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BRIEF REPORT

Prescription Drug Misuse and Sexual Risk Taking Among HIV-Negative MSM

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Abstract Men who have sex with men (MSM) misuse prescription drugs at high rates. Little research has examined the connection between prescription drug misuse and HIV risk in this population. With a community sample of MSM, the authors assessed prescription drug misuse—not including erectile dysfunction medications—and sexual risk behaviors among HIV-negative MSM. The findings indicate that recent prescription drug misusers had higher odds of engaging in unprotected anal intercourse (UAI; OR = 1.63), specifically receptive UAI (OR = 1.58), and more likely to have UAI with a higher number of sero-concordant partners (b = 0.268). MSM who reported recently misusing prescription drugs during sexual encounters were more likely to engage in UAI (OR = 2.02), specifically insertive UAI (OR = 1.86). There was no association between prescription drug misuse and identification as a barebacker. This research indicates that prescription drug misusing MSM are a risk group who may benefit from HIV prevention and intervention efforts.

Keywords Prescription drugs · Men who have sex with men · HIV · Sexual risk · Drug abuse

Resumen Los hombres que tienen sexo con hombres (HSH) hacen uso indebido de drogas de prescripción en tasas altas. La conexión entre el uso indebido de drogas de prescripción y el riesgo de transmisión de VIH ha sido poco investigada en esta población. Los autores midieron el uso indebido de drogas de prescripción—exceptuando medicaciones para la disfunción eréctil—así como comportamientos sexuales riesgosos, en una muestra comunitaria de HSH VIH-negativo. Los resultados indican que quienes recientemente hicieron uso indebido de drogas de prescripción tuvieron más chances de haber participado en sexo anal sin protección (SASP; OR = 1.63), especialmente receptivo (OR = 1.58), así como más chances de haber tenido SASP con un mayor número de compañeros sero-concordantes (b = 0.268). Los HSH que reportaron reciente uso indebido de drogas de prescripción durante encuentros sexuales fueron más proclives a participar en SASP (OR = 2.02), especialmente insertivo (OR = 1.86). No hubo asociación entre el uso indebido de drogas de prescripción y la identificación como barebacker. Esta investigación indica que los HSH que hacen uso indebido de drogas de prescripción son un grupo de riesgo que podría beneficiarse de intervenciones y esfuerzos de prevención del VIH.

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Introduction

Existing research indicates that urban men who have sex with men (MSM) are misusing prescription drugs at high rates [1]. In comparison to national prevalence estimates, this data suggests that urban MSM are more likely to be misusing prescription drugs than general population samples of adults [2]. While the burden of substance abuse and dependence may be elevated for MSM [3], particularly for

those men with high levels of minority stress due to the experience of homophobia and gay-related stigma [4], prescription drug misuse creates an additional burden among MSM given the intersection of drug use with sexual behaviors that pose risks for HIV and STD transmission.

A significant body of literature has examined the links between drug abuse and sexual risk taking among MSM [5, 6]. Yet, the literature on prescription drug misuse and sexual risk taking in this population is largely confined to the misuse of erectile dysfunction (ED) medications [7, 8]. While research on the misuse of ED medications among this population is important, prescription drug misuse may impose a sexual risk burden upon MSM beyond these substances and as such it is important to examine the influence of the misuse of other prescription medications on sexual risk as well. While prescription substances such as opiates and stimulants likely differ from ED medications in shaping HIV risk, they may be associated with sexual risk in ways similar to the well-established risk profile of illicit drugs. An exception to the dearth of information on this subject is Benotsch and colleagues [9] recent study of prescription drug misuse and sexual risk taking among gay and bisexual men. Their results suggest that gay and bisexual men with lifetime experience with prescription drug misuse have more sexual partners and more occasions of receptive and insertive UAI [9]. We build upon Benotsch's efforts by examining how patterns of recent prescription drug misuse—not including erectile dysfunction medications—shape several HIV risk behaviors among MSM.

Present Study

This paper highlights the association between the misuse of prescription drugs and sexual HIV risk behaviors among a community sample of HIV-negative MSM. Specifically, we examine whether the recent misuse of prescription drugs is associated with unprotected anal intercourse, and specifically receptive or insertive unprotected anal intercourse, identifying as a barebacker, and having unprotected anal intercourse with a greater number of seroconcordant and serodiscordant casual sex partners. We also examine these same sexual risk behaviors for men who report recent prescription drug misuse during sexual encounters.

Methods

The research team administered surveys to MSM attending four large GLB community events through the Sex and Love Project, an annual survey of the GLB community focused on issues related to health, sex, and other areas of life. These community events enable broad access to the GLB population in the region. This intercept survey approach has been used in numerous studies [10, 11], including those focused on GLB persons [12, 13]. As such, these data allow us to examine the links between prescription drug misuse and sexual risk taking in a community-based sample of MSM.

The brief self-administered survey could be completed in approximately 10–15 min. Although entrance to the events required an admission fee, discount passes were widely available and free admission passes were provided to GLB- and HIV-related community organizations. Potential subjects were invited to complete the "Sex and Love Survey" by a research assistant. Those who agreed were given a survey on a clipboard, and were encouraged to complete the survey in nearby seating areas for privacy. Thus, all subjects were directly recruited by staff to complete the self-administered questionnaire. The first page of the survey served as the assent form. A movie pass was given as an incentive for survey completion, which contained items concerning GLB life and health issues.

Measures

Demographics/Covariates

Research assistants recorded each respondent's gender, age, and race on the survey before handing it to the subject for completion. Demographic data, such as sexual identity, HIV status, and educational attainment were self-reported by the participants on the survey. Age was recorded continuously. Participants selected their sexual identity as "gay, homosexual," "bisexual," "heterosexual," or "other." These were re-coded as gay-identified MSM or non-gay-identified MSM. HIV status was reported as HIV-positive, HIV-negative, or "status unknown" on the survey. Educational level was recorded and then recoded into one of five categories. Race was recorded as White, Black, Latino, Asian/Pacific Islander, Mixed or Other. Individuals identifying as Mixed or Other race were collapsed into a Mixed/Other category.

The variable on HIV status was used to select out men who reported an HIV-positive status. We included variables on sexual identity, age, education, and race in all regression analyses to control for the influence of these demographic factors. In addition, given the focus of this paper on prescription drug use and sexual risk taking, we also controlled for the use of drugs often associated with sexual risk. Specifically, we controlled for the recent use of cocaine, ecstasy, and methamphetamine among participants. These were dichotomous variables reporting the use of these drugs during the previous 3 months.

Prescription Drug Misuse

Our primary independent variables of interest concern the misuse of prescription drugs and were obtained from a series of questions focused on measuring whether a respondent had misused the following drug classes during the previous 3 months: prescription pain killers, prescription sedatives, prescription sleep aids, prescription stimulants, and erectile dysfunction (ED) medications. More specifically, the survey respondents were asked "Have you taken any of these medications *recreationally*" (emphasis in survey) "during the last 3 months?" and "with sex during the last 3 months?" They were provided a list of each of the above prescription drug classes to which they responded Yes or No to these questions for each prescription drug class. We evaluated prescription drug misuse by creating a global measure of prescription drug misuse, i.e. whether a respondent misused any of these drug classes, without including the erectile dysfunction medications in the measure. We focus on non-ED medications given that the previous literature has focused on ED medication misuse and sexual risk taking in the past and has fairly well established these links [7, 8].

Sexual Risk

Our dependent variables of interest concern several sexual risk behaviors that have implications for HIV transmission. Our variables for unprotected anal intercourse (UAI) are measured for having any UAI during the past 3 months, having insertive UAI during the past 3 months, and having receptive UAI during the past 3 months with the use of dichotomous (Yes/No) responses. We also queried the total number of perceived seroconcordant casual partners and the total number of known serodiscordant casual partners with whom the responded had unprotected anal sex with in the past 3 months, which were recorded in continuous fashion. Participants were also asked "Do you consider yourself a barebacker?" and these responses were recorded in dichotomous (Yes/No) fashion.

Data Analysis

We examined the associations between prescription drug misuse and various sexual behavior outcomes. Descriptive characteristics and other analyses were computed using SPSS. Multivariate regression analyses were conducted to evaluate the associations between prescription drug misuse and each sexual risk behavior. Logistic regression analyses were conducted for all dichotomous dependent variables. Linear regression analyses were conducted for all continuous dependent variables. To control for the influence of other factors, we included variables for demographics and illegal drug use in all models run. In the Tables 1 and 2, Odds Ratios are presented for logistic regression analyses and unstandardized coefficients and standard errors are reported for the linear regression analyses.

Sample Characteristics

Based upon the data collected, we had a total sample of 1,524 HIV-negative MSM. Most identified as gay (90.4%) and many of the remaining men identified as bisexual (8.0%). Almost half of the sample (47.9%) had a college degree (either Associate's or Bachelor's degrees), with roughly equal proportions having less than a college degree (22.4%) or a graduate degree (29.8%). A majority of the sample was White (60.0%) with significant representation of Black MSM (12.7%) and Latino MSM (15.9%), along with some Asian/Pacific Islander MSM (6.4%) and men of mixed or other race (4.7%). Relatively high levels of recent prescription drug misuse were found among the sample with approximately one-fourth of subjects (23.6%) reporting prescription drug misuse within the past 3 months, not counting the misuse of ED medications, which would further elevate this figure.

Table 1 Descriptive characteristics of the sample

	n	Mean (SD)
Average age	1,524	36.0 (10.6)
Sexual identity		
Gay identified	1,378	90.4%
Bisexually identified	122	8.0%
Heterosexual/other	23	1.5%
Educational level		
Less than college degree	329	22.4%
College degree	705	47.9%
Graduate degree	438	29.8%
Race/ethnicity		
White	917	60.0%
Black	194	12.7%
Latino	242	15.9%
Asian/Pacific Islander	98	6.4%
Mixed/other	72	4.7%
Recent Rx drug misuse		
Any Rx drug misuse (non-ED)	333	23.6%
Pain killers	160	11.1%
Sedatives	109	7.5%
Sleep aids	214	14.8%
Stimulants	63	4.1%

Table 2 Prescription drug misuse & risky sexual activity

	b	SE	OR (95% CI)
Recent prescription drug misuse			
Any UAI			1.63** (1.15–2.31)
Receptive UAI			1.58* (1.03–2.42)
Insertive UAI			1.44† (0.97–2.14)
Barebacker			1.04 (0.66–1.62)
# of UAI seroconcordant partners	0.268**	0.103	
# of UAI serodiscordant partners	−0.033	0.058	
Recent prescription drug misuse with sex			
Any UAI			2.02** (1.20–3.42)
Receptive UAI			1.58 (0.83–3.01)
Insertive UAI			1.86* (1.05–3.32)
Barebacker			1.27 (0.66–2.47)
# of UAI seroconcordant partners	0.334†	0.173	
# of UAI serodiscordant partners	−0.032	0.097	

Significance: $^{\dagger}P \leq 0.10$; * $P \leq 0.05$; ** $P \leq 0.01$

Estimates reported for Logistic Regression are Odds Ratios (95% confidence intervals)

Results

The findings of this study indicate a relationship between prescription drug misuse and sexual risk behaviors among MSM. MSM who had recently misused prescription drugs had higher odds of engaging in UAI (OR = 1.63). Specifically, they had higher odds of engaging in receptive UAI (OR = 1.58) and a trend towards insertive UAI (OR = 1.44, $P = 0.071$). In addition, they were likely to have UAI with a higher number of seroconcordant (b = 0.268) partners compared to their peers who reported no recent prescription drug misuse. No effects were found for identifying as a barebacker or the number of known serodiscordant partners having UAI.

We also saw associations with sexual risk taking among MSM who reported misusing prescription drugs during sexual encounters within the past 3 months. Such MSM had higher odds of UAI (OR = 2.02). Specifically, they had higher odds of engaging in insertive UAI (OR = 1.86). Additionally, there was a trend toward a higher number of seroconcordant partners (b = 0.334, $P = 0.054$) with whom they has UAI compared to peers who reported no recent prescription drug misuse during sexual encounters. There was no association with having receptive UAI, identifying as a barebacker, or the number of known serodicordant partners with whom they had UAI.

Discussion

Overall, our findings indicate associations between prescription drug misuse and some sexual risk behaviors among HIV-negative MSM. Notably, we have identified that MSM who misuse prescription drugs are a population who may benefit from targeted prevention and intervention efforts related to HIV risk. Yet, we remain cautious in our interpretation of these findings as these data do not allow for the establishment of a clear causal path between prescription drug misuse and sexual risk taking. We must consider that underlying factors may be driving both prescription drug misuse and sexual risk taking—e.g. minority stress—as well as consider the possibility of negative affect related to sexual risk taking leading some men to self-medicate through the misuse of prescription drugs after their risky sexual encounters. Yet, although we carefully consider these relationships in addition to a possible causal pathway, it is clear that prescription drug misuse was associated with sexual risk taking.

Men who recently misused prescription drugs reported higher odds of unprotected anal intercourse (UAI). Depending on whether they reported recent misuse or recent misuse during sexual encounters, there were findings for both insertive and receptive UAI, which coheres with findings by Benotsch et al. [9]. This association is cause for concern given that unprotected anal intercourse remains the primary route of HIV transmission among MSM [14]. Yet, prescription drug misusers not only report higher odds of engaging in UAI, but also report having unprotected sex with a greater number of perceived seroconcordant partners. However, there is some reason for optimism in this regard in that these are typically partners who they believe to have the same HIV status. In this regard, serosorting behaviors may be occurring among HIV-negative men engaged in prescription drug misuse [15]. Thus, these HIV-negative prescription drug misusers do not appear to more frequently engage in UAI with partners known to be HIV-positive.

Future research should investigate the mechanisms by which prescription drug misuse is associated with sexual risk behaviors. As noted above, it remains important to consider that the misuse of these drugs by some MSM may not be a cause per se of risky sexual behavior. Rather, some may be using prescription drugs to enable comfort during desired riskier sexual encounters or to cope with guilt in the wake of behaviors they regret. It also remains important to investigate whether these pathways differ from the means by which illicit drugs shape sexual risk taking. It is important to reiterate that we controlled for the effects of drugs often associated with unprotected sex such as cocaine, ecstasy, and methamphetamine. Thus, the misuse of these drugs may impact sexual risk taking differently

than illicit drugs. Furthermore, each prescription drug class is likely to function in a different manner, and as such, may be associated with HIV risk in different ways.

Although this paper is an important step in examining the connection between prescription drug misuse and sexual risk behaviors among HIV-negative MSM, it is also important to note some of its limitations. The sample is a non-random sample of HIV-negative urban MSM drawn from GLB community events. As such, it may not fully generalize to the population of MSM, particularly to non-urban MSM or MSM who do not participate in gay community events (as evidenced by the low rate of non-gay identified MSM in the sample). In addition, the survey was completed at a public event, which may increase the likelihood of participants providing socially desirable responses. However, efforts were made to remedy the problem of social desirability bias through the provision of quiet, secure spaces for the survey's completion. In addition to these common limitations, the measure of prescription drug misuse asked participants to report "recreational use" of prescription drugs. This may have been interpreted by some to indicate prescription drug use for the purpose of pleasure or to "get high" and may not account for other motivations for prescription drug misuse. Thus, it may result in an underreporting of prescription drug misuse. Finally, these data are not event level data, and thus we cannot link the misuse of prescription drugs to lead directly to sexual risk taking. We can only infer a generalized association between prescription drug misuse and sexual risk behaviors.

Despite these limitations, this study has yielded important findings on the association between prescription drug misuse and sexual risk behaviors among HIV-negative MSM. The data indicate that prescription drugs may be an emerging problem connected to sexual risk behaviors among MSM that may continue to escalate alongside the expanding problem of prescription drug misuse. While the data do not allow definitive conclusions on HIV risk related to prescription drug misuse, they highlight the need for further inquiries into this problem. Additionally, they indicate the need to consider the misuse of prescription drugs when designing HIV prevention and intervention efforts for drug using MSM.

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References

1. Kelly BC, Parsons JT. Prevalence and predictors of non-medical prescription drug use among men who have sex with men. Addict Behav. 2010;35:312–7.
2. Substance Abuse and Mental Health Services Administration. Results from the 2008 National Survey on Drug Use and Health: National Findings (Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09-4434). Rockville, MD; 2009.
3. Cochran SD, Ackerman D, Mays VM, Ross MW. Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population. Addiction. 2004;99(8):989–98.
4. Hatzenbuehler ML, Nolen-Hoeksema S, Erickson SJ. Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: results from a prospective study of bereaved gay men. Health Psychol. 2008;27(4):455–62.
5. Leigh BC, Stall R. Substance use and risky sexual behavior for exposure to HIV: issues in methodology, interpretation, and prevention. Am Psychol. 1993;48(10):1035–45.
6. Stall R, Purcell DW. Intertwining epidemics: a review of research on substance use among men who have sex with men and its connection to the AIDS epidemic. AIDS Behav. 2006;4(2):181–92.
7. Kim AA, Kent CK, Klausner JD. Increased risk of HIV and sexually transmitted disease transmission among gay and bisexual men who use Viagra, San Francisco 2000–2001. AIDS. 2002;16:1425–8.
8. Mansergh G, Shouse RI, Marks G, et al. Methamphetamine and sildenafil (Viagra) use are linked to unprotected receptive and insertive anal sex, respectively, in a sample of men who have sex with men. Sex Transm Infect. 2006;82:131–4.
9. Benotsch EG, Martin AM, Koester S, Cejka A, Luckman D. Nonmedical use of prescription drugs and HIV risk behavior in gay and bisexual men. Sex Transm Dis. 2011;32:105–10.
10. Carey MP, Braaten LS, Jaworski BC, Durant LE, Forsyth AD. HIV and AIDS relative to other health, social, and relationship concerns among low-income women: a brief report. J Womens Health Gend Based Med. 1999;8:657–61.
11. Chen JL, Kodagoda D, Lawrence AM, Kerndt PR. Rapid public health interventions in response to an outbreak of syphilis in Los Angeles. Sex Transm Dis. 2002;29:285–7.
12. 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;31:177–83.
13. Kalichman SC, Benotsch E, Rompa D, et al. Unwanted sexual experiences and sexual risks in gay and bisexual men: associations among revictimization, substance use, and psychiatric symptoms. J Sex Res. 2001;28:1–9.
14. Osmond DH, Pollack LM, Paul JP, Catania JA. Changes in prevalence of HIV infection and sexual risk behavior in men who have sex with men in San Francisco: 1997–2002. Am J Public Health. 2007;97(9):1677–83.
15. Suarez T, Miller J. Negotiating risks in context: a perspective on unprotected anal intercourse and barebacking among Men who have Sex with Men—where do we go from here?". Arch Sex Behav. 2001;30:287–300.