Associations between area of residence, openness, STI/HIV testing, and PrEP use among gay, bisexual and other men who have sex with men living in Montreal, Toronto and Vancouver

Syed W. Noor¹,²; Alex Tran³; Daniel Grace⁴; Shayna Skakoon-Sparling¹; Nathan Lachowsky⁵; David M. Moore⁶,⁷; Joseph Cox³,⁸; Gilles Lambert⁸,⁹; Jody Jollimore¹⁰; Jordan M. Sang⁶; Abbie Parlette¹; Allan Lal⁶; Herak Apelian³,⁸; Farideh Tavangar¹; Darrell H. S. Tan⁴,¹¹,¹²; Trevor A. Hart¹,⁴

¹ Ryerson University, Toronto, ON, Canada; ² Louisiana State University Shreveport, Shreveport, LA, USA; ³ Research Institute of the McGill University Health Centre, Montréal, QC, Canada; ⁴ University of Toronto, Toronto, ON, Canada; ⁵ University of Victoria, Victoria, BC, Canada; ⁶ BC Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada; ⁷ University of British Columbia, Vancouver, BC, Canada; ⁸ Direction régionale de santé publique - Montréal, Montréal, QC, Canada; ⁹ Institut national de santé publique du Québec, Montréal, QC, Canada; ¹⁰ Community-Based Research Centre, Vancouver, BC, Canada; ¹¹ Unity Health, Toronto, ON, Canada; ¹² Centre for Urban Health Solutions, St. Michael’s Hospital, Toronto, ON, Canada

Contact: swnoor@ryerson.ca | Website: www.engage-men.ca
Gay, bisexual, and other men who have sex with men (GBM) continue to be at higher risk of HIV/sexually transmitted infections (STIs) compared to the other at-risk populations, especially in North America (CDC, 2018; PHAC, 2019).

Within the GBM category, significant HIV/STI disparities exist based on area of residence. GBM living in areas further away from the city centre face certain challenges that are minimized for GBM who are living closer. The quality and quantity of sexual health interventions for GBM differ greatly when comparing suburban/outer-city regions to more urban neighborhoods closer to the city centre (Kosciw et al., 2017; Mirandola et al., 2016; OHTN, 2012).

Factors such as openness about same-gender attraction and openness to one’s healthcare providers about sexual orientation are possibly at play when addressing the disparities in access between both areas of the city, even though their perceived and actual risk of contracting HIV/STIs may be equal (Qiao, Zhou, & Li, 2018).

The present analysis examined associations between area of residence, openness, and STI testing, HIV testing, and PrEP use among a sample of urban Canadian GBM living in the three largest cities of Canada.
Methods: The Engage Study

- Mixed-method longitudinal cohort study recruited 2,449 (Vancouver=753, Toronto=517, Montreal=1179) cis- and transgender men using Respondent-Driven Sampling (RDS) from February 2017–August 2019, and combines data from computer-assisted self-interviewing (CASI) and the detection of HIV and other selected STBBIs using biological samples.

- We examined the relative contribution of area of residence (based on postal code: within urban-core vs. not), general openness (out to all, continuous, 1–5) and openness with providers (continuous, 0–2), on STI testing (in past 6 months: P6M), HIV testing (P6M, for HIV-neg only) and PrEP use (P6M, for HIV-neg only), separately.

- We fit a series of generalized estimating equation models accounting for age, race/ethnicity, income, marital status, perceived HIV risk, city and recruitment related clustering.
In our three-city combined sample of 2,449 GBM (\(M_{\text{age}}=36\); 71% White; 440 self-reported living with HIV) 62% reported a STI test, and among HIV-negative GBM, 60% reported an HIV test and 18% reported PrEP use.

Main effect models indicated area of residence, general openness, and openness with provider were independently related with STI testing (see Table).

Final adjusted models with three main effects and two interaction terms (residence X general openness and residence X openness with provider) indicated significant effects of openness with providers on STI testing (RR = 1.17, 95%CI: 1.02 - 1.34; \(p = .02\)) but interaction terms were not significant.

We found similar results for HIV testing (RR = 1.27, 95%CI: 1.10-1.48; \(p = .001\)), and PrEP use (RR = 1.68, 95%CI: 1.13-2.50; \(p = .01\)).
Conclusion

- Our results show openness and comfort with one’s healthcare providers are significantly associated with recent STI testing, HIV testing, and PrEP NOT area of residence.

- Limitations:
  - While these data may approximate a probabilistic sample because they have been adjusted for the RDS recruitment, cross-sectional design of study limits temporality and generalizability of the findings.
  - Due to low cell counts we could not further explore racial/ethnic differences.
  - Despite limitations, our results highlights importance of GBM and provider interventions to facilitate disclosing one’s sexual orientation to improve sexual health care among Canadian GBM.