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BRIEF REPORT

Correlates of Unprotected Anal Sex with Casual Partners: A Study of Gay Men Living in the Southern United States

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Abstract This study identified demographic and behavioral correlates of engaging in unprotected anal sex (UAS) with non-main partners among men having sex with men (MSM). Just over 1,000 men completed anonymous surveys with 25% of the men reporting their most recent sexual act with a non-main male partner was UAS. These men tended to be white, older, HIV seropositive, and high (or drunk) when having sex. In multivariate analysis being seropositive, and being high or drunk retained significance. Subsequent research may build upon these findings to determine the causal pathway to UAS among MSM having sex with non-main partners. Findings may be useful in constructing prevention interventions for MSM frequenting gay venues.

Keywords HIV prevention · Risk behavior · Behavioral surveillance · Men who have sex with men · Homosexual men

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Introduction

MSM experience a substantial risk of infection with HIV (Centers for Disease Control & Prevention, 2000, 2001a, 2001b; Sullivan, Chu, Fleming, & Ward, 1997). Moreover, MSM are disproportionately at-risk of acquiring and transmitting bacterial STDs (Centers for Disease Control and Prevention, 1997, 1999, 2001c, 2001d; Fox *et al.*, 2001; Rietmeijer, Patanaik, Judson, & Douglas, 2003). Engaging in UAS is the primary risk factor for HIV acquisition and transmission among MSM. Unfortunately, empirical investigations have not always distinguished between men having UAS in the context of a committed relationship and those having sex with non-main partners. In studies where this distinction has been made, UAS is far less common with non-main sex partners (Misovich, Fisher, & Fisher, 1997). This observation is important because it implies that MSM who do not practice safer sex with non-main partners may be particularly at-risk of infection.

Studies of MSM in Sydney, Australia have identified knowingly being seropositive for HIV as an important correlate of engaging in UAS with a casual partner (Van De Ven *et al.*, 1997, 1998). Further, data from Sydney and from

British Columbia suggest that recreational drug use may be an important correlate of having UAS with casual partners (Strathdee *et al*., 1998; Van De Ven *et al*., 1998). Data from Sydney also suggest that knowledge of the sex partner's serostatus and disclosure of serostatus may be important determinants of UAS with casual partners (Prestage *et al*., 2001). Level of education may also be a factor (Strathdee *et al*., 1998). Unfortunately, recent studies have not investigated correlates of UAS with non-main partners among MSM in the United States. Accordingly, this study identified demographic and behavioral correlates of recently engaging in UAS with non-main partners among MSM residing in a large metropolitan area.

Method

Participants and procedures

From October 2003 until October 2004 men residing in Atlanta, Georgia were recruited to participate in an anonymous, cross-sectional, venue-based survey. Project staff recruited men in gay identified venues. The large majority (about 75%) of these venues were bars or nightclubs. The remainder were community based organizations, parks, food service establishments, bookstores and gyms. 1233 men were asked to complete a brief anonymous survey, 1145 of those were eligible to participate (92.9%), and 1006 of those agreed to participate and provided a complete interview (87.9%). Of these men, 391 reported having had sex with a non-main, male partner in the past year and provided data about UAS with the most recent non-main partner.

Measures

Men were eligible for study participation if they were 18 years of age or older and they had not previously participated in the same study. Volunteers were asked if they would like to complete the interview in a semi-private area (e.g., a place in or nearby the venue that may be a bit more quiet). For men selecting this option, interviewers typically located areas of the venue that were less crowded or conducted the interview on a nearby sidewalk that was not busy at the time. Trained interviewers used personal digital assistants (PDAs) to record answers provided by men.

Using a recall period of 12 months, men were asked about "not main" male sex partners. Men were asked if they had used a condom for the entire duration of the last anal sex act (as compared to part or none of the duration). Separate questions assessed this for receptive and insertive acts of UAS.

In addition to age, race, and education we assessed several likely correlates of UAS: being seropositive for HIV, being high or drunk during last sex, discussing HIV serostatus with partner before sex, knowing partner's HIV serostatus, and whether men had talked with a counselor or other professional about HIV prevention.

Data analyses

Fifty-eight men indicated being both in a receptive and insertive position during their most recent act of anal sex with a non-main partner. These men classified as having UAS if either event was not protected by a condom. Bivariate associations between dichotomous correlates and UAS were assessed by contingency table analyses. Variables testing significant ($p \leq .05$) at the bivariate level were entered into a forward stepwise multiple logistic regression model.

Results

One-quarter (25.3%) of the men were classified as having participated in UAS. Table 1 displays the percent of men reporting UAS stratified by their responses (i.e., yes vs. no) to the dichotomous measures. The table also provides prevalence ratios. As shown, men who were seropositive were about three-fourths more likely to report UAS than their seronegative counterparts. Men who reported being high or drunk were about 56% more likely to have had UAS. White men were 54% more likely to engage in UAS. Also (not shown in table) the mean age of men having UAS was 36.0 years compared to a significantly lower value of 33.9 years among those not reporting UAS, $t(389) = 1.93$, $p = .05$.

Multivariate associations

The model was significant, $\chi^2(2) = 15.4$, $p < .01$, and achieved an excellent fit with the data, Goodness of Fit $\chi^2(2) = .11$, $p = .95$. However only 2 variables retained significance (Table 2).

Discussion

The data presented here are from what is, to the best of our knowledge, the largest venue-based HIV risk-behavior survey of MSM in the South. One-quarter of the sample engaged in UAS the last time they had sex with a non-main partner. These men tended to be white, older, seropositive, and high (or drunk) at time of last intercourse. In multivariate analyses, being HIV positive and substance use were the strongest correlates.

A unique feature of this study as opposed to similar studies is the use of event-level data relative to men's being high or drunk during their last sexual encounter with a non-main

Table 1 Bivariate Associations Between Dichotomous Correlates and Engagement in Unprotected Anal Sex, With Non-Main Partners, at Last Sexual Intercourse

Correlate	*n*	% Reporting unprotected anal sex	PR[a]	95% CI[b]	*p*
Seropositive					
Yes	79	39.2			
No	293	22.2	1.77	1.25–2.51	.002
High or drunk during last sex					
Yes	162	32.1			
No	229	20.5	1.56	1.14–2.20	.010
Discussed serostatus before last sex					
Yes	219	23.3			
No	169	28.4	0.82	0.58–1.15	.25
Know partner's serostatus before last sex					
Yes	160	30.0			
No	224	22.8	0.76	0.54–1.06	.11
Recently talked with an HIV counselor					
Yes	45	25.7			
No	346	22.2	1.16	0.65–2.06	.61
Minority race					
Yes	166	29.8			
No	225	19.3	1.54	1.07–2.24	.018
Completed college					
Yes	203	26.6			
No	188	23.9	0.90	0.64–1.27	.54

[a]Prevalence ratio.

[b]Confidence interval.

male partner (Prestage *et al*., 2001; Strathdee *et al*., 1998; Van De Ven *et al*., 1997, 1998). This adds strength to the proposition that alcohol and/or drug use may lead to risky sex. However, the same cannot be said about HIV serostatus because the assessment did not include a timeline for when men discovered their positive serostatus in contrast to their last sexual encounter. However, given the likelihood that men's last sexual encounters with non-main partners were relatively recent in contrast to learning their serostatus, the finding is nonetheless important.

The multivariate findings are particularly instructive. It may be, for example, that substance use actually predicts risky sexual behavior which in turn predicts HIV serostatus. However, the limitation of a cross-sectional study precludes determining this possible causal sequence. Future research to determine the causal pathway is critical for understanding how to construct and prioritize HIV prevention interventions for MSM frequenting gay venues.

Table 2 Significant Multivariate Associations Between Correlates Achieving Bivariate Significance and Engaging in Unprotected Anal Sex With Non-Main Partners

Correlate	AOR[a]	95% CI[b]	*p*
Seropositive for HIV	2.20	1.29–3.76	.003
High or drunk during last sex	1.85	1.15–2.98	.01

[a]Adjusted odds ratio—adjusted for the influence of all other variables in the model.

[b]Confidence interval.

Also of interest in this study was a failure to find a relationship between UAS and the variables such as discussing HIV serostatus with partners before sex, knowing partner's HIV serostatus, and talking with a counselor about HIV prevention. Future research should verify whether these constructs are truly unrelated to UAS among MSM having non-main partners.

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References

Centers for Disease Control & Prevention. (1997). Gonorrhea among men who have sex with men—Selected sexually transmitted disease clinics, 1993–1996. *Morbidity and Mortality Weekly Report*, *46,* 889–892

Centers for Disease Control & Prevention. (1999). Resurgent bacterial sexually transmitted disease among men who have sex with men—King County, Washington, 1997–1999. *Morbidity and Mortality Weekly Report*, *48,* 773–777.

Centers for Disease Control & Prevention. (2000). HIV/AIDS among racial/ethnic minority men who have sex with men—United States, 1989–1998. *Morbidity and Mortality Weekly Report*, *49,* 4–11.

Centers for Disease Control & Prevention. (2001a). *Need for sustained HIV prevention among men who have sex with men*. Retrieved November 19, 2001, from www.cdc.gov/hiv/pubs/facts/msm.htm

Centers for Disease Control & Prevention. (2001b). HIV incidence among young men who have sex with men—seven U.S. cities, 1994–2000. *Morbidity and Mortality Weekly Report*, *50,* 440–443.

Centers for Disease Control & Prevention. (2001c). *Sexually transmitted disease surveillance*, 2000. Atlanta, GA: Department of Health and Human Services.

Centers for Disease Control & Prevention. (2001d). Outbreak of syphilis among men who have sex with men—Southern California, 2000. *Morbidity and Mortality Weekly Report*, *50,* 117–120.

Fox, K. K., del Rio, C., Holmes, K. K., Hook, E. W., III, Judson, F. N., Knapp, J. S., *et al.* (2001). Gonorrhea in the HIV era: A reversal of trends among men who have sex with men. *American Journal of Public Health*, *91,* 959–964.

Misovich, S. J., Fisher, J. D., & Fisher, W. A. (1997). Close relationships and elevated HIV risk behavior: Evidence and possible underlying psychological processes. *Reviews of General Psychology*, *1,* 72–107.

Prestage, G., Van De Ven, P., Grulich, A., Kippax, S., McInnes, D., & Hendry, O. (2001). Gay men's casual sex encounters: Discussing HIV and using condoms. *AIDS Care*, *13,* 277–284.

Rietmeijer, C. A., Patanaik, J. L., Judson, F. N., & Douglas, J. M., Jr. (2003). Increases in gonorrhea and sexual risk behaviors among men who have sex with men: A 12-year trend analysis at the Denver Metro Health Clinic. *Sexually Transmitted Diseases*, *30,* 562–567.

Strathdee, S. A., Hogg, R. S., Martindale, S. L., Cornelisse, P. G., Craib, K. J., Montaner, J. S., *et al.* (1998). Determinants of sexual risk-taking among young HIV-egative gay and bisexual men. *Journal of Acquired Immune Deficiency Syndromes*, *19,* 61–66.

Sullivan, P. S., Chu, S. Y., Fleming, P. L., & Ward, J. W. (1997). Changes in AIDS incidence for men who have sex with men, United States 1990–1995. *AIDS*, *11,* 1641–1646.

Van De Ven, P., Campbell, S., Kippax, G., Prestage J., Crawford, D., Baxter, D., *et al.* (1997). Factors associated with unprotected anal intercourse in gay men's casual partnerships in Sydney, Australia. *AIDS Care*, *9,* 637–650.

Van De Ven, P., Campbell, D., Kippax, S., Knox, S., Prestage, G., Crawford, J., *et al.* (1998). Gay men who engage repeatedly in unprotected anal intercourse with casual partners: The Sydney men and sexual health study. *International Journal of STD and AIDS*, *9,* 336–340.