

*Evidence of a Syndemic Among Young Canadian Gay and Bisexual Men:
Uncovering the Associations Between Anti-gay Experiences, Psychosocial Issues, and HIV Risk*

**Olivier Ferlatte, Travis Salway Hottes,
Terry Trussler & Rick Marchand**

AIDS and Behavior

ISSN 1090-7165

Volume 18

Number 7

AIDS Behav (2014) 18:1256-1263

DOI 10.1007/s10461-013-0639-1



Your article is protected by copyright and all rights are held exclusively by Springer Science +Business Media New York. This e-offprint is for personal use only and shall not be self-archived in electronic repositories. If you wish to self-archive your article, please use the accepted manuscript version for posting on your own website. You may further deposit the accepted manuscript version in any repository, provided it is only made publicly available 12 months after official publication or later and provided acknowledgement is given to the original source of publication and a link is inserted to the published article on Springer's website. The link must be accompanied by the following text: "The final publication is available at link.springer.com".

Evidence of a Syndemic Among Young Canadian Gay and Bisexual Men: Uncovering the Associations Between Anti-gay Experiences, Psychosocial Issues, and HIV Risk

Olivier Ferlatte · Travis Salway Hottes ·
Terry Trussler · Rick Marchand

Published online: 16 October 2013
© Springer Science+Business Media New York 2013

Abstract Syndemic has become an important theoretical model toward understanding how psychosocial issues may interact to increase HIV acquisition among gay and bisexual men. We measured the extent to which anti-gay experiences are associated with psychosocial issues, which in turn were hypothesized to have an additive effect on HIV risk, in a sample of Canadian young gay and bisexual men. Sixty-eight percent of men reported at least one form of anti-gay experience. For each additional form of anti-gay experience, our data demonstrated increased likelihood of psychosocial issues. Psychosocial issues had an additive effect, increasing the risk of unprotected intercourse in the last 12 months (doubling the risk for those with 3+ issues OR 1.95 [1.39–2.75]). Overall, our findings suggest that a syndemic is occurring among young Canadian gay and bisexual men, highlighting the need to expand HIV prevention efforts beyond sexual risk, to address stigma and gay men's broader health concerns.

Resumen La teoría sindémica se ha convertido en un importante modelo teórico para entender de qué forma múltiples problemas psicosociales pueden ser factores causales en el incremento del riesgo de contraer VIH en

hombres homosexuales y bisexuales. Este estudio midió el grado en el que experiencias homofóbicas pueden estar asociadas con problemas psicosociales en una muestra nacional de hombres jóvenes homosexuales y bisexuales en Canadá. Nuestra hipótesis sugiere que las experiencias homofóbicas y sucesivamente los problemas psicosociales pueden tener un efecto sinérgico sobre el riesgo de adquirir VIH. En nuestra muestra, sesenta y ocho por ciento de los hombres reportaron al menos una forma de experiencia homofóbica. Por cada experiencia homofóbica adicional, nuestros datos demostraron un incremento en la probabilidad de problemas psicosociales. A su vez, los problemas psicosociales tenían un efecto aditivo de este modo incrementando el riesgo de relaciones sexuales sin protección en los últimos 12 meses (duplicando el riesgo para aquellas personas con 3+ problemas : razón de momios 1.95 [1.39–2.75]). En general la evidencia de este estudio sugiere que un fenómeno sindémico está ocurriendo entre los hombres jóvenes homosexuales y bisexuales canadienses, destacando la necesidad de expandir los esfuerzos de prevención de VIH más allá del riesgo sexual, para abordar el estigma que enfrentan los jóvenes homosexuales y que afecta sus problemas de salud.

Keywords Gay men's health · HIV/AIDS · Syndemic theory · Marginalization

Introduction

Gay and bisexual men have carried a large burden of the HIV infections in many developed and developing countries since the onset of the epidemic. In Canada they constitute nearly 50 % of both prevalent and incident infections [1]. While the traditional approach to

O. Ferlatte (✉) · T. S. Hottes · T. Trussler · R. Marchand
Community-Based Research Centre for Gay Men's Health,
234-970 Burrard Street, Vancouver, BC V6G 1G1, Canada
e-mail: olivier@cbrc.net

O. Ferlatte
Faculty of Health Sciences, Simon Fraser University, Burnaby,
BC, Canada

T. S. Hottes
British Columbia Centre for Disease Control, Vancouver, BC,
Canada

understanding this disparity in HIV infection among gay men has been to focus on sexual behavior [2], there has been an increased interest from activists and academics to reframe gay men's HIV vulnerabilities within a discourse of social inequities in which HIV epidemics are sustained by various forms of oppression such as homophobia, systemic heterosexism and denied human rights. However, despite this emerging shift in discourses, the pathways through which social inequities increase HIV vulnerabilities among gay men remain largely under theorized and under studied.

Among emerging theoretical frameworks that assist in explaining and documenting the relationships between the subordination of gay men and HIV infections is the theory of syndemic. The term syndemic was coined by Merrill Singer in the mid-1990s and refers to the tendency of multiple epidemics to co-occur, interact and worsen the effects of one another [3, 4]. In recent years, the term syndemic has been recognized as a robust ecosocial theory, in which social inequities are seen as the root causes of mutually reinforcing epidemics, which lead to health disparities among marginalized populations [4, 5].

The concept of syndemic was first applied to the gay men's HIV epidemic through the work of Stall and colleagues [6]. From an initial descriptive application of syndemic among gay men, Stall, Friedman and Cantania [7] later developed a theoretical model of syndemic production specific to gay men. Their model locates the intertwined epidemics of psycho-social and physical health problems faced by gay men within a life course perspective, while considering the social and structural factors such as homophobia and heterosexism that allow these syndemics to occur.

To date, most applications of syndemics framework and theory in gay men's health have occurred within the American context [5, 8–15]. In contrast to Canada and many other western countries, the United-States presents a distinct social and political context for gay men. Indeed, in America opposition to homosexuality is highly visible and many American gay men are denied legal protection for their employment and cannot marry. In Canada, sexual orientation is protected under the Human Rights Act since 1998 and same-sex marriage has been a Canadian reality since 2005. Because Stall's model highlights the link between social inequities and HIV, it remains unknown if the model can explain the burden of HIV among gay men in countries where sexual minorities enjoy legal protection and where opposition towards homosexuality is less obvious.

We aimed to assess whether a syndemic was occurring in a sample of Canadian young gay men and if it could explain their vulnerabilities to HIV infections. To do so, we examined the experience of oppression and co-occurrence of psycho-social issues as well as the association between

the number of psycho-social issues experienced and HIV risks taken.

Methods

Sex Now is a serial survey of gay and bisexual men, administered every 12–18 months in the Canadian province of British Columbia since 2000. The survey has been offered anonymously online since 2007. For 2010 the sampling frame of the survey was expanded to include all of Canada. The sampling cycle was conducted from December 2009 to May 2010, in both English and French. The theme of the survey was mental health; survey domains included: relationships, sexual styles, sexual behaviors, sexual health, substance use, sexual health knowledge, internet experience, mental health care access, community participation, and socio-demographics. Participants were recruited from dating/sex-seeking websites (55.8 %), social media (12.9 %), an email database of previous survey participants (9.9 %), word of mouth (13.9 %), and other promotion activities (7.5 %). The survey protocol was reviewed by the independent Research Ethics Board of the Community-Based Research Centre.

Questionnaire Development

Sex Now content is developed iteratively by a panel of gay men's health researchers, with the aim of responding to evolving needs of the community. Face validity of the questionnaire is ensured through focus groups, interviews, and pilot testing by local gay men. An annual Gay Men's Health Summit in Vancouver has been instrumental in generating and refining the content, thus ensuring that all constructs are immediately pertinent to those working locally in gay men's health initiatives. Some items are retained year-to-year based on results from previous survey cycles, while others are drafted according to identified themes and community-based needs assessments. Final questions were translated to French and a member of the research team validated the final French questionnaire.

Measures

Our analysis was guided by the syndemic production model of interacting epidemics among gay men [7], summarized in Fig. 1. We identified variables from the *Sex Now* 2010 survey which corresponded to major constructs within this conceptual model. The Stall model is premised on the notion that interacting epidemics among gay men are largely socially produced. It thus places anti-gay social stressors at the forefront of the model. Its authors hypothesize that the accumulation of these stressors leads to development of

psychosocial health problems which in turn snowball to increase the likelihood of HIV risk-taking behaviors, such as condomless anal sex.

Five indicators of lifetime marginalization were drawn from the following questions: (a) “Have you ever had any anti-gay attacks or homophobic encounters?: verbal (threats, insults), physical (hit, beaten-up), or both”; hereafter referred to as harassment and physical violence, respectively; (b) “Have you ever experienced unwanted (forced) sex?”; hereafter referred to as forced sex; (c) “Has being gay ever affected your employment/career? (i.e., ignored, turned down, cooled out, harassed, dismissed): significantly, somewhat, or not at all”; hereafter referred to as career discrimination (significantly and somewhat categories combined); and, (d) “Have you ever thought about suicide?: yes, thought about it, yes, tried it, or no”; hereafter referred to as suicidality (thoughts and attempts combined). In this analysis we conceptualized suicidality as a marker of social stressors rather than a psychological outcome, consistent with research that describes suicidality as an acute sign of marginalization [16].

Five indicators of current or lifetime psychosocial issues were drawn: “How often do you feel sad and unable to snap out of it?: “most of the time,” “almost all the time”, or “all the time”; hereafter referred to as emotional distress; “How often do you feel lonely and starved for company?”: “most of the time,” “almost all the time”, or “all the time”; hereafter referred to as social isolation; “Have you ever thought you were doing too much or wanted to reduce your use of alcohol or drugs?”: “yes”; hereafter referred to as excessive substance use; “[Among those who had counseling sessions with a health professional—psychiatrist, psychologist, therapist, peer counselor, or other mental health worker] What issues did you work on in your counseling sessions?”: “depression”, or one of: “coming out,” “sex,” “relationship”, “substance use (drugs),” or “other”; hereafter referred to as treatment for depression or other mental health treatment, respectively.

HIV risk behavior was measured by asking: “In the last 12 months, how many times have you had unprotected anal sex with partners whose HIV status was unknown to you?”

All responses of ≥ 1 were coded as any unprotected anal intercourse with an unknown-status partner (UAI-US).

Analysis

Given that young gay men, born between 1980 and 1989 (aged 20–30 at time of survey completion), experienced the largest increase in new HIV diagnoses over the past decade—in British Columbia [17] as well as other North American settings [18], we focused our analysis on those respondents. Restriction to the youngest respondents has the additional benefit of strengthening causal inference by increasing the likelihood that explanatory variables (marginalization indicators, in our study) temporally preceded outcomes (psychosocial issues and UAI-US). The sample was also limited to residents of Canada.

Three sets of analysis were conducted in accordance with the underlying conceptual model. First, the relationship between lifetime indicators of marginalization (harassment, physical violence, forced sex, career discrimination, and suicidality) and current or lifetime psychosocial issues was explored. Because the effect of marginalization was hypothesized to be additive (i.e., these experiences were thought to cumulatively increase the likelihood of syndemic production, rather than operate independently), we calculated the percentage of respondents reporting each psychosocial issue by number of marginalization indicators experienced. Relationships were tested using Chi square test for trend; $p < 0.05$ was considered statistically significant.

Second, because psychosocial issues are hypothesized in the Stall model as interrelated and mutually reinforcing, we examined the correlation between these factors by calculating crude odds ratios. Lastly, associations between individual marginalization indicators, individual psychosocial issues, the number of psychosocial issues (again, additive), and UAI-US were explored using logistic regression. Multivariable models were used to adjust for important socio-demographic variables: age, province, partnership status, education, income, and ethnicity (see Table 1). Separate multivariable models were retained for marginalization indicators and psychosocial issues, as the latter were

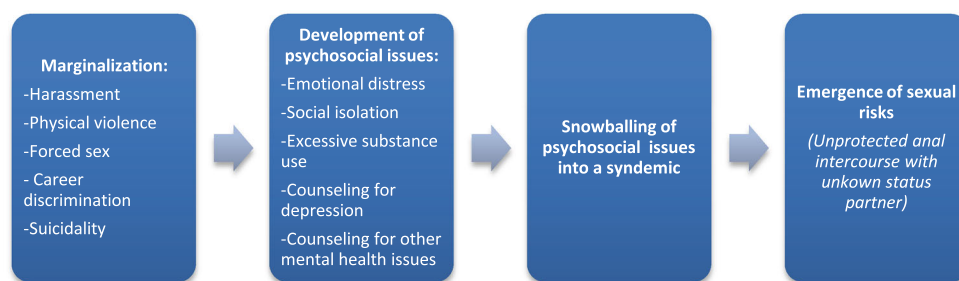


Fig. 1 Theoretical model of syndemic production among young gay and bisexual men [7]

Table 1 Characteristics of study participants

Characteristics	No. (%)
Age	Mean = 25.7
Ethnicity	
Caucasian	1,110 (75.5)
African	13 (0.9)
Asian	92 (6.3)
Caribbean	18 (1.2)
Aboriginal	33 (2.2)
Latino	30 (2.0)
Middle Eastern	14 (1.0)
Pacific Islander	6 (0.4)
South Asian	28 (1.9)
Mixed	96 (6.5)
Other	30 (2.0)
Income (annual, CAD)	
<10,000	261 (17.8)
10,000–29,999	509 (34.6)
30,000–49,999	435 (29.6)
50,000–69,999	159 (10.8)
>70,000	106 (7.2)
Highest level of education completed	
Some high school	52 (3.5)
High school	211 (14.4)
Some college or university	425 (28.9)
College	247 (16.8)
University	535 (36.4)
Relationship status	
Single	914 (62.2)
Partnered with a man	402 (27.3)
Partnered with a woman	125 (8.5)
Other	29 (2.0)

hypothesized based on the Stall theory to be in the causal pathway between marginalization experiences and UAI-US. All analysis was performed in SPSS version 20.

Results

Among the 7,908 survey participants, 18.6 % (n = 1,470) were born between 1980 and 1989.

Figure 2 shows the level of lifetime experiences of marginalization of our young gay men in comparison to previous birth cohorts. Men born between 1980 and 1989 reported more suicidality and harassment in their lifetime than their older peers, while they reported similar rates of physical violence, forced sexuality, and career discrimination. Among the 52.6 % (n = 773) who reported suicidality, 20.6 % (n = 159) had attempted suicide. Among the five marginalization indicators in our survey, 25.4 %

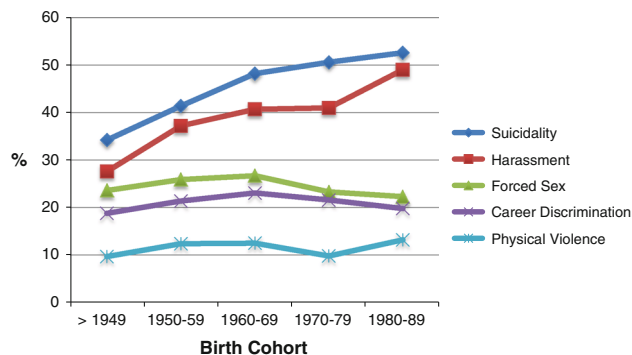


Fig. 2 Lifetime experience of marginalization by birth cohorts of gay and bisexual men surveyed

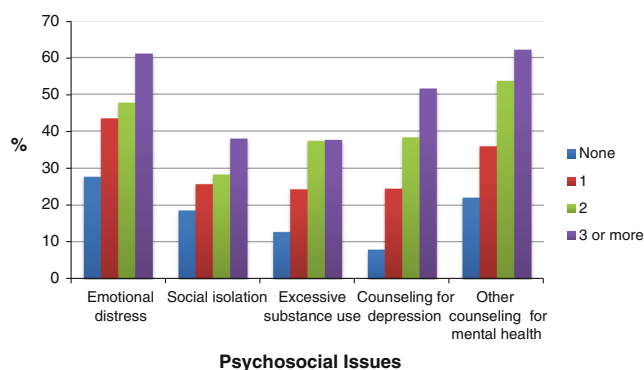


Fig. 3 Prevalence of psychosocial issues by number of marginalization indicators

(n = 373) of young men reported experiencing none, while 29.2 % (n = 428) experienced one, 21.4 % (315) experienced 2, and 24.2 % (n = 354) experienced 3 or more.

Figure 3 shows the association between the number of marginalization indicators and psychosocial issues. For each additional marginalization indicator the likelihood of psychosocial issues increased ($p < .001$ by Chi square test for trend). This effect was consistent across all the psychosocial issues with the exception of excessive substance use. While the likelihood of reporting excessive drug use increased between gay men that reported no forms of marginalization and those who reported one or two forms, no difference was found between gay men that reported 2 forms of marginalization and those who reported 3 or more.

Psychosocial issues were highly correlated, as shown in Table 2. With the exception of social isolation and substance abuse, all of these variables demonstrated statistically significant associations ($p < 0.05$).

Effects of all variables on UAI-US, as well as the additive effects of psychosocial issues, are presented in Table 3. In univariate analyses, all psychosocial issues were positively associated with UAI-US. In multivariable analysis, only substance use demonstrated statistically significant associations with UAI-US; gay men reporting

Table 2 Correlation of psychosocial issues

	N %	Unadjusted odds ratio (95 % confidence interval)			
		Social isolation	Substance abuse	Treatment depression	Treatment other mental health
Emotional distress	657 (44.7)	10.23 (7.69–13.60)	1.65 (1.31–2.08)	2.70 (2.14–3.39)	1.70 (1.38–2.10)
Social isolation	403 (27.4)	–	0.98 (0.76–1.27)	1.70 (1.33–2.16)	1.36 (1.08–1.72)
Excessive substance use	402 (27.3)	–	–	1.76 (1.38–2.24)	1.67 (1.32–2.10)
Depression (counseling)	439 (29.9)	–	–	–	12.58 (9.53–16.62)
Other mental health (counseling)	626 (42.6)	–	–	–	–

Table 3 Association between marginalization, psychosocial issues and UAI-US

Models	n	%	Crude OR (95 % CI)	Adjusted OR (95 % CI)
Model A—Individual marginalization indicators				
Verbal harassment	720	49	1.27 (1.02, 1.58)	1.11 (0.85, 1.45)
Physical violence	194	13.2	1.32 (0.96, 1.8)	0.99 (0.67, 1.44)
Forced sex	328	22.3	1.56 (1.21, 2.01)	1.15 (0.86, 1.54)
Career discrimination	291	19.8	1.56 (1.2, 2.03)	0.93 (0.93, 1.74)
Suicidality	773	52.6	1.51 (1.21, 1.89)	1.33 (1.03, 1.72)
Model B—Cumulative count of marginalization indicators				
0	373	25.4	Reference	Reference
1	428	29.1	1.5 (1.1, 2.05)	1.45 (1.04, 2.03)
2	315	21.4	1.76 (1.26, 2.45)	1.7 (1.19, 2.44)
3+	354	24.1	2.16 (1.57, 2.98)	1.95 (1.380, 2.75)
Model C—Individual psychosocial issues				
Emotional distress	567	44.7	1.47 (1.18, 1.83)	1.15 (0.97, 1.52)
Social isolation	403	27.4	1.49 (1.17, 1.89)	1.31 (0.97, 1.76)
Excessive substance use	402	27.3	1.59 (1.25, 2.01)	1.58 (1.21, 2.06)
Depression (counseling)	439	29.9	1.32 (1.05, 1.67)	1.13 (0.82, 1.54)
Other mental health (counseling)	626	42.6	1.24 (1, 1.55)	1.12 (0.84, 1.5)
Model D—Cumulative count of psychosocial issues				
0	348	23.7	Reference	Reference
1	362	24.6	1.11 (0.87, 1.68)	1.18 (0.83, 1.69)
2	348	23.7	1.6 (1.15, 2.21)	1.49 (1.05, 2.13)
3+	412	28	1.99 (1.46, 2.72)	1.95 (1.39, 2.75)

Four separate multivariable models with UAI-US as the outcome were used, as informed by syndemic theory (7)

All models adjusted for age, partnership status, income, education, ethnicity, and province

excessive substance use had 1.58 [95 % CI 1.21–2.06 *p* value .001] the odds of reporting UAI-US. While respondents that reported only one psychosocial issue were not at increased risk of UAI-US when compared to those reporting no issues, those reporting two and three or more issues were at increased odds; 1.49 [95 % CI 1.05–2.13 *p*-value .027] for those reporting 2 issues and 1.95 [95 % CI 1.39–2.75 *p*-value <.000] for those reporting 3 or more. The OR for continuous count of psychosocial issues was 1.26 [95 % CI 1.13–1.41 *p*-value <.000].

Discussion

With nearly 8,000 respondents, *Sex Now* (2010) was the largest Canadian study of gay and bisexual men to-date. Within this generous survey sample, we focused on the youngest cohort (under 30 years of age) and therein demonstrated the ongoing production of a syndemic of psychosocial difficulties and HIV related sexual risk. Using additive approaches, we found that cumulative anti-gay experiences were associated with numerous psychosocial

difficulties, which in turn were associated with increased risk of unprotected anal sex with partners of unknown HIV status. The same pattern was also observed in analysis of the entire survey sample (data not shown). We interpret this cascade as further evidence of the importance of socio-structural factors—in particular homophobia and heterosexism—as theorized by Stall et al. [7] and demonstrated empirically by numerous US researchers [8, 12–15].

We are limited in our analyses by some issues inherent to all anonymous self-administered surveys. Specifically, it is difficult to know how representative our sample is of the Canadian population of young gay and bisexual men, given the paucity of data sources on this population. However, our survey offers the advantage of online anonymity and is constructed with language familiar to most gay men. This may in part explain the large and diverse sample size we accrued. Because the Sex Now survey did not employ validated scales to measure depression we were unable to estimate the prevalence of psychosocial difficulties in the sample contemporaneously with the survey. Since clinical scales only account for mental health conditions at the time of taking the survey we explored psychological care histories which we thought to be potentially more inclusive of gay men's life experience. We were interested in depression and other mental health care histories not as discrete outcomes but rather as indicators of psychological distress, signaling someone caught in a syndemic.

Lastly, we are limited by some uncertainty in the temporality of variables we have included. To address this we have attempted to restrict the explanatory variables in our analysis to those which have occurred over the course of the lifetime of the respondent (and hence are more likely to precede psychosocial outcomes). In accordance with Stall's theory—which emphasizes the early effects of marginalization experiences during childhood and adolescence—we have also restricted our sample to the youngest cohort of participants; on this basis we may further strengthen our assumptions about temporality of explanatory and outcome variables. Ultimately, given the dearth of studies which capture social and psychological experiences across the life course of gay men, as well as the difficulties in sampling young gay and bisexual men, convenience survey samples such as ours may be the most efficient method for studying syndemic production.

Much of the evidence of a syndemic among gay men thus far comes from research that was performed in the US context. Our research demonstrates that syndemic theory is also a useful theoretical approach in countries where the social climate is more favorable to homosexuality, and offers a response to Stall's [7] prediction of the hypothetical effect of legalizing same sex marriage on the experiences of gay youth. Indeed, despite full legal protection for sexual minorities in Canada, and six years after same sex

marriage was legalized, our research participants reported multiple forms of violence and oppression related to their sexuality, which were associated to the development of psychosocial issues that were in turn associated with recent HIV risk.

Furthermore, our data revealed a concerning trend where today's young gay men face similar or even greater levels of lifetime marginalization than previous generations. This suggests that young gay men may not benefit from the legal reforms of the recent years; many of the legislative gains can only be enjoyed in adulthood such as marriage and partner benefits, providing little protection for young gay men during their teen years as they develop their sexual identities. As debate has evolved surrounding gay rights, and homosexuality has achieved greater visibility within North American society, its opposition may have grown in some contexts such as schools, as suggested by recent writings on gay bullying [19, 20]. More than ever, young gay men may be forming their sexual identity in a hostile environment.

Our study advances the knowledge of how syndemics are socially produced. To our knowledge, we are the first to consider employment experience as a determinant of syndemic production. Despite the limited work experience of young gay men and the Canadian Human Rights Act that prohibits employment discrimination on the basis of sexuality, one in five of our research participants reported that their sexual orientation had a negative impact on their career. Career discrimination was positively associated with all psychosocial issues within our syndemic.

Our research has several implications for policy and health promotion. While much of the HIV prevention efforts with young gay men have focused on sexual behavior change, our results call for a more holistic approach to gay men's health that addresses not only sexual health needs but the psychological and social needs of young gay men. Ideally, this will include treatment for the emotional scars from stigma but also interventions that will foster institutions and social environments to be more accepting of young gay men. As suggested by other researchers, interventions may be particularly needed within the education system where homophobia remains highly prevalent. Indeed, most Canadian young gay men feel unsafe in school and experience both high level of physical violence and harassment [19]. However, the same study showed that schools with anti-homophobia policies and groups such as gay-straight-alliances are generally safer for sexual minorities, demonstrating that interventions can indeed increase the social and physical well-being of young gay men.

Our research, along with that of Mustanski, et al. [8], Parsons, et al. [14], and others, demonstrates the importance of analyzing additive effects in examining syndemics. As shown

in Table 3, with the traditional epidemiologic approach of adjustment (via multivariable regression), individual effects of explanatory variables of interest are lost. This is to be expected given that psychosocial issues were highly interrelated in our study; nine of the ten bivariable associations tested were statistically significant (see Table 2). Only in looking at the cumulative effect of these variables on UAI-US are we able to see syndemic production.

Finally, since the gay community does not share a singular experience, to propose an effective response, future research should focus on identifying those more likely to be caught in a syndemic. More specifically, research should focus on how different social positions among gay men are affected by intertwined epidemics. Indeed, syndemic applications to date lack attention to diversity among gay men and fail to fully integrate the experiences of gay men along the axes of class, ethnicity, age, etc. To mitigate this limitation, we suggest that future syndemic analyses incorporate other theoretical approaches to capture a diversity of experiences. Among the most promising approaches is intersectionality.

Intersectionality is a widely respected research paradigm and approach that assists in documenting how multiple forms of oppression affect identities and opportunities of individuals or populations [21, 22]. Its potential to address intersecting factors and diversity has already been demonstrated in the context of gay men and HIV [23–26]. Because of its particular attention to multiple dimensions and interlocking factors, intersectionality could help advance syndemic theory by advancing more accurately the knowledge of the multiple origins of syndemics and how they are distributed and experienced among a diversity of gay men. This is key to identifying effective policy solutions and health promotion interventions that are targeted to the diverse needs of gay and bisexual communities.

References

- Public Health Agency of Canada. Summary: Estimates of HIV Prevalence and Incidence in Canada, 2011. Public Health Agency of Canada; 2012. <http://www.phac-aspc.gc.ca/aids-sida/publication/survreport/estimat2011-eng.php>. Accessed May 29, 2013. p. 1–9.
- Wolitski RJ, Fenton KA. Sexual health, HIV, and sexually transmitted infections among gay, bisexual, and other men who have sex with men in the United States. *AIDS Behav*. 2011;15(Suppl 1):9–17.
- Singer M. AIDS and the health crisis of the U.S. urban poor; the perspective of critical anthropology. *Soc Sci Med*. 1994;39(7):931–48.
- Singer M. Introduction to syndemics: a system approach to public and community health. San Francisco, CA: Jossey-Bass; 2009.
- Halkitis PN, Moeller RW, Siconolfi DE, Storholm ED, Solomon TM, Bub KL. Measurement model exploring a syndemic in emerging adult gay and bisexual men. *AIDS Behav*. 2012;17(2):662–73.
- Stall R, Mills TC, Williamson J, Hart T, Greenwood G, Paul J, et al. Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *Am J Public Health*. 2003;93(6):939–42.
- Stall R, Friedman MS, Cantania JA. Interacting epidemics and gay men's health: a theory of syndemic production among urban gay men. In: Wolitski RJ, Stall R, Valdiserri RO, editors. *Unequal opportunity: health disparities affecting gay and bisexual men in the United States*. New York: Oxford University Press; 2008. p. 251–74.
- Mustanki B, Garofalo R, Herrick AL, Donenberg G. Psychosocial health problems increase risk for HIV among urban young men who have sex with men: preliminary evidence of a syndemic in need of attention. *Ann Behav Med*. 2007;34(1):37–45.
- Kurtz SP. Arrest histories of high-risk gay and bisexual men in miami: unexpected additional evidence for syndemic theory. *J Psychoactive Drugs*. 2008;40(4):513–21.
- Moeller RW, Halkitis PN, Surrence K. The interplay of syndemic production and serosorting in drug-using gay and bisexual men. *J Gay Lesbian Soc Serv*. 2011;23(1):89–106.
- Egan JE, Frye V, Kurtz SP, Latkin C, Chen M, Tobin K, et al. Migration, neighborhoods, and networks: approaches to understanding how urban environmental conditions affect syndemic adverse health outcomes among gay, bisexual and other men who have sex with men. *AIDS Behav*. 2011;15(Suppl 1):35–50.
- Bruce D, Harper GW. The adolescent medicine trials network for HIV/AIDS interventions. operating without a safety net: gay male adolescents and emerging adults' experiences of marginalization and migration, and implications for theory of syndemic production of health disparities. *Health Educ Behav*. 2011;38(4):367–78.
- Klein H. Using a syndemics theory approach to study HIV risk taking in a population of men who use the internet to find partners for unprotected sex. *Am J Mens Health*. 2011;5(6):466–76.
- Parsons JT, Grov C, Golub SA. Sexual compulsivity, co-occurring psychosocial health problems, and HIV risk among gay and bisexual men: further evidence of a syndemic. *Am J Public Health*. 2012;102(1):156–62.
- Herrick AL, Lim SH, Plankey MW, Chmiel JS, Guadamuz T, Kao U, et al. Adversity and syndemic production among men participating in the multicenter AIDS cohort study: a life-course approach. *Am J Public Health*. 2013;103(1):79–85.
- Meyer IH, Dietrich J, Schwartz S. Lifetime prevalence of mental disorders and suicide attempts in diverse lesbian, gay, and bisexual populations. *Am J Public Health*. 2008;98(6):1004–6.
- British Columbia Centre for Disease Control. HIV in British Columbia: Annual Surveillance Report 2011. Vancouver: BC Centre for Disease Control; 2012. http://www.bccdc.ca/NR/rdonlyres/B24C1DFD-3996-493F-BEC7-0C9316E57721/0/2011_CD_Annual_Report_Final.pdf. Accessed May 29, 2013. p. 1–127.
- Centre for Disease Control and Prevention. New HIV Infections in the United States. 2012. <http://www.cdc.gov/nchhstp/newsroom/docs/2012/HIV-Infections-2007-2010.pdf>. Accessed May 29, 2013. p. 1–6.
- Taylor C, Peter T. Every class in every school: final report on the first national climate survey on homophobia, biphobia, and transphobia in Canadian schools. Toronto: Egale Canada Human Rights Trust; 2011. p. 1–152.
- Dysart-Gale D. Social Justice and social determinants of health: lesbian, gay, bisexual, transgendered, intersexed, and queer youth in Canada. *J Child Adolesc Psychiatr Nurs*. 2010;23(1):23–8.
- McCall L. The complexity of intersectionality. *Signs*. 2005;30(3):1–30.
- Hankivsky O. Women's health, men's health, and gender and health: implications of intersectionality. *Soc Sci Med*. 2012;74(11):1712–20.
- Ferlatte O. Are there enough gay dollars? an intersectionality-based policy analysis of HIV prevention funding for gay men in British Columbia, Canada. An intersectionality-based policy analysis

- framework. Vancouver, BC: Institute for Intersectionality Research and Policy, Simon Fraser University; 2012. p. 189–210.
24. Grace D. Reconceiving the “problem” in HIV prevention: HIV testing technologies and the criminalization of HIV non-disclosure. In: Hankivsky O, editor. An intersectionality-based policy analysis framework. Vancouver, BC: Institute for Intersectionality Research and Policy; 2012. p. 1–27.
 25. Doyal L. Challenges in researching life with HIV/AIDS: an intersectional analysis of black African migrants in London. *Cult Health Sex.* 2009;11(2):173–88.
 26. Bowleg L. “Once you’ve blended the cake, you can’t take the parts back to the main ingredients”: black gay and bisexual men’s descriptions and experiences of intersectionality. *Sex Roles.* 2012;. doi:[10.1007/s11199-012-0152-4](https://doi.org/10.1007/s11199-012-0152-4).