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Partners met via sex parties present significantly greater odds for condomless anal sex among MSM: An event-level analysis of venues where male partners are met

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KEYWORDS: men who have sex with men; unprotected anal intercourse; venues; bars/clubs; Internet; sex parties

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ABSTRACT

N=147 MSM completed time-line follow-back interviews about the venues where they met their male partners (*n*=1,180 sexual events with first-time partners, < 30 days). We ran multivariate models to determine the association between venues and condomless anal sex (CAS). After adjusting for known correlates of CAS, partners met at sex parties presented significantly greater odds for CAS, compared to meeting a partner at a gay bar/club (AOR=.44), online (AOR=.42), bathhouse (AOR=.35), or via "other" venues (AOR=.35), all $p < .01$. These findings highlight the need to develop innovative HIV/STI prevention initiatives for men who attend sex parties.

KEYWORDS: Men who have sex with men; condomless anal sex; venues; bars/clubs; Internet; sex parties

Introduction

Gay, bisexual, and other men who have sex with men (GBMSM) are 44 times more likely to contract HIV than other men[1] and accounted for nearly two-thirds of new diagnoses in 2011—up from 59% in 2008.[2] Since the beginning of the epidemic, researchers have investigated how the venues where GBMSM meet their partners might influence HIV transmission risk behaviors.[3] Venues have been the subject of inquiry because they represent a physical space where the target population can be identified, the population can potentially be intervened upon before a risky behavior occurs, and because there may be aspects of the venues themselves that contribute to risk.[4-9]

Much of the recent research on venues has focused on the Internet as a primary source of sexual partnering,[10-14] and researchers have spent considerable time determining whether meeting partners on the Internet is associated with greater risk for condomless anal sex (CAS).[15] Meanwhile, physical venues have also been the subject of inquiry, including gay bars/clubs,[4, 6, 16, 17] and sex parties.[16, 18-21] A community-based study of GBMSM in NYC and Los Angeles reported 54.8% met a recent male sex partner via a bar/club and 24.9% had met a sex partner via a sex party.[6] A 2014 study from a US online survey of GBMSM found 45.2% had been to a sex party in the last year.[22] At sex parties, men engage in frequent partnering and a variety of sexual acts with HIV-negative and HIV-positive men, which increases the opportunity for HIV/STI transmission.[18-20, 23, 24]

Researchers have found the venue in which partners were met might be associated with differential levels of CAS. One study found that GBMSM who attended sex parties in the last year were significantly more likely to report recent CAS than men who had never been to a sex party and men who had been to a sex party greater than a year ago.[22] A diary study of HIV-

positive GBMSM found that sexual encounters taking place at a sex party had six times the odds of CAS occurring with serodiscordant partners.[25]

In spite of data suggesting sex party attendance might be common among GBMSM, there are few comparative analyses showing levels of risk among partners met via sex parties relative to other venues. In addition, although research has examined if men who meet partners via sex parties differ from men who do not (in general),[22, 26] it remains unclear if meeting a partner *at* a sex party is associated with elevated risk at the event level. With few exceptions,[5, 15] there has been little work to connect sexual behaviors with the *actual* venue where a partner was met—an event-level analysis. To address these limitations, we conducted an event-level analysis to determine the association between the venues where GBMSM met their sex partners and subsequent CAS among a sample of men recruited from gay bars and clubs, Craigslist.org, and sex parties.

Method

Participants and Procedures

Data are taken from *Project Score*, a study investigating three cohorts of NYC-based GBMSM and where they meet their sex partners. Each cohort consisted of 50 men, one recruited from Craigslist.org, the second via gay bars and clubs, and the recruited in collaboration with sex party promoters. Recruitment procedures have been detailed elsewhere.[27-30] Eligibility criteria included being biologically male, at least 18 years of age, able to complete interviews in English, and having reported at least two new (i.e., first-time) male sex partners within the last 30 days. Participants were enrolled between 2010-2012. Those eligible completed a 2 hour assessment at our research office and were compensated $40. The City University of New York Institutional Review Board approved study procedures.

Measures

Participants completed an interviewer-administered timeline follow-back (TLFB) interview.[31, 32] The structured interview involved completing a calendar of sexual events and substance use in the 30 days prior to the study visit. The TLFB interview captures the participant's relationship with the partner, sexual behavior, and for instances of sex under the influence of club drugs (ketamine, MDMA/ecstasy, GHB, cocaine, or methamphetamine) and heavy drinking (five or more alcoholic drinks). For new partners, we coded for the venue in which that partner was met. Data were exported into SPSS for analysis.

Participants also completed demographic characteristics (e.g., age, sexual identity, education, race or ethnicity, HIV status) on a computer equipped with audio computer-assisted self-interview (ACASI) software. Additional demographic and psychosocial characteristics of the three cohorts have been reported elsewhere.[30]

Analytic Plan

Due to software failure, two ACASI interviews were lost and a third TLFB interview was lost due to human error. As such, the analytic sample for this paper consisted of 147 men. We recorded 1,838 sexual events across these 147 participants in the prior 30 days (n = 444 from the Craigslist cohort, 502 from the bar/club cohort, and 892 from the sex party cohort). Analyses were limited to events in which participants reported sex with a first-time (new) male sex partner (n = 1,182 events in the prior 30 days).

Because the data were nested, we used Generalized Estimating Equations (GEE) using a log link function to examine the dichotomous outcome of whether or not the participant engaged in CAS (coded as 1 = yes, 0 = no). We ran a series of 4 stepwise models to account for known covariates of CAS: (1) HIV-positive status (1 = yes, 0 = no), presumed HIV serodiscordance of

sex partner (1 = serodiscordant, 0 = seroconcordant), and participant's age (1 = 40+, 0 = < 40); (2) indicators of whether the sexual event was under the influence of club drugs (see above; 1 = yes, 0 = no) or heavy drinking (1 = yes, 0 = no); (3) the recruitment source as two dichotomous indicators (via gay bars/clubs or via Craigslist versus sex parties as the referent category); and (4) the venue in which the sex occurred. The four most common venues were considered independently by using three dichotomous indicators (gay bars/clubs, the Internet, and bathhouses, versus sex parties as the referent category), and the fifth was a combination of all other venues.

Results

Table 1 reports demographic characteristics of the sample. As can be seen, participants ranged in age from 18 to 75, with men from bars/clubs being significantly younger than men from sex parties. The sex party cohort had a significantly higher proportion of men who reported being HIV-positive compared to men from bars and clubs and Craigslist. A significantly smaller proportion of men from Craigslist self-identified as gay compared to men from bars/clubs and sex parties. Across all sex events with new male partners, participants from the sex party cohort reported that, on average, 14.8% of events included CAS, compared with 7.9% among the gay bar/club cohort ($p < .01$), and 5.5% among the Craigslist cohort ($p < .001$).

We next ran a four-step GEE model to examine factors associated with CAS at the individual and event level (i.e., accounting for the nested nature of the data; Table 2). The first step demonstrated that HIV-positive men had more than twice the odds of engaging in CAS, while other variables were non-significant. In the second step, we found that sex following heavy drinking was marginally significant, trending toward an inverse association with CAS while club drug use was not significantly associated. In the third step we found that men recruited from

Craigslist had 76% lower odds of engaging in CAS than men from sex parties and a marginally significant association suggesting that men from gay bars/club also had lower odds of CAS than men from sex parties.

In the final step we found that after adjusting for other variables in the model, compared to meeting a partner at a sex party, meeting a partner via each of the other venues was significantly associated with a 56-65% decrease in the odds for CAS. Additionally, we reran this fourth model with all possible combinations of referent groups and found that meeting a partner via a sex party was the only venue associated with significantly greater odds of CAS (not shown).

Discussion

This study demonstrated that, adjusting for factors known to be associated with CAS, meeting a new (first time) sex partner at a sex party was associated with significantly greater odds of CAS when compared to other venues. Compared to men recruited via Craigslist and gay/bars and clubs, men recruited via sex parties reported the greatest number of sexual events in the past 30 days. Sex party attendance among GBMSM may be common,[22] thus the present study has important implications for HIV and STI prevention strategies at sex parties.

In this study, the Internet was the second most common avenue for meeting new male sex partners. For the better part of three decades, researchers have investigated if meeting partners from the Internet was associated with increased odds of CAS.[13, 37] In our study, compared to meeting a partner in a bathhouse, gay bar/club, or other means, meeting a partner on the Internet was *not* associated with increased odds of CAS. Mustanski[15] noted that the association between CAS and meeting a partner on the Internet might be more a result of measurement technique. In his study, men with a history of online sex seeking (measured at the aggregate level) were more

likely to report CAS; however, meeting a partner online (measured at the event-level) was associated with decreased odds of CAS. Our study adds to the growing body of literature that suggests meeting a partner online (at the event-level) is not necessarily associated with increased risk for CAS.

This study's strengths should be considered in light of its limitations. Although statistically significant associations were identified, the samples for each cohort of GBMSM were small. All participants were based in NYC and do not represent the entire population of the venue from which they were recruited. The TLFB interview is a useful tool to gather retrospective data on sexual behavior[38, 39] and substance use; [40] however, as a face-to-face interview, there might be some response bias due to social desirability.[41, 42]

In spite of these limitations, this study has several implications for both researchers and providers. Compared to other venues for meeting male sex partners, meeting a partner via a sex party appears to elevate the risk for CAS, while other venues assessed in this study did not appear to significantly differ from each other. Sex party attendance may be common among GBMSM,[18-20, 22, 26] yet there is a paucity of research on these events. For providers and researchers, our study provided added detail on behavioral risks associated with the venues where GBMSM meet their sex partners. Specifically, our findings highlight the need to use targeted HIV/STI prevention initiatives for men who attend sex parties.[18-20, 23, 26] Such initiatives could include psychosocial interventions, free condom distribution,[33] and on-site HIV and STI screening.[34-36] Biomedical interventions like pre-exposure prophylaxis and anti-retroviral therapy might also be appropriate. However, some caution is needed before any such initiatives are put into place. A study of GBMSM who reported sex party attendance in the past year found that free condoms and on-site HIV and STI screening were desirable at sex parties; however, only

about one in ten considered it acceptable to see “medical providers” or “peer outreach workers” at sex parties.[22] Further research is needed to determine what intervention approaches would be acceptable; however, providers may be better served by partnering with sex party promoters in such a way as to have promoters and their staff deliver interventions.

Our study found not only that CAS was associated with venue of recruitment (between-group), but also venue for meeting partners (within-individual). Men who attend sex parties (as a *group*) were riskier than others, and attending a sex party (at the *event* level) increased odds of CAS. These data highlight the need to investigate both between- and within-group factors with regard to their association to CAS, as these may dynamically interact with psychosocial variables known to contribute to HIV and STI transmission.

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Table 1. Three cohorts of MSM recruited from Craigslist, bars and clubs, and sex parties

	Venue through which recruited								
	Craigslist, *n* = 50		Bars and Clubs, *n* = 48		Sex Parties, *n* = 50				
	n	%	*n*	%	*n*	%	c^2	*p*	
HIV-positive									
Yes	7	14.0	5	10.4	23	46.0	21.07	<.001	
No	43	86.0	43	89.6	27	54.0			
Race or Ethnicity									
White	21	42.0	25	52.1	28	56.0	8.88	0.18	
Black	6	12.0	7	14.6	9	18.0			
Latino	15	30.0	11	22.9	4	8.0			
Multiracial or Other	8	16.0	5	10.4	9	18.0			
Education									
High School or Less	3	6.0	8	16.7	7	14.0	12.05	0.06	
Some College	18	36.0	5	10.4	12	24.0			
4-Year College Degree	17	34.0	17	35.4	20	40.0			
Graduate School	12	24.0	18	37.5	11	22.0			
Participant is not in a relationship (i.e., single)	38	76.0	41	85.4	33	66.0	5.02	0.08	
Sexual identity is "Gay"?[a]									
Yes	39	78.0	47	97.9	43	86.0	8.77	0.01	
	Group A		Group B		Group C				
	M	SD	*M*	SD	*M*	SD	*F*	p	post hoc
Age	36.3	12.2	33.1	10.6	41.5	13.9	5.84	0.004	b ≠ c

[a] 15 men (10%) self identified as bisexual and 4 men (2.7%) as "other" but reported sex with men

Table 2. Event-level (partner-level) associations with condomless anal sex with new (first-time) male partners, *n* = 1182 events among *N* = 147 participants, ≤ 30 days

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	95% CI	*p*	Odds Ratio	95% CI	*p*	Odds Ratio	95% CI	*p*	Odds Ratio	95% CI	*p*
Intercept	0.26	0.14 - 0.50	< .001	0.28	0.14 - 0.57	< .001	0.42	0.16 - 1.11	0.08	0.64	0.29 - 1.44	0.29
Participant is HIV-positive												
Yes, *n* = 388	2.27	1.06 - 4.88	0.04	2.23	1.16 - 4.26	0.02	1.41	0.55 - 3.60	0.48	1.63	0.77 - 3.41	0.20
No (Reference, *n* = 794)	1.00			1.00			1.00			1.00		
Presumed HIV status of partner												
Discordant, *n* = 906	0.91	0.42 - 1.93	0.80	0.85	0.40 - 1.82	0.68	0.61	0.31 - 1.19	0.15	0.55	0.30 - 1.01	0.052
Concordant, *n* = 276	1.00			1.00			1.00			1.00		
Participant is over age 40												
Yes, *n* = 557	0.77	0.31 - 1.89	0.57	0.69	0.29 - 1.67	0.41	1.13	0.51 - 2.53	0.76	1.07	0.54 - 2.14	0.85
No (Reference, *n* = 625)	1.00			1.00			1.00			1.00		
Sex event under influence of club drugs*												
Yes, *n* = 125				1.75	0.86 - 3.56	0.13	2.02	0.97 - 4.20	0.06	1.43	0.72 - 0.28	0.31
No (Reference, *n* = 1057)				1.00			1.00			1.00		
Sex event following heavy drinking**												
Yes, *n* = 158				0.48	0.22 - 1.05	0.06	0.76	0.42 - 1.39	0.37	0.97	0.56 - 1.67	0.90
No (Reference, *n* = 1024)				1.00			1.00			1.00		
Recruitment cohort												
Gay bars/clubs, *n* = 290							0.42	0.17 - 1.02	0.056	0.63	0.32 - 1.23	0.17
Craigslist, *n* = 256							0.24	0.08 - 0.72	0.01	0.41	0.16 - 1.06	0.07
Sex parties, *n* = 636							1.00			1.00		
Venue where met partner												
Gay bar/club, *n* = 99										0.44	0.27 - 0.71	0.001
Internet, *n* = 224										0.42	0.24 - 0.74	0.003
Bathhouse, *n* = 94										0.35	0.17 - 0.73	0.005
Other***, *n* = 304										0.35	0.22 - 0.58	< .001
Sex party (reference, *n* = 461)										1.00		

* Ketamine, MDMA/Ecstasy, GHB, Cocaine, and/or Crystal Methamphetamine

** Five or more alcoholic drinks

*** School *n* = 2, work *n* = 5, community organization *n* = 5, Grindr *n* = 49, other mobile app *n* = 7, gym *n* = 25, public toilet/bathroom *n* = 3, public park *n* = 42, sex (porn) shop *n* = 64, street or public transportation *n* = 13, via friends *n* = 35, via current/former fuckbuddies *n* = 11, something else (other) *n* = 47