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Motivations for the recreational use of erectile enhancing medications in urban gay and bisexual men

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Abstract

Objectives—Recreational erectile enhancing medication (EEM) use has been associated with a number of health risk behaviours among gay and bisexual men. This study aims to extend previous findings about the associations between recent EEM use and illegal drug use, incident sexually transmitted infections (STIs) and unprotected sex, as well as to report on motivations for EEM use.

Methods—A cross-sectional, street-intercept survey method was used to collect data from 912 gay/bisexual men at two large lesbian, gay and bisexual community events in New York City in 2006.

Results—Lifetime EEM use was reported by 28.0% of the men; 17.4% used EEM in the past 3 months. EEM users were more likely to be white and HIV positive. EEM users were more likely to engage in unprotected anal insertive sex with seroconcordant and serodiscordant partners. EEM users who were HIV negative were more likely to report using alcohol and other drugs before and during sex, especially crystal methamphetamine (AOR 18.66; 95% CI 6.82 to 51.02) as well as to endorse incident STIs. The most frequent responses for EEM use were to “add to the fun”, “maintain an erection while using a condom” and “to have sex for hours”. Men with HIV were 2.93 times (95% CI 1.24 to 6.88) more likely to endorse using EEMs to bareback.

Conclusions—Gay and bisexual men use EEMs to enhance their sexual experiences among other motives. Different motives and correlates emerged by HIV status. Overall, EEM use was correlated with multiple health risk behaviours. EEM users who were HIV negative appear to be at particularly high risk of acquiring HIV.

The first prescription medication to treat erectile dysfunction, sildenafil (Viagra), was approved for use in the United States in 1998 and, since then, millions of prescriptions have

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been written annually.¹ In the ensuing years, other erectile enhancing medications (EEMs) have been released. In addition to prescription use for erectile dysfunction, EEMs have gained considerable notoriety for their associations with recreational drug use and risky sexual behaviours,² especially among men who have sex with men (MSM).³ Ostensibly to enhance sexual experiences, many men report acquiring EEMs from sources other than their primary medical provider.⁴ Greater friction because of enlarged erection size, engaging in prolonged intercourse or having multiple orgasms during a sexual episode all have been postulated to increase the risk of microabrasions and, thus, facilitate HIV/sexually transmitted infection (STI) acquisition or transmission.^{5, 6}

To date, multiple research reports have identified robust correlates of recent EEM use in MSM. Recent EEM use (past 3 months to past year) has been reported at 16%⁵ to 29%.⁷ MSM who use EEMs tend to be older,^{4, 8} white^{3, 4} and have HIV/ AIDS.^{3, 4, 7-9} Recent EEM use is also associated with the use of illegal drugs,^{4, 7, 8} including cocaine⁵ and especially crystal methamphetamine.^{3, 10, 11} A few reports have noted a relation between recent EEM use and incident STIs,¹² particularly when EEMs are combined with crystal methamphetamine.^{3, 13} A number of studies have highlighted the association between EEM use and sexual risk behaviours, including a greater number of partners,⁷ risky sex with casual partners^{8, 10} and, most concerning from a public health standpoint, unprotected anal sex with serodiscordant partners.^{9, 14, 15}

Existing literature provides evidence on basic epidemiological questions about EEM use and associated health risk behaviours. The present study aims to add several novel aspects to that literature, including assessing motivations for EEM use, differentiating sexual position in reporting unprotected sex and systematically describing findings separately by HIV status.

METHODS

Participants

A cross-sectional, intercept survey¹⁶ was conducted at two large lesbian, gay and bisexual (LGB) community events in New York City in the autumn of 2006. This data collection approach has been used in numerous studies,¹⁷⁻¹⁹ including some focused on LGB individuals,^{20, 21} and provides data comparable to those obtained from more methodologically rigorous approaches.²²

A team of university-affiliated research staff approached potential participants (all individuals who walked into the study booth's area) at the events and invited them to fill-out the "Sex and Love Survey." Potential participants were not targeted based on any demographic factors. The survey instrument consisted of a brief pencil-and-paper inventory that took 10-15 minutes to complete. The first page of the survey served as the assent form. Verbal refusals were tallied and the response rate was high, with approximately 83% of approached individuals consenting to participate. Because of the nature of the data collection methods, no information was systematically collected on individuals who did not consent to participation. Participants were given a movie ticket voucher as remuneration.

Gay/bisexual male participants (n = 912) reported an average age of 37.45 years (range 18-87, SD 11.83). White men accounted for the majority of the sample (59.9%, n = 546) followed by Latino (16.4%, n = 150), African-American (12.9%, n = 118) and mixed race/ethnicity men (10.7%, n = 98). Gay identified men comprised 91.4% of participants; the remainder were bisexual.

The majority of men reported their HIV status as negative (85.9%, n = 783); 14.1% were HIV positive (n = 129). Racial/ ethnic groups significantly differed in self-reported HIV

status: $\chi^2 (3, n = 912) = 27.18; p < 0.001$. Post-hoc analyses revealed African-American and Latino men were more likely to report being HIV positive compared with white and mixed race men (23.1%, $n = 62$ vs 10.7%, $n = 69$; $\chi^2 (1, n = 912) = 23.73$; odds ratio (OR) 2.51, 95% CI 1.72 to 3.66). Men who were HIV negative were significantly younger (36.67 vs 42.39; $F (1, 910) = 27.32; p < 0.001$).

Data/measures

Use of EEMs was determined by questions asking about recreational use ever (yes/no), recreational use in the past 3 months (yes/no) and, for participants endorsing recreational use, a series of five questions (yes/no) about motivations for using EEM (yes/no; check all that apply). Use of alcohol and club drugs before or during sex in the past 3 months was assessed (yes/no). Unprotected anal sex in the past 3 months was assessed for casual partners only (yes/no). Responses included information about participant's sexual position (top/ bottom) and partner's HIV serostatus. Participants indicated whether or not they had been diagnosed/treated for any of a number of STIs (yes/no) in the past year.

Analyses

The present study was cross-sectional in design. Univariate analysis of variance tests were used to examine age differences. χ^2 tests of difference were used for demographical variables. Logistic regression analyses, controlling for demographical differences identified in exploratory analyses, were conducted for categorical variables and were used to determine the ORs.

RESULTS

Demographics and EEM use

Lifetime use of EEMs was reported by 28.0% of the men; 17.4% reported EEM use in the past 3 months. Among those who had ever used EEMs, 41.2% reported acquiring them from a source other than their own medical provider. There were no significant differences in source of EEM acquisition by HIV status (40.0% HIV positive, 41.5% HIV negative). Men who were HIV positive were 2.23 times more likely to report lifetime EEM use (43.4% vs 25.6%; $\chi^2 (1, n = 895) = 16.60$; 95% CI 1.51 to 3.30) and twice as likely to report recent use (27.9% vs 15.8%; $\chi^2 (1, n = 895) = 10.70$; OR 2.06, 95% CI 1.33 to 3.24) than men who were HIV negative. Among men who were HIV positive, there were no significant age differences in lifetime or recent use of EEMs; among men who were HIV negative, lifetime (40.51 vs 35.24; $F (1, 711) = 29.84$; $p < 0.001$) and recent EEM users (40.38 vs 35.27; $F (1, 769) = 29.1$; $p < 0.001$) were older. Irrespective of HIV status, white men were more likely to have used EEMs ever (32.7% vs 21.1%; $\chi^2 (1, n = 895) = 14.26$; OR 1.81, 95% CI 1.33 to 2.48) and recently (20.4% vs 12.9%; $\chi^2 (1, n = 895) = 8.35$; OR 1.73, 95% CI 1.19 to 2.51).

Substance use and EEM use

See table 1. Among men who were HIV positive who had used EEMs recently compared with those who had not, differences emerged for the use of alcohol or crystal methamphetamine before and during sex. However, for men who were HIV negative, the likelihood of recently using EEMs in addition to alcohol and all stimulants inquired about (alcohol, crystal methamphetamine, cocaine, ecstasy) before or during sex was significantly higher.

STI status and EEM use

Men who are HIV positive compared with men who are HIV negative reported significantly higher rates of STIs in the past year (two-tailed Fisher's exact test) for genital warts (9.8%

vs 3.2%, $p<0.001$), herpes (7.5% vs 0.8%, $p<0.001$), urinary tract infections (8.2% vs 3.0%, $p<0.01$) and syphilis (6.5% vs 0.8%, $p<0.001$). Among men who reported recent EEM use, those who were HIV positive found no significant differences in self-report rates of STIs in the past year; for men who were HIV negative, however, a significantly higher proportion reported incident STIs than men who were HIV negative who did not use EEM (controlling for age and race/ethnicity) for herpes (3.4% vs 0.5%; OR 6.08, 95% CI 1.28 to 28.83; $p<0.05$) and urinary tract infections (6.6% vs 2.4%; OR 4.90, 95% CI 1.93 to 12.44; $p<0.001$).

Unprotected sex and EEM use

See table 2. Within HIV status comparisons, multiple significant differences were found. For both HIV positive and HIV negative men, recent EEM users were significantly more likely to engage in both seroconcordant and serodiscordant unprotected anal insertive (UAI) intercourse. Recent EEM users who were HIV negative were also more likely to engage in serodiscordant unprotected anal receptive (UAR) intercourse. Men who were HIV negative who obtained EEMs from sources other than their primary healthcare practitioner were more likely to report UAI with serodiscordant partners (after controlling for age and race) (20.9% vs 2.8%; OR 7.41, 95% CI 1.47 to 37.4).

Motivations for EEM use

See table 3. Men endorsed multiple reasons for recent EEM use. The most frequent response choices were “to add to the fun”, “to maintain an erection while using a condom” and “to have sex for hours”. One serostatus difference in motivation was observed; among men who were HIV negative, those who indicated EEM use “to counter the effects of alcohol and drug use” were significantly younger (35.94 vs 44.86; $F(1, 38) = 5.16$; $p<0.05$) and men who were HIV positive were 2.93 times more likely than men who were HIV negative to associate EEM use with barebacking. No other differences in HIV status or demographics were observed. Further, among men who were HIV negative, those who indicated EEM use “to bareback” were more likely also to endorse using EEMs “to counteract the effects of drugs and alcohol” (52.2% vs 22.5%; $\chi^2(1, n = 112) = 7.90$; OR 3.76, 95% CI 1.44 to 9.81) and “to have sex for hours” (66.7% vs 40.0%; $\chi^2(1, n = 14) = 5.43$; OR 3.01, 95% CI 1.16 to 7.74). Lastly, among men who were HIV negative who indicated they used EEMs “to maintain an erection with a condom”, 97% reported no UAI intercourse with serodiscordant partners compared with 83.7% who did not endorse this motivation ($\chi^2(1, n = 114) = 6.26$; OR 1.16, 95% CI 1.02 to 1.32). No other within serostatus differences emerged.

DISCUSSION

A significant minority of urban gay/bisexual men attending a LGB community event report recreational use of EEMs ever (28%) and recently (17%). Of lifetime EEM users, a significant minority (41%) reported obtaining the medications other than from their regular healthcare practitioner. EEM users were more likely to be HIV positive and white and EEM users who were HIV negative were older. These results are similar to those obtained in similar studies.^{3, 4, 8} The present analyses aimed to investigate similarities and differences in correlates of recent EEM use by serostatus, as well as to provide initial data on gay/ bisexual men’s motivations for EEM use. Several interesting findings emerged. In terms of substance use, both men who were HIV negative and those who were HIV positive who reported recent EEM use also reported significantly greater odds of using alcohol or crystal methamphetamine before and during sex. In terms of STI status, EEM users who were HIV negative were significantly more likely to report incident STIs (herpes, urinary tract infections) than those who did not endorse recent EEM use. In terms of sexual risk taking, both serostatus groups of recent EEM users were several times more likely to endorse UAI

intercourse—with both seroconcordant and serodiscordant partners. Additionally, men who were HIV negative were more likely to report UAR intercourse sex with serodiscordant partners.

These findings suggest that the minority of gay/bisexual men who report recent recreational use of EEMs, irrespective of HIV status, also report risk behaviours with the potential for negative health outcomes. The highest risk behaviours for HIV transmission were reported by both HIV positive (UAI) and HIV negative (UAI, UAR) EEM users. Other than HIV transmission, HIV superinfection and acquisition of STIs could result from these behaviours, which alter immune functioning and transmission risk.²³ In this sample, irrespective of EEM use, the men who were HIV positive reported higher rates of illicit drug use compared with men who were HIV negative. Sex while intoxicated or high may be unwanted or may be more risky than intended because of impaired judgment and decision making.²⁴ Notably, the behaviour of men using EEM who were HIV negative seems more like men who were HIV positive than non-EEM users who were HIV negative. This notion is supported, further, by the findings related to unprotected sex and STI incidence. It was the men who were HIV positive (EEM users and non-users) and the EEM users who were HIV negative who were significantly more likely to endorse recent diagnosis/ treatment of an STI. Although not assessed directly, it is possible that STI diagnosis may be a proxy for the number of unprotected sex acts or number of casual sex partners—both robust predictors of HIV transmission.²⁵

For the entire sample, as well as for both serostatus subgroups, motivations for recent EEM use were consistent. The vast majority of recent EEM users endorsed “to add to the fun” (72%) as a key motivation, followed by “to maintain an erection with a condom” (60%) and “to have sex for hours” (48%). These findings appear to be the first published results that address self-reported reasons for EEM use and they lend support to the intuitive hypothesis about men without erectile dysfunction using the medications recreationally to have longer, more enjoyable sexual experiences. Especially interesting is the strong endorsement of EEM use to help the men maintain an erection while using a condom. This intention, also, appears to be related to the men’s actual behaviour—that is, men who endorsed the condom use motivation reported significantly less unprotected sex. It remains unclear whether this motivation is the primary intention or a secondary benefit. This finding, though, is curious given the high rates of unprotected anal sex reported in this sample.

Further, EEM users who were HIV negative were more likely to report using the medications “to counteract the effects of alcohol/drugs” and, for that subgroup of participants, they were significantly more likely to additionally endorse the motivations “to bareback” and “to have sex for hours”. Taken in combination with the other findings from this analysis—increased odds of substance use before/during sex, incident STI diagnosis/ treatment and unprotected anal sex—EEM users who were HIV negative appear to be at high-risk of HIV acquisition based on their EEM use motivations as well as their profile of sex and substance use behaviours. For men who were HIV negative, these results indicate a potentially high-risk HIV transmission event for their HIV negative partners. For men who were HIV negative, this finding may reflect implicit or explicit beliefs about the relative risk of HIV transmission for insertive versus receptive anal sex. It may be that the combination of EEMs and alcohol or stimulant use exerts a biopsychomechanical impact on sexual behaviour, with a strong drive to engage in insertive anal sex and impaired judgment about sexual safety.²⁶ Conversely, it may be that men intentionally choose to use EEMs before meeting up with sex partners with whom they plan to have unprotected sex for the purpose of enhancing their sexual experience.

These questions belie a dearth of knowledge about the chronology of sexual encounters when EEMs are used. Future research should employ longitudinal designs and measure motivations in conjunction with event-level data to better understand how sexual situations with EEM unfold over time. Questions remain about the chronicity and context of EEM use and unprotected sex, such as the extent to which EEMs are a part of the “party and play” culture of gay and bisexual men’s drug use. Limitations of the present study include its cross-sectional design and convenience sampling. This study is also limited by the relatively small proportion of participants who were HIV positive, a focus on casual sex partners only and a lack of assessment about whether anal sex resulted in ejaculation. Future work also should assess markers of the infectiousness of men with HIV (viral load, adherence) and involve biological markers of HIV and STIs to enhance validity.

Practically, from the data reported here, it appears that healthcare practitioners would be wise to assess EEM use in all gay and bisexual male patients and provide relevant psycho-education or risk reduction counselling, as appropriate, given the setting and the serostatus of the patient.

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Key messages

- A significant minority of gay and bisexual men attending lesbian, gay, bisexual, transgender community events report recent use of erectile enhancing medication (EEMs) for the purpose of making sexual encounters more fun and longer lasting.
- Recent EEM users also report significantly more illicit drug use (both men who are HIV positive and those who are HIV negative), unprotected anal sex (both men who are HIV positive and those who are HIV negative) and incident sexually transmitted infections (men who are HIV negative).

Table 1

Associations between recent erectile enhancing medication (EEM) use and recent drug use before or during sex.

Recent substance use before and during sex	Recent EEM use % (n)	No recent EEM use % (n)	OR	CI	Adj OR ⁺	Adj CI
HIV negative (n = 763)						
Alcohol *	56.4 (62)	46.7 (262)	1.47	0.98 to 2.23	1.83	1.22 to 2.95
Methamphetamine *	12.0 (14)	0.9 (6)	14.27	5.36 to 37.98	18.66	6.82 to 51.02
Cocaine *	10.1 (12)	4.1 (26)	2.61	1.27 to 5.33	3.53	1.68 to 7.42
Ecstasy *	12.1 (14)	2.5 (16)	5.32	2.52 to 11.23	6.23	2.88 to 13.46
HIV positive (n = 129)						
Alcohol *	32.4 (11)	15.9 (14)	2.53	1.01 to 6.33	3.74	1.35 to 10.41
Methamphetamine *	35.3 (12)	17.0 (15)	2.66	1.08 to 6.51	2.79	1.11 to 7.02
Cocaine	35.3 (12)	18.2 (16)	2.46	1.01 to 5.96	2.41	0.975 to 5.96
Ecstasy	32.4 (11)	17.0 (15)	2.33	0.939 to 5.77	2.27	0.899 to 5.73

⁺ men who are HIV negative adjusted for age and race/ethnicity, men who are HIV positive adjusted for race/ethnicity.

* p<0.05 for the adjusted OR.

Table 2
Unprotected sexual risk behaviours and recent erectile enhancing medication (EEM) use by serostatus of partner

Unprotected behaviour	Recent EEM use % (n)	No recent EEM use % (n)	OR	CI	Adj OR ⁺	Adj CI
IV negative (n = 763)						
Any serodiscordant UAI*	8.9 (11)	3.4 (22)	2.83	1.34 to 6.01	3.47	1.60 to 7.55
Any seroconcordant UAI*	14.8 (18)	8.3 (54)	1.91	1.08 to 3.39	2.37	1.31 to 4.30
Any serodiscordant UAR*	5.7 (7)	2.6 (17)	2.27	0.921 to 5.60	2.68	1.06 to 6.79
Any seroconcordant UAR	9.8 (12)	7.7 (50)	1.31	0.676 to 2.54	1.41	0.717 to 2.77
HIV positive (n = 122)						
Any serodiscordant UAI*	32.4 (11)	15.9 (14)	2.53	1.01 to 6.33	3.74	1.35 to 10.41
Any seroconcordant UAI*	35.3 (12)	17.0 (15)	2.66	1.08 to 6.51	2.79	1.11 to 7.02
Any serodiscordant UAR	35.3 (12)	18.2 (16)	2.46	1.01 to 5.96	2.41	0.975 to 5.96
Any seroconcordant UAR	32.4 (11)	17.0 (15)	2.33	0.939 to 5.77	2.27	0.899 to 5.73

⁺ men who were HIV negative adjusted for age and race/ethnicity, men who were HIV positive adjusted for race/ethnicity.

* p<0.05 for the adjusted OR. UAI, unprotected anal insertive intercourse; UAR, unprotected anal receptive intercourse.

Table 3

Motivations for use among recent erectile enhancing medication (EEM) users

Motivation	Entire sample % (n)	HIV positive % (n)	HIV negative % (n)
Add to the fun	72.2 (104)	80.0 (24)	70.2 (80)
Maintain an erection with a condom	60.1 (86)	71.4 (20)	57.4 (66)
Have sex for hours	48.3 (70)	58.6 (17)	45.7 (53)
Counteract the effects of alcohol/drugs	28.6 (40)	25.9 (7)	29.2 (33)
Barebacking*	26.4 (38)	44.8 (13)	21.7 (25)

* χ^2 (1, n = 144) = 6.36; p<0.05; OR 2.93, 95% CI 1.24 to 6.88.