



Published in final edited form as:

*Am J Drug Alcohol Abuse*. 2007 ; 33(6): 875–884. doi:10.1080/00952990701667347.

## Prescription Drug Misuse Among Club Drug-Using Young Adults

Brian C. Kelly<sup>1,2</sup> and Jeffrey T. Parsons<sup>2,3</sup>

<sup>1</sup>Department of Sociology and Anthropology, Purdue University, West Lafayette, Indiana, USA

<sup>2</sup>Center for HIV Educational Studies and Training, New York, New York, USA

<sup>3</sup>Hunter College and the Graduate Center of the City University of New York, New York, New York, USA

### Abstract

Nonmedical prescription (Rx) drug use has recently increased, particularly among young adults. Using time-space sampling to generate a probability-based sample of club-going young adults (18–29), 400 subjects provided data on Rx drug misuse. Club-going young adults misuse Rx drugs at high rates. An overwhelming majority of the sample indicated lifetime use of pain killers, sedatives, and stimulants. A majority indicated recent pain killer use. Variations by gender and sexuality exist in this population. Young lesbian/bisexual women emerged as the group most likely to abuse Rx drugs. Research into the contexts influencing these patterns is imperative.

### Keywords

Gender; prescription drugs; sexual orientation; youth

---

Prescription (Rx) drug misuse—defined here as the intentional use of a Rx drug taken outside the confines of a doctor’s prescription—has emerged as a significant health issue during the past decade (1,2). The rates of past year prescription drug misuse are highest among youth and peaks in the early twenties (1,3). In recent years, lifetime rates of Rx drug abuse exceed levels for most other drugs including cocaine, heroin, and hallucinogens. Rx stimulant misuse among 18–25 year olds has almost doubled in the past decade and Rx sedative misuse is up over 2.5 times (3). Rx pain killer use has more than tripled amongst 18 to 25 year olds in little more than a decade, rising from 7.2% in 1993 to 25.5% in 2005. Motivations for Rx drug misuse are wide ranging, from experimentation to getting high to sleep, or to counterbalance other drugs (4). Information on Rx drug misuse by youth and young adults is sorely lacking, particularly for nontreatment and noncollege student populations.

Clubs, as key locations for social life among urban youth, provide contexts for the use of a range of psychoactive substances, including Rx drugs. Club-going youth have reported rates of drug use that greatly exceed that of young adults in general (5). In addition, the emergence

---

Copyright © Informa Healthcare USA, Inc.

Address correspondence to Jeffrey T. Parsons, Ph.D., Professor, Department of Psychology, Hunter College of the City University of New York, 695 Park Avenue, New York, New York 10021. E-mail: jeffrey.parsons@hunter.cuny.edu.

**Publisher's Disclaimer:** Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article maybe used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

of “club drugs” has raised new concerns since polydrug “cocktails” such as “trail mix” are consumed to produce a variety of desired effects (6,7). Polydrug use remains an important public health issue because it has been linked to adverse health outcomes, such as drug overdose (8), decreased cognitive functioning (9), drug dependence (10), and increased risk of exposure to infectious diseases (11). The addition of Rx drugs into such polydrug cocktails add to the significance of the problem among club-going young adults. For these reasons, we have assessed Rx drug misuse among club-going youth who use drugs.

It has been reported that gender is a significant factor in Rx drug misuse. Women have been shown to be more likely than men to misuse prescription drugs (12,13). Some assert that women are more likely to misuse Rx drugs because they are more likely to be prescribed abusable forms of Rx drugs (14). Specifically because of their differential rates of access, women may be more likely than men to use certain drugs, namely, pain killers and sedatives (13). However, men have been reported to misuse Rx stimulants at higher rates than women (15,16). Males have been prescribed Rx stimulants for Attention Deficit Disorders (ADD) at higher rates than females (17). We hypothesized that women would report higher rates of pain killers and sedatives and that men would report higher rates of stimulants and erection pills due to differential rates in access.

Beyond gender, the issue of sexual orientation may also influence the nonmedical use of Rx drugs. Sexual orientation has been shown to be a key contextual factor in a range of health outcomes (18). With respect to drug use, gay, lesbian, and bisexual (GLB) individuals have been shown to use drugs at higher rates than their heterosexual counterparts (19,20). However, the literature on Rx drug misuse among GLB individuals remains scant. Given that GLB individuals abuse other drugs at higher rates, we hypothesized rates of Rx drug misuse to be higher among GLB individuals.

In an effort to build upon the existing literature and to better understand trends in Rx drug use in a nontreatment seeking sample of young adults, we drew upon data from the Club Drugs and Health study. We report results on the rates of Rx drug use among the sample and differences by gender and sexual orientation, as well as stratified differences to control for the interaction between gender and sexual orientation.

## METHODS

The Club Drugs and Health Project, broadly conceived, was a study of health issues among young adults (ages 18–29) involved in New York City club scenes (see 5,21,22). Specifically, the project was designed to examine the patterns and contexts of club drug use and its associated risks among club-going young adults with the intent of assessing the potential for prevention and educational efforts. The assessments utilized in the study were designed to capture a broad understanding of the patterns and contexts of drug use among club-going young adults as well as basic information on other health issues relevant to this population. Though a longitudinal study, the data drawn upon for this article are derived solely from quantitative surveys from all baseline assessments conducted for the project. The study was approved by the Hunter College, CUNY Institutional Review Board.

### Participants and Procedures

Timespace sampling was used to systematically generate a sample of club-going young adults (23,24). Though designed for sampling hard-to-reach populations, it is also useful for estimates of location-based populations, such as club-going young adults. Venues were selected at random from a list of enumerated dance clubs and lounges in Manhattan and Brooklyn as well as special events throughout the city (5). Each week, recruitment teams were sent to randomly assigned venues with a brief survey. Initially, field staff randomly approached club patrons

(e.g., every fifth person) during three-hour shifts with random start times. However, this process was changed during the course of the project in response to on-going recruitment supervision. Subsequently, the field staff attempted to approach *all* club patrons (25). Eligibility criteria for participation in the longitudinal study were embedded in the survey. To be eligible, the individual had to be aged 18–29, report using club drugs at least 3 times in the previous year, and use at least once in the prior three months.

## Measures

The longitudinal study assessed participants every four months for a year (Baseline, 4 m, 8 m, and 12 m). All assessments were comprised of both qualitative and quantitative components. Participants were compensated for each of the completed assessments. The Baseline survey assessed basic socio-demographic information, including age, gender, and sexual orientation, among other factors not used in the present analyses. To assess the use of Rx drugs, participants were asked whether they had ever taken these drugs without a prescription—pain killers, sedatives, stimulants, and erection pills. Responses were dichotomized Yes/No. In addition, they were asked about recent use of Rx drugs. They were asked the number of days on which they had used each of the Rx drug classes within the past four months.

## Statistical Analysis

Prevalence estimates were computed using SPSS. Chi-square analyses were conducted to examine the differences in rates of Rx drug use among respondents between groups defined by gender and sexual orientation. In addition, stratified chi-square analyses were conducted to examine the differences in rates of Rx drug use among respondents between groups accounting for the intersection of gender and sexual orientation. Significance testing was performed at the  $p < .05$  level.

## RESULTS

### Participant Characteristics

Four hundred participants were included in the final sample. The average age of the participants was 24 (range 18–29). The gender division of the sample was even: 50% male and 50% female. Half of the members of the sample were heterosexual, 32.8% were gay/lesbian, and 17.3% were bisexual. A majority (61.8%) were White, 19.3% were Latino, 6.5% were Black, 4.0% were Asian, and 8.5% were of mixed race or other heritage.

### Prescription Drug Use

As noted in Table 1, lifetime rates of Rx drug misuse were high in the sample of drug using young adults who attend clubs. Almost 9 out of 10 (88.8%) had misused an Rx drug in their lifetimes. Rx pain killers had been misused by 79.8% of the sample and were the most commonly misused Rx drug. In addition, 64.8% had misused sedatives, 60.8% Rx stimulants, and 11.3% erection pills. Rates of recent (past four months) misuse were also high. Almost 3 out of 4 (73.9%) had misused Rx drugs recently. For the specific class of Rx drugs, 59.6% misused pain killers, 47.1% used sedatives, 36.8% used stimulants, and 6.8% erection pills. Among recent users, Rx stimulant use was, on average, the most frequent (10.99 occasions over four months) followed by pain killer use (8.02), sedative use (6.82), and erection pill use (2.74) (Table 1).

As noted in Table 2, women were significantly more likely to have ever misused Rx drugs (94% vs. 83.5%). Among the specific classes of Rx drugs, significant differences in rates of use were found by gender for lifetime use of pain killers (85.0% female vs. 74.5% male), lifetime use of sedatives (69.5% female vs. 60.0% male), lifetime use of stimulants (71.0%

female vs. 50.5% male), and lifetime and recent use of erection pills (18.5%/11.1% males vs. 4.0%/2.5% female). Initially, there were no significant differences found between heterosexual youth and their GLB counterparts.

When stratified analyses were conducted, the intersection of gender and sexual orientation became more apparent. The highest rates of the misuse of most Rx drugs occurred among lesbians and bisexual women with the exception of Rx erection pills. Conversely, gay and bisexual men had the lowest rates of Rx drug misuse with the exception of Rx erection pill use, which they used the most (Table 2).

## DISCUSSION

Overall, these results suggest high rates of Rx drug misuse among youth who attend clubs and use other drugs. Among those who were recent misusers of Rx drugs, they on average used them several times per month. In addition, gender differences were found for the misuse of several Rx drugs. As hypothesized, women were more likely to report misuse of pain killers and sedatives, though such differences were only significant for lifetime misuse. Also as hypothesized, men were more likely to report erection pill misuse. Contrary to the hypotheses, women were more likely than men to report the use of stimulants. Although no explanation for this finding can be confirmed, we believe that the importance of fashion and appearances among club-going young adults may influence young women to misuse stimulants for weight loss purposes.

Although initial analyses suggested no differences by sexual orientation, stratified analyses revealed that the intersection of gender and sexual orientation significantly influence patterns of Rx drug misuse among young adults. Most notably, lesbian and bisexual women were most likely to abuse a range of Rx drugs with the exception of erection pills. These differential rates suggest that targeted approaches to education and prevention efforts may be in order.

A few limitations impact the generalizability of this study. First, the sample is relatively small in comparison with many national data sets and may lack the power for more robust analyses of the use of Rx drugs among these young adults. Secondly, the data describe patterns of Rx drug misuse specifically among club-going youth who use club drugs. Thus, the findings cannot be generalized to young adults who go to clubs but do not use other drugs. Additionally, based upon the existing literature, differential rates of access to Rx drugs were important for developing our hypotheses about gender differences in patterns of misuse. However, as there were no measures of access to Rx drugs, this pathway could not be fully analyzed.

Despite these limitations, this report provides important information on Rx drug misuse among young adults who go to clubs. Specifically, it highlights the high rates of Rx drug misuse among a population engaged in other risk behaviors. It also highlights that patterns of Rx drug misuse differ between groups who participate in these subcultures and that public health efforts may need to target these groups in different ways. Our data suggest that Rx drug health promotion campaigns should be specifically tailored to meet the needs of lesbian and bisexual women so as to attend to this current issue among such young women. While the epidemiological patterns of Rx drug misuse among youth are becoming clearer, it remains imperative for the social contexts of Rx drug misuse among these young adults to be further explored. Future studies should utilize both qualitative and quantitative methodologies to further explicate the contexts of this growing public health problem.

## ACKNOWLEDGMENTS

The Club Drug and Health Project was supported by a grant from the National Institute on Drug Abuse (R01 DA014925, Jeffrey T. Parsons, P.I.). The authors acknowledge the contributions of other members of the Club Drugs

and Health Project team: Michael Adams, Anthony Bamonte, Jessica Colon, Armando Fuentes, Christian Grov, Trent Henry, Juline Koken, Julia Tomassilli, Jon Weiser, and Brooke Wells.

## REFERENCES

1. Compton WM, Volkow ND. Abuse of prescription drugs and the risk of addiction. *Drug Alcohol Depend* 2004;83:S4–S7. [PubMed: 16563663]
2. Hertz JA, Knight JR. Prescription drug misuse: A growing national problem. *Adolesc Med Clin* 2006;17:751–769. [PubMed: 17030290]
3. Substance Abuse and Mental Health Services Administration. Results from the 2005 National Survey on Drug Use and Health: National Findings. Rockville, MD: Office of Applied Studies; 2006. NSDUH Series H-25. DHHS Publication No. SMA 04-3964
4. McCabe SE, Cranford JA, Boyd CA, Teter CJ. Motives, diversion, and routes of administration associated with nonmedical use of prescription opioids. *Addict Behav* 2007;32:562–575. [PubMed: 16843611]
5. Kelly BC, Parsons JT, Wells BE. Patterns and prevalence of club drug use among club-going young adults. *J Urban Health* 2006;83:884–895. [PubMed: 16937088]
6. Hansen D, Maycock B, Lower T. Weddings, parties, anything ...'. A qualitative analysis of ecstasy use in Perth, Western Australia. *Int J of Drug Policy* 2001;12:181–199. [PubMed: 11399420]
7. Narvaez, R. MDMA in Combination: 'Trail Mix' and Other Powdered Drug Combinations; Presented at MDMA/Ecstasy Research Conference; July 19, 2001; Bethesda, MD: 2001.
8. Coffin PO, Galea S, Ahern J, Leon AC, Vlahov D, Tardiff K. Opiates, cocaine and alcohol combinations in accidental drug overdose deaths in New York City, 1990–1998. *Addiction* 2003;98:739–747. [PubMed: 12780362]
9. Dillon P, Copeland R, Jansen K. Patterns of use and harms associated with the non-medical use of ketamine. *Drug & Alc Depend* 2002;69:23–28.
10. Leri R, Bruneau J, Stewart J. Understanding polydrug use: Review of heroin and cocaine co-use. *Addiction* 2003;98:7–22. [PubMed: 12492751]
11. Peters A, Davies T, Richardson A. Multi-site samples of injecting drug users in Edinburgh: Prevalence and correlates of risky injecting practices. *Addiction* 1998;92:253–267. [PubMed: 9624726]
12. Simoni-Wastila L, Strickler G. Risk factors associated with problem use of prescription drugs. *AJPH* 2004;91:266–268.
13. Simoni-Wastila L, Ritter G, Strickler G. Gender and other factors associated with nonmedical use of abusable prescription drugs. *Subst Use Misuse* 2004;39:1–23. [PubMed: 15002942]
14. Simoni-Wastila L. The use of abusable prescription drugs: The role of gender. *J Women's Health Gender-Based Med* 2000;9:289–297.
15. McCabe SE, Knight JR, Teter CJ, Wechsler H. Non-medical use of prescription stimulants among US college students: Prevalence and correlates from a national survey. *Addiction* 2005;99:96–106. [PubMed: 15598197]
16. Teter CJ, McCabe SE, Cranford JA, Boyd CJ, Guthrie SK. Prevalence and motives for illicit use of prescription stimulants in an undergraduate sample. *J Am College Health* 2005;53:253–262.
17. Robison LM, Sclar DA, Skaer TL, Galin RS. National trends in the prevalence of attention deficit hyperactivity disorder and the prescribing of methylphenidate among school age children: 1990–1995. *Clin Ped* 1999;38:209–217.
18. Dean L, Meyer I, Robinson K, et al. Lesbian, gay, bisexual, and transgender health: Findings and concerns. *J of Gay and Lesbian Med Assn* 2000;4:102–151.
19. Beatty, RL.; Geckle, MO.; Huggins, J.; Kapner, C.; Lewis, K.; Sandstrom, DJ. Gay men, lesbians, and bisexuals. In: McCrady, BS.; Epstein, EE., editors. *Addictions: A Comprehensive Guidebook*. New York: Oxford University Press; 1999. p. 542-551.
20. Skinner WF, Otis MD. Drug and alcohol use among lesbian and gay people in a southern U.S. sample: Epidemiological, comparative, and methodological findings from the trilogy project. *J of Homo* 1996;30:59–92.
21. Parsons JT, Kelly BC, Wells BE. Differences in club drug use between heterosexual and lesbian/bisexual women. *Addict Behav* 2006;31:2344–2349. [PubMed: 16632210]

22. Parsons JT, Kelly B, Weiser J. Initiation into methamphetamine use for gay and bisexual men. *Drug Alcohol Depend* 2007;90(2-3):135-144. [PubMed: 17398040]
23. MacKellar DA, Valleroy L, Karon J, Lemp G, Janssen R. The young men's survey: Methods for estimating HIV seroprevalence and risk factors among young men who have sex with men. *Public Health Rep* 1996;111:138-144. [PubMed: 8862170]
24. Steuve A, O'Donnell LN, Duran R, San Doval A, Blome J. Time-space sampling in minority communities: Results with young Latino men who have sex with men. *AJPH* 2001;91:922-926.
25. Parsons JT, Grov C, Kelly BC. Comparing the effectiveness of two forms of time-space sampling to identify club drug-using young adults. Unpublished manuscript

**Table 1**

## Sample characteristics and Rx drug prevalence

Total sample (N = 400)				
	% (n)			
Gender				
Male	50% (200)			
Female	50% (200)			
Sexual Orientation				
Heterosexual	50% (200)			
Gay/Lesbian	32.8% (131)			
Bisexual	17.3% (69)			
Race/Ethnicity				
White	61.8% (247)			
African-American	6.5% (26)			
Latino	19.3% (77)			
Asian/P.I.	4.0% (16)			
Mixed/Other	8.5% (34)			
	Lifetime prevalence rate	Recent use (Past 4 Months)	Mean Freq. Past 4 Months (SD)	Range of recent frequency
Any Rx drug	88.8% (355)	73.9% (295)	16.5 (24.7)*	
Pain killers	79.8% (319)	59.6% (238)	8.02 (10.69)	1–75
Sedatives	64.8% (259)	47.1% (188)	6.82 (10.51)	1–100
Stimulants	60.8% (243)	36.8% (147)	10.99 (17.72)	1–120
Erection pills	11.3% (45)	6.8% (27)	2.74 (3.28)	1–15

\* These numbers include the *combined* mean number of days used for all four Rx drugs.

**Table 2**

Differences in Rx drug prevalence

	Club drug prevalence by gender and sexual orientation			
	Gender		Sexual orientation	
	Male (%)	Female (%)	Heterosexual (%)	GLB (%)
Any Rx drug	83.5 (167)	94.0 (182) **	88.0 (176)	89.5 (179)
Recent use	73.4 (146)	74.5 (149)	74.9 (149)	73.0 (146)
Pain killers	74.5 (149)	85.0 (170) **	79.5 (159)	80.0 (160)
Recent use	56.8 (113)	62.5 (125)	59.8 (119)	59.5 (119)
Sedatives	60.0 (120)	69.5 (139) *	66.0 (132)	63.5 (127)
Recent use	43.7 (87)	50.5 (101)	48.2 (96)	46.0 (92)
Stimulants	50.5 (101)	71.0 (142) ***	60.0 (120)	61.5 (123)
Recent use	32.7 (65)	41.0 (82)	36.7 (73)	37.0 (74)
Erection pills	18.5 (37) ***	4.0 (8)	9.0 (18)	13.6 (27)
Recent use	11.1 (22) **	2.5 (5)	6.0 (12)	7.5 (15)

	Club drug prevalence by gender and sexual orientation with stratification			
	Heterosexual men (%)	Gay/bi men (%)	Hetero women (%)	Lesbian/bi women (%)
Any Rx drug	86.0 (86) <sup>d</sup>	81.0 (81) <sup>d</sup>	90.0 (90) <sup>d</sup>	98.0 (98) <sup>a,b,c</sup>
Recent use	78.8 (78)	68.0 (68)	71.0 (71)	78.9 (78)
Pain killers	78.0 (78) <sup>d</sup>	71.0 (71) <sup>d</sup>	81.0 (81)	89.0 (89) <sup>a,b</sup>
Recent use	61.6 (62)	52.0 (52) <sup>d</sup>	58.0 (58)	67.0 (67) <sup>b</sup>
Sedatives	66.0 (66)	54.0 (54) <sup>d</sup>	66.0 (66)	73.0 (73) <sup>b</sup>
Recent use	49.5 (49)	38.0 (38) <sup>d</sup>	47.0 (47)	54.0 (54) <sup>b</sup>
Stimulants	54.0 (54) <sup>d</sup>	47.0 (47) <sup>c,d</sup>	66.0 (66) <sup>b</sup>	76.0 (76) <sup>a,b</sup>
Recent se	36.4 (36)	29.0 (29) <sup>d</sup>	37.0 (37)	45.0 (45) <sup>b</sup>
Erection pills	14.0 (14) <sup>c,d</sup>	23.0 (23) <sup>c,d</sup>	4.0 (4) <sup>a,b</sup>	4.0 (4) <sup>a,b</sup>
Recent use	10.1 (10) <sup>c,d</sup>	12.0 (12) <sup>c,d</sup>	2.0 (2) <sup>a,b</sup>	3.0 (3) <sup>a,b</sup>

<sup>a</sup> Sig. diff. from heterosexual men.

<sup>b</sup> Sig. diff. from gay/bi men.

<sup>c</sup> Sig. diff. from heterosexual women.

<sup>d</sup> Sig. diff. from lesbian/bi women (all noted differences at  $p < .05$  or less).

\*  $p < .05$ .

\*\*  $p < .01$ .



\*\*\*  
 $p < .001$ .