

# Seeking Sexual Partners on the Internet

## A Marker for Risky Sexual Behaviour in Men Who Have Sex with Men

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### ABSTRACT

**Objective:** In order to generate a generalizable estimate regarding risk for STI and HIV acquisition in men who have sex with men (MSM) who seek partners on the internet, we examined the sexual practices of MSM who seek partners on the internet compared to MSM who do not, using a community-based sample of MSM from British Columbia.

**Methods:** 'Sex Now', a questionnaire that was developed to examine trends in sexual behaviour in gay men, was offered to men attending Gay Pride events throughout the province of British Columbia, Canada between May and August 2004. Logistic regression analysis was used to model the association between seeking sexual partners online and other variables of interest, using odds ratio as the measure of association.

**Results:** Of the 2,312 MSM who completed the survey, 766 (33.1%) had used the internet to find a partner in the past year. In logistic regression analyses, MSM who found partners on the internet were more likely to have had more than 10 sexual partners in the past year (overall, insertive and receptive), and to engage in sexual activities in public venues. They were also more likely to agree with the statement "I think most guys in relationships have condom-free sex." MSM who sought partners on the net were more likely to be from specific geographic regions, including non-urban regions. Demographic characteristics, HIV status, and use of drugs were not significantly different between men who found partners on the internet and those who did not in multivariable modeling.

**Discussion:** MSM who sought to meet partners online had significantly more sexual partners, were more likely to be from specific geographic regions of the province and to have participated in seeking sexual partners in venues known to be associated with HIV and STI acquisition. This study confirms from a community-based sample of MSM that programming for prevention and treatment of HIV and STI need to be available and offered in the cyber setting, to ensure effective messaging and interventions reach this population.

**Key words:** Internet; MSM; sexual practices; Canada

*La traduction du résumé se trouve à la fin de l'article.*

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The internet offers anonymity and the ability to select sexual partners for specific reasons, and as such has become an important venue for individuals seeking sexual partners, including men who have sex with men (MSM). Evidence has shown that MSM are more likely to use the internet to find sexual partners than non-MSM.<sup>1,2</sup> However, there is contradictory information regarding internet sex seeking and STI associated risk behaviour in MSM. Bolding<sup>3</sup> reported that MSM who found partners online were not more likely to report unprotected anal intercourse (UAI) with casual partners of unknown or discordant HIV status than men who found partners offline. Klausner notes that MSM who had syphilis were significantly more likely to have met partners online compared to MSM who did not have syphilis.<sup>4</sup> Several other studies report an increased risk for STI acquisition for MSM who meet partners online based on sexual behaviour and sexual practices,<sup>5,6</sup> and there is evidence of STIs being spread through partners met in an internet chat room.<sup>4</sup>

The disparate findings are likely a reflection of the varying methodologies and recruitment strategies of previous studies. Many of the previous studies examining risk behaviour in MSM who seek partners online have been conducted through internet-based recruitment strategies.<sup>7</sup> Studies that were conducted 'offline' were conducted in a variety of venues, including HIV testing and HIV treatment clinics,<sup>3</sup> gyms,<sup>3</sup> STD clinics,<sup>2</sup> sex resorts<sup>6</sup> and retrospective case reviews,<sup>8</sup> which were not necessarily broadly representative of MSM. In order to generate a more generalizable estimate regarding risk for STI and HIV acquisition in Canadian MSM who seek partners on the internet, we examined the use of the internet for seeking sexual partners in a community-based sample of MSM recruited from across British Columbia, and compared the sexual practices of MSM who seek partners on the internet to those of MSM who do not.

### METHODS

'Sex Now' is a sexual behaviour questionnaire that was developed to examine trends in sexual behaviour in gay men and to assess prevention needs in groups of men based on degree of risk. It is a self-

completed survey available in both English and Spanish and was offered to gay men at Gay Pride events throughout the province of British Columbia, Canada.

### Survey instrument development

The survey was designed by Sigma Research in London, UK, where it had been in use for over 10 years. The survey was revised by Community Based Research Centre (CBRC) in Vancouver, in consultation with Sigma Research, in order to ensure the survey addressed issues specific to British Columbia. The basic design consists of 5 blocks of questions: demographics; sexual practices; sexual health knowledge; risk/prevention-need indicators; and participation in venues. The survey was piloted in 2002 at Gay Pride events in Vancouver, then revised based on feedback for 2004. Ethical approval was received from the CBRC Research Ethics Board, which is a community-based REB registered with the National Council on Ethics in Human Research (NCEHR).

### Subject recruitment

Surveys were distributed at Gay Pride in Vancouver, Victoria, Kelowna, Prince George, Nanaimo and Nelson, British Columbia in addition to smaller Gay Pride events with specific cultural communities between May and August 2004. Volunteers at each festival had booths set up, and surveys and clipboards were offered to festival attendees as they passed the booth. Surveys were also offered online, but these results were not included in this analysis. Participants who completed surveys received a small token of appreciation.

### Analysis

A descriptive analysis of respondents was conducted with mean values and standard deviations, and analysis was conducted to examine differences between men who had looked for partners online in the past year compared to men who had not, using Chi square for categorical variables and Student's t-test for continuous variables. Logistic regression analysis was used to model the association between seeking sexual partners online and other variables of interest, using odds ratio as the measure of association. Variables that achieved a significance of  $p < 0.05$  in bivariate analysis were offered for inclusion into a multi-

**TABLE I**

### Bivariate Analysis of Factors Associated with Seeking Sexual Partners on the Internet (SSPI)

Variable Name	Variable Level	SSPI (Y)† n (%)	p value
Age	Mean (SD)	37 (11)	0.220*
City of residence	Victoria	81 (11)	0.002
	Vancouver	474 (62)	
	Other BC and outside BC	208 (27)	
Ethnicity	Caucasians	579 (77)	0.153
	Aboriginal	12 (2)	
	Asian	230 (10)	
	Other	83 (11)	
Education	Up to high school	174 (23)	0.197
	More than high school	590 (77)	
Income in last year	<\$50,000	476 (63)	0.167
	≥\$50,000	284 (37)	
Self-reported HIV status	HIV negative	585 (78)	<0.001
	HIV positive	102 (14)	
	Never tested	65 (9)	
Alcohol consumption	Yes	544 (72)	0.920
	No	212 (28)	
Use of Crystal	Yes	40 (6)	<0.001
	No	676 (94)	
Use of Cocaine	Yes	37 (5)	0.237
	No	675 (95)	
Use of Ecstasy	Yes	56 (8)	0.149
	No	667 (92)	
Use of Ketamine	Yes	17 (2)	0.048
	No	695 (98)	
Use of Pot	Yes	237 (32)	0.040
	No	500 (68)	
Use of Viagra	Yes	101 (14)	<0.001
	No	614 (86)	
Are you aware HIV is increasing in gay men?	Yes	644 (85)	0.018
	No	114 (15)	
Are you aware HIV is reportable in BC?	Yes	431 (57)	0.010
	No	328 (43)	
Sometimes I don't care if the sex I am having is safe	Agree	140 (18)	<0.001
	Disagree	620 (82)	
Number of sexual partners in last year	None or one	97 (13)	<0.001
	2-9	277 (36)	
	≥10	392 (51)	
Number of guys (insertive)	None or one	254 (34)	<0.001
	2-9	358 (47)	
	≥10	143 (19)	
Number of guys (insertive) without condom	None or one	576 (76)	<0.001
	2-9	148 (20)	
	≥10	29 (4)	
Number of guys (insertive) without condom whose HIV status unknown	None or one	627 (83)	<0.001
	2-9	99 (13)	
	≥10	25 (3)	
Number of guys (receptive)	None or one	374 (49)	<0.001
	2-9	289 (38)	
	≥10	97 (13)	
Number of guys (receptive) without condom	None or one	635 (84)	<0.001
	2-9	100 (13)	
	≥10	26 (3)	
Number of guys (receptive) without condom whose HIV status unknown	None or one	668 (88)	<0.001
	2-9	69 (9)	
	≥10	22 (3)	
Felt pressure to have anal sex without condom in last year	None or one	618 (81)	<0.001
	2 to 9	120 (16)	
	≥10	24 (3)	
Anal sex is the only real sex	Agree	137 (18)	0.010
	Disagree	628 (82)	
Most guys in relationships have condom-free sex	Agree	316 (41)	0.048
	Disagree	448 (59)	
Visited a park for sex	Last year	310 (41)	<0.001
	Before last year/never	444 (59)	
Visited a bathhouse for sex	Last year	351 (47)	<0.001
	Before last year/never	399 (53)	
Participated in a sex party	Last year	174 (23)	<0.001
	Before last year/never	571 (77)	
Phoned a gay sex line for partners	Last year	182 (24)	<0.001
	Before last year/never	560 (76)	
Participated in a gay social group	Last year	409 (55)	0.008
	Before last year/never	331 (45)	
Amount of free time spent with gay men	Very little	93 (12)	0.032
	Some time or most of time	669 (88)	

\* two sample t test used to compare the means

† (Y)=Yes

**TABLE II**  
**Adjusted Odds Ratio Estimate\* for Factors Associated with Seeking Sexual Partners on the Internet (SSPI)**

Variable	Variable Level	Adjusted OR	95% CI
Number of sexual partners in last year	None or one	Reference	
	2-9	3.22	2.29, 4.47
	≥10	5.71	3.91, 8.28
Number of guys (insertive)	None or one	Reference	
	2-9	1.75	1.33, 2.29
	≥10	2.08	1.34, 3.23
Number of guys (receptive)	None or one	Reference	
	2-9	1.38	1.06, 1.80
	≥10	1.66	0.99, 2.80
City of residence	Victoria	Reference	
	Vancouver	1.53	1.02, 2.30
	Other BC and outside BC	1.51	1.04, 2.19
Visited park for casual sex	Last year	1.74	1.31, 2.32
	Before last year or never	Reference	
Visited bathhouse for sex	Last year	1.33	1.01, 1.75
	Before last year or never	Reference	
Participated in a sex party	Last year	2.03	1.41, 2.94
	Before last year or never	Reference	
Phoned a sex line for sex partners	Last year	2.66	1.87, 3.77
	Before last year or never	Reference	
Most relationships have condom-free sex	Agree	1.32	1.04, 1.68
	Disagree	Reference	

\* Stepwise (backward elimination) method was used to select final variables from full multivariable model (Variables with p value ≤0.05 in bivariate analysis were considered for multivariable model).

variate model using a backwards stepwise logistic regression procedure to achieve a best fit final model. Analysis was conducted in SPSS for Windows (Version 14.0).

## RESULTS

Between May and August 2004, 2,312 men completed the survey; the median age of respondents was 37 (Table I). Seven hundred and sixty-six (33.1%) of the respondents had used the internet to find a partner in the past year (see SSPI(Y) in Table I). In multivariable logistic regression analyses, men who found partners on the internet were more likely to have had more than 10 sexual partners in the past year (overall, insertive and receptive), and to engage in sexual activities in public venues. They were also more likely to agree with the statement "I think most guys in relationships have condom-free sex." MSM who sought partners on the net were more likely to be from specific geographic regions of the province, including non-urban regions. Demographic characteristics, HIV status, and use of drugs were not significantly different between men who found partners on the internet and those who did not in multivariable modeling (Table II).

## CONCLUSIONS

Use of the internet to find sexual partners has increased significantly in recent years.

In this analysis, MSM who sought to meet partners online had significantly more sexual partners, were more likely to be from specific geographic regions of the province and to have participated in seeking sexual partners in venues known to be associated with HIV and STI acquisition. Although men who sought partners online were more likely to report sexual behaviours in riskier venues, self-reported sexual behaviours – such as unprotected receptive or insertive sex, or sexual activity with partners of unknown HIV status – were not associated with seeking sexual partners on the internet in this analysis. In this study, although sexual risk behaviours such as unprotected anal intercourse (UAI) were not higher in men who sought partners online, the latter were much more likely to have sought partners in these known risky environments and to report higher numbers of sexual partners. As such, men who seek partners online may face greater risk for acquisition of STIs and HIV, given their increased risk for seeking sexual partners in known risky venues. In addition, HIV status was not associated with seeking partners online. Finally, drug use and in particular, crystal methamphetamine use, was not associated with seeking sexual partners on the internet.

This study was conducted across an entire province, and included both urban and non-urban MSM. Men from rural settings were more likely to report seeking

partners online in multivariable analysis than men from Victoria, indicating that men who live in non-urban settings are using the internet to find sexual partners online, potentially because the internet offers anonymity, privacy and safety for MSM in smaller centres. As sexual health literature has focused on MSM who live in large urban centres, rural MSM have not been considered in assessments of risk. Clinicians and health policy leaders who work in non-urban settings need to be aware that MSM in these regions are finding partners through the internet, and consider implications for both prevention and treatment programs in these settings.

In contrast to our findings, previous studies<sup>3</sup> have reported an association between HIV status and seeking partners online, with the interpretation that HIV-positive individuals may choose to seek partners online in order to more effectively find partners of the same HIV status. As well, other studies have identified drug use as a predictor of seeking partners online. These divergent findings likely highlight the differences in recruitment between this study and other studies. Because this study included a community-based sample of MSM, it likely captured a more representative sample of MSM, and thus reflected the factors that are associated more broadly with internet partner seeking in this population.

This study offers several advantages compared to previous studies, having sampled a large cross-section of MSM from representative cultural and economic backgrounds, from both urban and rural settings at Gay Pride events across an entire jurisdiction. However, there were recruitment limitations, as this study was a convenience sample at Gay Pride events, and MSM who are not 'out' or who do not feel comfortable attending Gay Pride events would not have been captured in this sample. Given the anonymity and privacy of the internet, MSM who are not 'out' may indeed choose the internet preferentially to identify sexual partners. Further research is necessary to define the use of the internet in this population.

Education and interventions for sexually transmitted infections and HIV need to be responsive to and grounded in the reality of the sexual behaviours of populations. This study confirms that sexual liaisons are

being made on the internet, and it is critical that programming for prevention and treatment be available and offered in the cyber setting to ensure that effective messaging and interventions reach this population. Ongoing innovations such as the provision online of education,<sup>9</sup> contact tracing, access to diagnostics, and access to treatments and results<sup>10</sup> are critical in current STI/HIV prevention outreach in order to ensure that individuals can find the health testing and support that they require. In addition, there must be rigorous evaluation of these interventions to ensure that the most effective delivery system is developed and offered widely.

## REFERENCES

- McFarlane M, Bull SS, Rietmeijer CA. The Internet as a newly emerging risk environment for sexually transmitted diseases. *JAMA* 2000;284(4):443-46.
- Rietmeijer CA, Bull SS, McFarlane M, Patnaik JL, Douglas JM, Jr. Risks and benefits of the internet for populations at risk for sexually transmitted infections (STIs): Results of an STI clinic survey. *Sex Transm Dis* 2003;30(1):15-19.
- Bolding G, Davis M, Hart G, Sherr L, Elford J. Gay men who look for sex on the Internet: Is there more HIV/STI risk with online partners? *AIDS* 2005;19(9):961-68.
- Klausner JD, Wolf W, Fischer-Ponce L, Zolt I, Katz MH. Tracing a syphilis outbreak through cyberspace. *JAMA* 2000;284(4):447-49.
- Benotsch EG, Kalichman S, Cage M. Men who have met sex partners via the Internet: Prevalence, predictors, and implications for HIV prevention. *Arch Sex Behav* 2002;31(2):177-83.
- Metthey A, Crosby R, DiClemente RJ, Holtgrave DR. Associations between internet sex seeking and STI associated risk behaviours among men who have sex with men. *Sex Transm Infect* 2003;79(6):466-68.
- Liau A, Millett G, Marks G. Meta-analytic examination of online sex-seeking and sexual risk behavior among men who have sex with men. *Sex Transm Dis* 2006;33(9):576-84.
- Taylor M, Aynalem G, Smith L, Bemis C, Kenney K, Kerndt P. Correlates of Internet use to meet sex partners among men who have sex with men diagnosed with early syphilis in Los Angeles County. *Sex Transm Dis* 2004;31(9):552-56.
- Santra I, Jones E, Harris P, Gold F, Maginley J, Taylor D et al. Client response to an on-line HIV/STI information and referral service. *Can J Infect Dis Med Microbiol* 2006;17(Suppl A):54A.
- McFarlane M, Kachur R, Klausner JD, Roland E, Cohen M. Internet-based health promotion and disease control in the 8 cities: Successes, barriers, and future plans. *Sex Transm Dis* 2005;32(10 Suppl):S60-S64.

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## RÉSUMÉ

**Objectif :** Pour produire une estimation généralisable du risque de contracter une ITS ou le VIH chez les hommes ayant des relations sexuelles avec des hommes (HRSH) qui cherchent des partenaires dans Internet, nous avons comparé les pratiques sexuelles des HRSH qui cherchent des partenaires dans Internet et celles des HRSH qui ne le font pas, à partir d'un échantillon communautaire de HRSH en Colombie-Britannique.

**Méthode :** Nous avons élaboré un questionnaire intitulé « Sex Now » pour déceler des tendances dans le comportement sexuel des hommes homosexuels, et nous l'avons administré aux hommes assistant aux activités de la Fierté gaie dans toute la Colombie-Britannique, au Canada, entre mai et août 2004. Par analyse de régression logistique, nous avons modélisé l'association entre la recherche de partenaires sexuels en ligne et d'autres variables d'intérêt, en utilisant le rapport de cotes comme mesure de l'association.

**Résultats :** Sur les 2 312 HRSH ayant rempli le questionnaire, 766 (33,1 %) avaient utilisé Internet pour trouver un partenaire au cours de l'année précédente. Selon l'analyse de régression logistique, les HRSH qui trouvaient des partenaires dans Internet étaient plus susceptibles d'avoir eu plus de 10 partenaires sexuels (actifs, passifs et les deux) au cours de l'année précédente et d'avoir eu des relations sexuelles dans des lieux publics. Ils étaient aussi plus susceptibles d'être d'accord avec l'énoncé « Je crois que la plupart des gars en couple ont des relations sexuelles sans condom ». Les HRSH qui cherchaient des partenaires dans Internet étaient plus susceptibles de venir de certaines régions géographiques, notamment de régions non urbaines. La modélisation multivariée n'a indiqué aucune différence significative dans le profil démographique, l'état sérologique relativement au VIH ou la consommation de drogue des hommes qui se trouvaient des partenaires dans Internet et ceux qui ne le faisaient pas.

**Discussion :** Les HRSH qui cherchaient des partenaires en ligne avaient un nombre significativement plus élevé de partenaires sexuels, et ils étaient plus susceptibles de venir de certaines régions géographiques de la province et d'avoir cherché des partenaires sexuels dans des lieux réputés associés à l'acquisition du VIH et d'ITS. Cette étude confirme, à partir d'un échantillon communautaire de HRSH, que les programmes de prévention et de traitement du VIH et des ITS doivent être disponibles et offerts dans le cyberspace pour que les messages et les interventions efficaces se rendent jusqu'à cette population.

**Mots clés :** Internet; HRSH; pratiques sexuelles; Canada