Scruff are the most popular apps in the community of gay and bisexual men who have sex with men (GBM)

### Previous Studies

- Previous studies have shown associations between dating app/website use and risky sexual behaviours (including CAS) in both the heterosexual and LGBTQ+ communities (1-3)
- These studies have been limited by:
  - Convenience sampling (i.e. recruiting from a single website or app)
  - Lacking a comparator group (i.e. only looking at people who use dating apps or websites)
  - Not assessing frequency of use.

### Hypotheses

- Dating app or website use is associated with CAS in the past 6 months.
- There may be some dose-response effect in the relationship between dating app or website use and CAS, with lower levels of use being associated with lower odds of CAS, and higher use with higher odds.

## Methods

### Data

- Baseline data (collected Feb 2017 – Jun 2018) from the Montréal site of the Engage Cohort Study were used
- Eligibility criteria:
  - GBM, Aged  $\geq 16$
  - Sexually active (at least one sexual encounter with a man in the past 6 months)
  - Living in the greater Montréal area
- Participants were recruited via Respondent-Driven Sampling (RDS)
- In-depth Computer-Assisted Self-Interview (CASI; known to reduce social desirability bias) and STBBI screening

### Statistical Analysis

- Main exposure – dating app/website use:
  - "In the past 6 months have you used a smartphone app or internet website to connect with other guys?"
  - Response categories:
    - Non-Users (No, never; No, not in the past 6 months)
    - Low Use (Yes, less than once per month; Yes, about once per month; Yes, once a week; Yes, a few times a week)
    - High use (Yes, once a day; Yes, several times per day)
- Outcome – self-reported CAS in the past 6 months:
  - During the past 6 months, have you had anal sex without a condom (as top or bottom) with at least one guy? (Yes or No)
- Covariates: identified through literature review (either associated with exposure or outcome) and from expert knowledge
- Statistical analysis: quasibinomial model with RDS adjustment, covariates retained if associated at 90% significance level in univariate analysis

More than a quarter of gay and bisexual men who have sex with men (GBM) in Montréal reported daily or more frequent use of dating apps/websites in the past six months.

As compared to those who do not use dating apps or websites, GBM who reported daily or more frequent use in the past 6 months had 1.9 times higher odds of having condomless anal sex in the past 6 months.

## Results

- 1179 GBM completed the study questionnaire
  - median age: 34; IQR: (27, 49)
- Dating app/website use (sample [RDS-adjusted (95% CI)]):
  - No use: 26.2% [32.4% (27.6%, 37.0%)]
  - Any use, past 6 months: 73.9% [67.6% (62.7%, 72.4%)]
    - Low use: 39.4% [39.5% (34.5%, 44.4%)]
    - High use: 34.4% [28.0% (23.5%, 32.8%)]
- 64.7% [RDS-adjusted: 58.1% (53.0%, 63.3%)] of participants reported at least one instance of CAS in the past 6 months
- Only high app/website use was significantly associated with increased odds of CAS compared to non-users, aOR: 1.90 (1.22 – 2.97) (Table 1)

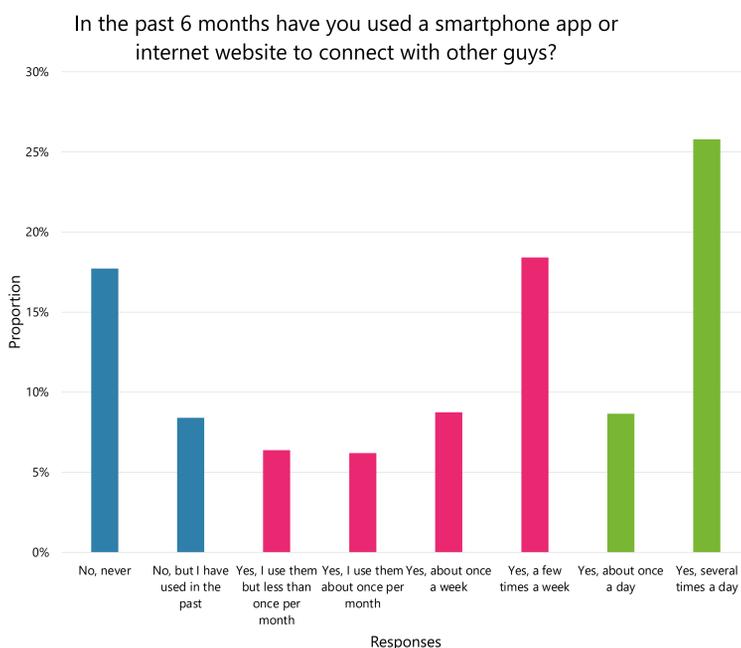


Figure 1: Distribution of dating app/website use. Blue: non-users (26%), pink: low-users (39%), green: high-users (34%).

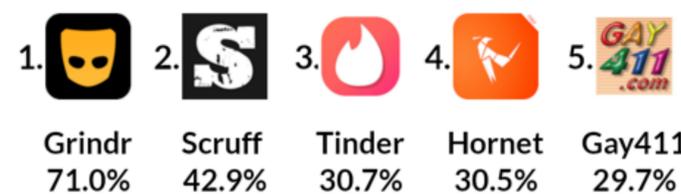


Figure 2: Top 5 dating apps or websites used by Engage-Montréal participants who reported use in the past 6 months, with the proportion of the sample who had used them in the past 6 months.

Table 1: Correlates of condomless anal sex in the P6M in relation to dating app/website use among GBM of the Greater Montréal area (n = 1179).

Variable	Univariate OR (95% CI)	Adjusted OR (95% CI)	
App/Website Use P6M	Non-Users	Comparator Group	
	Low	2.42 (1.83, 3.19)	1.26 (0.87, 1.82)
	High	4.28 (3.11, 5.89)	<b>1.90</b> (1.22, 2.97)
HIV Status & PrEP Use	Age	0.97 (0.96, 0.98)	0.99 (0.98, 1.00)
	HIV-negative	Comparator Group	Comparator Group
	HIV-negative on PrEP	23.1 (6.57, 81.2)	<b>10.2</b> (2.76, 37.5)
Education, High School or more	HIV-Positive	0.98 (0.70, 1.38)	1.06 (0.67, 1.67)
	Income $\geq$ \$30k/year	3.98 (2.63, 6.02)	<b>5.22</b> (2.78, 9.82)
Having a regular partner	1.37 (1.09, 1.74)	1.16 (0.87, 1.56)	
Being in an open relationship	1.58 (1.24, 1.99)	<b>2.66</b> (1.83, 3.86)	
Number of sexual partners, P6M	1.78 (1.30, 2.44)	<b>0.59</b> (0.31, 0.76)	
Engaging in group sex <sup>1</sup> , P6M	1.07 (1.04, 1.09)	1.02 (1.00, 1.05)	
Problematic alcohol use <sup>2</sup>	2.05 (1.46, 2.90)	<b>2.08</b> (1.26, 3.44)	
Problematic substance use <sup>3</sup>	1.31 (1.01, 1.70)	<b>0.63</b> (0.45, 0.88)	
Symptoms of anxiety and/or depression <sup>4</sup>	2.28 (1.78, 2.91)	<b>1.91</b> (1.39, 2.63)	
Sexual compulsivity <sup>5</sup>	0.77 (0.60, 0.99)	0.87 (0.64, 1.19)	
Fewer perceived barriers to condom use <sup>6</sup>	1.50 (1.11, 2.01)	1.25 (0.97, 1.60)	
Transactional sex <sup>7</sup> , P6M	0.97 (0.95, 0.98)	<b>0.96</b> (0.95, 0.98)	
	1.55 (0.93, 2.59)	0.78 (0.38, 1.63)	

Notes: aORs significant at the 95% significance level are bolded, P6M: past 6 months, PrEP: Pre-Exposure Prophylaxis for HIV; 1: group sex defined as four or more partners at the same time; 2: based on ASSIST V3.0 (WHO (4), validated by Humeniuk et al., 2008 (5)) scale, score of 11 or higher for alcohol; 3: based on ASSIST (WHO (4), validated by Humeniuk et al., 2008 (5)) scale, score of 4 or higher for any of amphetamines, cannabis, cocaine, hallucinogens, inhalants, opioids or sedatives; 4: past week; as defined by the Hospital Anxiety and Depression scale (score of 11 or greater) (HAD; Zigmond & Snaith, 1983 (6)); 5: Sexual Compulsivity Scale (continuous) (Kalichman & Rompa, 2001 (7)); 6: as defined by the Condom Barriers Scale (Doyle, Calsyn, & Ball, 2009 (8)), higher scores indicate fewer perceived barriers to condom use; 7: defined as being on either side of the exchange of sex for money, drugs, or services, at least once in the P6M.

## Conclusions

- Dating app or website use is very prevalent among GBM in Montréal
- Dating app or website use of once per day or more frequently (high use) was significantly associated with increased odds of CAS
- Dating app or website use shows a dose response association with CAS:
  - Only high use was significantly associated with increased odds of CAS
- Dating app or website use could be used to assess risk for STBBI acquisition among GBM
- Potential for reverse causality in the present study can be addressed through a longitudinal analysis

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Conflict of Interest Disclosure: I have no conflicts of interest.

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