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## Prescription Drug Abuse among Ecstasy Users in Miami

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# Prescription Drug Abuse Among Ecstasy Users in Miami

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**ABSTRACT.** This study examines the nature, extent and consequences of prescription drug abuse among 143 ecstasy users in Miami. Participants were recruited through nightclub and college campus outreach, and through respondent referrals. Instrumentation included the Risk Behavior Assessment, Substance Abuse Module and Center for Epidemiological Studies Depression Scale. Median age was 23, 42% were female and 50% Hispanic. An arrest history was reported by 44%, and 33% reported prior drug/alcohol treatment. Prescription drug abuse was reported by 87%; alprazolam (57%), oxycodone (36%), hydrocodone (32%) and diazepam (30%) were cited most often. Prescription drug abusers were more likely to report polydrug use, drug treatment histories, risky drug use behaviors, and symptoms of depression. They also reported numerous physical, psychological and social consequences of prescription drug abuse. Additional studies among larger samples are

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needed to understand the processes of prescription drug access and the extent of integration in club drug using cultures. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2005 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** Drug use, club drugs, prescription drugs, polydrug use

### INTRODUCTION

The non-medical use (abuse) of pharmaceuticals and prescription drugs has been a longstanding problem in the United States. The first general population survey of drug abuse undertaken in the U.S. was conducted in New York State in 1970<sup>1</sup>—one year before the first National Household Survey on Drug Abuse (NHSDA). The New York survey found the abuse of barbiturates and other sedatives, amphetamines and other stimulants, and other prescription drugs to be commonplace. Subsequent surveys as well as focused research studies documented the continuing abuse of prescription drugs.<sup>2-6</sup> Moreover, from the 1970s through the 1990s, several prescription drugs cycled in and out of the American drug scene—pentazocine (T’s & blues), methaqualone (Quaalude), propoxyphene (Darvon)—while others maintained a steady presence—diazepam (Valium), meperidine (Demerol), plus a host of others.<sup>3,7-10</sup> By the close of the 1990s, it had become clear from data gathered through the Drug Abuse Warning Network (DAWN), NIDA’s Community Epidemiology Work Group (CEWG), the Monitoring the Future (MTF) surveys, and the NHSDA (now referred to as the National Survey on Drug Use and Health, or NSDUH) that prescription drug abuse was on the upswing, and that this was particularly the case with regard to prescription opioids.<sup>11</sup>

Independent of the growth of prescription drug abuse during the past few decades, another significant and pervasive pattern of drug abuse had been evolving. Since the 1970s there has been the emergence and expansion of the so-called “club drugs” and “club culture.” Club drugs (alternatively called “rave drugs,” “dance drugs” and “party drugs,” among other things) is a vague term that refers to a wide variety of substances. Originally associated with “raves,” “trances,” and other all-night dance parties, the most popular of the club drugs have been MDMA (ecstasy), GHB, Rohypnol, ketamine, LSD, methamphetamine,

and a few prescription drugs, such as dextroamphetamine and methylphenidate.<sup>12-17</sup> The “club culture,” on the other hand, refers to those adolescents and young adults (and more recently, growing numbers of middle-aged adults) who participate in the club drug and dance party scenes.<sup>15,17</sup> Since the late 1990s, as the abuse of prescription drugs became more widespread, some of these drugs began to appear in small amounts in segments of the club culture—most typically diazepam (Valium), alprazolam (Xanax), hydrocodone (Vicodin), and most recently oxycodone (Percocet, Percodan, and OxyContin®), and Viagra.<sup>18-20</sup>

Miami, Florida, historically a major tourist destination and since the early 1970s a national hub for cocaine importation, distribution, and use,<sup>21-23</sup> is also a major focal point of the club drug scene. In fact, with the restoration of Miami’s art deco districts and the large and continuously expanding South Beach area, Miami has become a national and international destination for partying, sexual tourism, and club drug use. And to a great extent, South Beach has also become an east coast center for the club culture—setting trends that are emulated and replicated elsewhere in the United States, Western Europe, and Latin America.<sup>24-31</sup> Miami has also been designated by the Drug Enforcement Administration (DEA) as a destination where large amounts of prescription drugs are regularly being channeled into the illegal marketplace.<sup>32</sup> A recent trend in this regard has been a significant incursion of prescription drugs into the club culture, with the concomitant health consequences associated with their abuse.

The “abuse” or “misuse” of a prescription drug has been defined in a variety of ways, but in this report, the term “prescription drug abuse” refers to the non-medical use of prescription drugs for the purposes of enhancing pleasure and/or performance, and/or for moderating the “highs,” “lows,” and other effects associated with the abuse of other drugs.<sup>33</sup> The health consequences of prescription drug abuse have been well documented—tolerance, dependence, addiction, overdose, seizures, coma, impairment of functioning, and death, to name but a few.<sup>11,34-40</sup> Because of the young age of the vast majority of club drug users and their tendency to mix numerous drugs during their typical drug binges, club drug users tend to be a highly vulnerable population.<sup>41-47</sup> However, there are few published scientific studies of the health and social consequences of club drug use. Ecstasy has received the most attention in this regard, with several studies reporting associations between heavy use and chronic psychiatric symptoms, including memory problems, depression, anxiety and suicidal ideation;<sup>48-52</sup> patterns of polydrug use among ecstasy users confound definitive conclusions, however.<sup>49</sup> Re-

search in the extent and consequences of prescription drug abuse among club drug users is absent from the literature. This study makes use of data collected from an ongoing study of the prevalence of withdrawal and dependence symptoms associated with club drug (primarily ecstasy) use to examine the patterns and consequences of prescription drug abuse among this population.

## **METHODS**

### ***Site***

Miami-Dade County, Florida, is an extremely diverse community, having a high population of foreign-born (45.1%) residents.<sup>53</sup> Hispanics (57.3%) are the largest ethnic group, with “Anglos” (defined locally as non-Hispanic Whites) representing 20.7%, and Black/African-Americans 20% of the county population. Composed of 28 independent municipalities and a large unincorporated area, the county’s economy is based largely upon import/export trade and tourism. The rave scene popular during the early- and mid-1990s (usually transitory dance and drug parties organized in rural open grounds, warehouses, and other large little-used spaces) is no longer in evidence in Miami-Dade County. The past decade has witnessed the expansion of real estate development to the last westward possibilities in the county, right to the borders of the Everglades National Park system. Police crackdowns have eliminated the use of properties in developed areas for large raves or parties. Miami’s club drug-using scene is primarily found in an extensive network of large and small nightclubs that are of a few recognized general types: large dance clubs, smaller liquor-serving clubs with small dance floors, after-hours bars that do not serve alcohol, and gay male sex clubs and bathhouses.

### ***Subjects/Informed Consent***

The sample was recruited through outreach in nightclub districts and educational institutions, advertisements in alternative print media, and referrals from other study participants. At the first formal contact, callers were screened to determine eligibility over the telephone. Participants were required to be at least 16 years of age (written parental consent was required for anyone under 18), and to report using ecstasy more than five times lifetime and at least once in the past 12 months. For

eligible respondents, trained interviewers explained the confidential nature of the study, the purpose of the study—to test the reliability of the interview with a test-retest design—and the incentive payment structure (\$20 for the first interview, \$50 for the second, and an additional \$20 if randomized to receive an independent clinician’s assessment). Those agreeing to participate reviewed and signed informed consent at the time of the first interview using procedures approved by the University of Delaware’s Institutional Review Board. Only data from participants’ first interviews are presented in this report.

### **Measures**

Data were collected by trained interviewers using a computer-assisted Washington University Risk Behavior Assessment (RBA) based on the NIDA RBA,<sup>54</sup> and the Substance Abuse Module (SAM)<sup>55</sup> that had been adapted for club drugs, as well as the manually-administered Center for Epidemiological Studies Depression Scale (CES-D).<sup>56</sup> The RBA contains questions about a wide variety of drug use and sexual risk behaviors; modifications for this study included the addition of questions about the non-medical use of prescription drugs. The SAM assesses use of substances more than five times lifetime as well as criteria for assessing abuse of and dependence on substances and categories of substances as defined by the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition (DSM-IV). It also includes questions about demographics, treatment experience and arrest history.

For the present study, the SAM was modified to include separate assessment question sets for four “club drugs”: MDMA, Rohypnol, GHB and ketamine. The SAM drug categories that included prescription drugs were *stimulants*, *sedatives*, and *opioids*. The analyses of prescription drug abuse in this report exclude any street drugs traditionally included in these categories (e.g., methamphetamine and khat within *stimulants*). Analyses of abuse and dependence criteria of prescription *sedatives* were limited because many of these questions were deleted from the revised SAM in order to ask more questions about club drugs. Similar analyses related to *stimulants* were also limited because that category included a broad array of both prescription and street drugs.

### **Data Analysis**

Data from the interview questionnaires were analyzed using a standard statistical package. To determine relationships between dichotomous

dependent and independent variables, two-tailed Pearson chi-square tests for statistical significance and associated levels of probability ( $p$ ) were recorded from contingency table analyses. For continuous independent variables, means were compared using one-way ANOVA procedures. These and other statistics are displayed in the text and tables that follow.

## RESULTS

### *Demographics and Gender Differences*

Demographic characteristics of the sample are found in Table 1. The ethnic distribution including over 50% Hispanic-identified participants is reflective of the overall makeup of Miami-Dade County. White/Anglo respondents are somewhat overrepresented and African-Americans and -Caribbeans underrepresented compared to the overall population, although the study sample does seem to fairly represent the observed makeup of the county's club culture during the data collection period. The respondents were well-educated, with over 40% having already attained a two- or four-year college degree; many of the high school graduates were already enrolled or planning to enroll in higher education programs. Lifetime arrest rates were quite high at over 40%, but males were almost three times more likely to have been arrested than females. Because of the relative youthfulness of the sample, current employment status was largely a function of whether or not the respondent was a student. Lifetime attraction to and sexual experience with members of the same sex was of interest because of the historically heavy involvement of gay and bisexual men in the local club drug using scenes. Although females were more than twice as likely as males to report some same-sex attraction during their lifetime, there was no observed difference between males and females in having had sex with a same-sex partner.

Alcohol and drug use characteristics are displayed in Table 2. Overall, respondents reported very high rates of lifetime use of a wide range of substances. Prescription sedative abuse was quite common, with almost three-quarters (74.1%) reporting more than five times recreational use of these drugs. Prescription opioids had been abused by more than half (51%) of participants, but males were twice as likely as females to report this history. Prescription stimulants, on the other hand, had been abused by just over 25% of respondents. Over 82% of all respondents had abused at least one prescription drug.



TABLE 1. Demographic Characteristics of Ecstasy Users in Miami

	% Male (N = 83)	% Female (N = 60)	% Total (N = 143)	p*
Age (median = 23)				
18-20	27.7	25.0	26.6	
21-25	38.6	53.4	44.7	
26-30	24.1	18.3	21.7	
31-40	9.6	3.3	7.0	
Ethnicity				
African American/Caribbean	2.4	5.0	3.5	
Hispanic	51.8	48.3	50.3	
White/Anglo	33.7	35.0	34.3	
Other	12.1	11.7	11.9	
Highest Education Completed				
Less than 12th grade	6.0	1.7	4.2	
High school diploma/GED	57.8	50.0	54.5	
Associates/Bachelor's	36.2	48.3	41.3	
Any Lifetime Arrest	56.6	20.0	41.3	0.000
Employment Status				
Unemployed	19.3	15.0	17.5	
Employed	30.1	26.6	28.6	
Full-time student	41.0	46.7	43.4	
Disabled, other	9.6	11.7	10.5	
Any Same-Sex Attraction	16.9	41.7	27.3	0.001
Any Same-Sex Behavior	16.9	23.3	19.6	

\* Pearson's chi-square, where  $p < .10$

In response to questions about specific prescription drugs of abuse in the past 12 months, alprazolam, oxycodone, hydrocodone, and diazepam were cited most often. Alprazolam and diazepam are anti-anxiety medications; oxycodone and hydrocodone are opioid analgesics. OxyContin®, a unique time-release form of oxycodone, was abused by more than 20% of the sample. Males reported more abuse of every prescription drug than females, but these differences reached statistical significance only for alprazolam, OxyContin®, and morphine. Males also

TABLE 2. Alcohol and Drug Use Characteristics of Ecstasy Users in Miami

	% Male (N = 83)	% Female (N = 60)	% Total (N = 143)	p*
Lifetime Use (more than 5 times)				
Alcohol	100.0	100.0	100.0	
Marijuana	98.8	98.3	98.6	
Hallucinogens	84.3	70.0	78.3	0.004
Prescription sedatives†	77.1	70.0	74.1	
Cocaine	75.9	63.3	70.6	
Prescription opioids†	63.9	33.3	51.0	0.000
Ketamine	47.0	30.0	39.9	0.041
GHB	32.5	18.3	26.6	
Prescription stimulants†	30.1	20.0	25.9	
Methamphetamine	24.1	18.3	21.7	
Heroin	15.7	5.0	11.2	0.046
Any prescription drug†	86.7	76.7	82.5	
Any Use in the Last Year†				
Alprazolam	65.1	46.7	57.3	0.028
Other oxycodone	42.2	26.7	35.7	
Hydrocodone	37.3	25.0	32.2	
Diazepam	34.9	23.3	30.1	
OxyContin®	31.3	8.3	21.7	0.001
Morphine	13.3	3.3	9.1	0.042
Soma	9.6	5.0	7.7	
Mean # of Drug Categories Used	8.3	6.7	7.6	0.000
Took Other Drugs with Ecstasy	43.4	30.0	37.8	
Have "risky drug and alcohol behaviors that need changing"	61.4	26.7	46.9	0.000
Prior Drug Treatment History	37.3	20.0	30.1	0.026

\* Pearson's chi-square, where  $p < .10$ 

† non-prescribed use

indicated lifetime abuse of more drug categories than females (mean 8.3 vs. 6.7), and were more likely to report having “risky drug and alcohol behaviors that need changing” as well as prior drug treatment experience. Polydrug use was very high for both genders, however, including over 37% of respondents who had taken other drugs together with ecstasy.

### *Risks Associated with Prescription Drug Abuse*

Table 3 shows comparisons of demographics, drug and arrest histories, and mental health measures between ecstasy users who also abused prescription drugs and those who did not. There were no significant differences in the demographics or arrest histories of the two groups, but

TABLE 3. Characteristics of Ecstasy Users and Prescription Drug Abuse<sup>†</sup> in Miami

	% Prescription Drug Abusers (N = 118)	% Non-Prescription Drug Abusers (N = 25)	% Total (N = 143)	p*
<b>Demographics</b>				
Male	61.0	44.0	58.0	
Any same-sex attraction	28.0	24.0	27.3	
White/Anglo	35.6	28.0	34.3	
Any History of Arrest	43.2	32.0	41.3	
Any Drug/Alcohol Treatment	34.7	8.0	30.1	0.008
Have “risky drug and alcohol behaviors that need changing”	53.4	16.0	46.9	0.001
Have “risky sexual behaviors that need changing”	25.4	24.0	25.2	
<b>Mental Health Measures</b>				
Depressed 2 weeks in last year	47.5	28.0	44.1	0.075
Lost interest 2 weeks in last year	53.4	28.0	49.0	0.021
Thought suicide 2 weeks in last year	24.6	4.0	21.0	0.022
CES-D Total Score ( <b>means</b> )	<b>15.5</b>	<b>11.0</b>		0.068 <sup>‡</sup>

\* Pearson’s chi-square, where  $p < .10$

<sup>†</sup> non-prescribed use

<sup>‡</sup> one-way ANOVA

those who had abused prescription drugs were significantly more likely to have sought drug and/or alcohol treatment in the past and to report current “risky drug and alcohol behaviors that need changing.” This self-perception of risk did not extend to sexual behaviors, however. In fact, the sample on the whole did not exhibit high levels of sexual risk taking. Although all participants were sexually experienced, serial monogamy—including the use of birth control pills but not condoms—was the most common behavioral pattern (data not shown).

Symptoms of depression and suicidal ideation are also shown on Table 3. About half of prescription drug abusers reported feeling depressed (47.5%) or having lost interest in life (53.4%) for two weeks or more in the past year, compared to just over a quarter (28% on both measures) of non-prescription abusers. Similarly, the CES-D scores of prescription drug abusers averaged 4.5 points higher than those of non-abusers. Although this difference did not quite reach the .05 level of significance, it is noteworthy that the average CES-D score of prescription drug abusers (15.5) approached the traditional cutoff score (16.0) on this instrument for reaching a diagnosis of clinical depression.<sup>57</sup>

Table 4 displays differences between prescription drug abusers and non-abusers in onset ages for a wide range of substances. Prescription drug abusers began using alcohol almost two years earlier, marijuana

TABLE 4. Drug Use History of Ecstasy Users and Prescription Drug Abuse<sup>†</sup> in Miami

	% Prescription Drug Abusers (N = 118)	% Non-Prescription Drug Abusers (N = 25)	p*
Drug Use History (means)			
Alcohol onset age	13.9	15.7	0.006
Marijuana onset age (n = 141)	14.7	17.2	0.000
Hallucinogen onset age (n = 112)	16.9	18.3	
Ecstasy onset age	18.6	19.3	
Cocaine onset age (n = 101)	18.1	19.3	
Earliest onset age of any drug/alcohol	13.2	15.3	0.001
Lifetime # of Drug Categories Used (means)	8.3	4.3	0.000

\* one-way ANOVA, where  $p < .10$

† non-prescribed use

2.5 years earlier, and their first use of any psychoactive substance 2.1 years earlier, on average, than other ecstasy users. Onset ages for other drugs showed similar trends but did not register at the .05 significance level. Drug involvement of prescription drug abusers was also much more extensive than others, with the former having used, on average, more than eight different categories of drugs more than five times lifetime, twice as many categories as their non-prescription abusing counterparts.

Finally, Table 5 examines symptoms of tolerance, withdrawal and abuse of prescription opioids among the 73 participants who abused those drugs. As noted earlier, the study questionnaires did not permit similar analyses of symptoms related to prescription stimulants and sedatives. Nonetheless, respondents attributed widespread health problems

TABLE 5. Consequences of Prescription Opioid Abuse Among Ecstasy Users in Miami (N = 73)

	% Experiencing Symptom
Tolerance	15.9
Withdrawal Symptoms	21.6
Feeling tired	19.2
Craving opioids	19.2
Depression	16.4
Change in appetite	15.1
Feeling anxious	12.3
Physical Health Problems	42.5
Headache, dizziness	15.1
Blurred vision	13.7
Memory lapse	12.3
Nausea	12.3
Loss of balance	12.3
Psychological Problems	43.8
Dreamlike state	34.2
Depression	15.1
Laughing/crying for no reason	12.3
Confusion	9.6

to their abuse of prescription opioids. Over 20% responded positively to one or more questions about withdrawal symptoms, the most common of which were tiredness, craving and depression. Over 40% of prescription opioid abusers affirmatively answered one or more questions about physical and psychological problems other than withdrawal symptoms attributed to their use of those drugs.

## ***DISCUSSION***

### ***Limitations***

There are two primary limitations to the study. First, the results may not be generalizable to the total population of ecstasy users in Miami because of non-random selection. As well, participants who expressed interest in participation may have been especially motivated by the monetary incentives or by particularly good or detrimental drug use experiences. The other main limitation is that the study was not specifically designed to examine questions about prescription drug involvement. As such, it was not possible for the researchers to examine or compare withdrawal, dependence and abuse criteria for all prescription drug categories or for individual prescription drugs. Nevertheless, the study instrumentation did include numerous questions that enabled the researchers to shed light on an issue that is absent from the literature. Although numerous reports of club drug users have raised concerns about polydrug use, none has provided epidemiologic data on the extent of prescription drug abuse by club drug users.

### ***Implications***

The findings of this study are cause for alarm in terms of the extent, nature and consequences of prescription drug abuse among a sample of ecstasy users. The vast majority of ecstasy users had histories of such abuse, and those who did also had extensive involvements with many other types of psychoactive substances. The data also show prescription drug abusers to have become involved with drug use at earlier ages than their counterparts and more likely to perceive their own drug and alcohol use to be problematic. Overall, these findings suggest that prescription drugs may be becoming an integral part of a continuing and expanding pattern of polydrug abuse among young people, occurring within a larger social environment that has embraced the use of pre-

scription drugs for an increasingly wide array of physical and emotional complaints. Although males exhibited somewhat higher rates of prescription drug abuse than females, such abuse patterns do not appear limited by gender, ethnic or age boundaries.

The correlation of prescription drug abuse with indices of depression and suicidal ideation is of great concern. As is true of most studies showing associations between ecstasy use and chronic psychological problems, the study design employed here does not permit attributions of causation between these psychological problems and prescription drug abuse per se. Rather, these data point the way to the need for new studies that can capture the temporality of psychological problems and the abuse of different prescription and street drugs. Nevertheless, those who had abused prescription opioids ascribed a wide array of withdrawal and physical and psychological health problems to their abuse of such painkillers.

### ***Future Research Directions***

This study represents an exploratory examination of the problem of prescription drug abuse among an already at-risk population: young adults who have significant experience with the use of ecstasy. The seriousness of the findings described above points to the need for more targeted and extensive studies of the problem, including larger samples, the identification of methods of access and ingestion of the drugs, the meanings attributed to prescription drug abuse experiences, and the health and social consequences of such abuse.

## REFERENCES

1. Chambers CD, Inciardi JA. An assessment of drug use in the general population. Albany, NY: New York State Narcotic Addiction Control Commission, 1971.
2. Chambers CD, Inciardi JA, Siegal HA. Chemical coping: A report on legal drug use in the United States. New York: Spectrum Publications, 1975.
3. Hughes R, Brewin R. The tranquilizing of America: Pill popping and the American way of life. New York: Harcourt Brace Jovanovich, 1979.
4. Weil A, Rosen W. Chocolate to morphine: Understanding mind-active drugs. Boston: Houghton Mifflin Company, 1983.
5. Chambers CD, Inciardi JA, Petersen DM, et al., eds. Chemical dependencies: Patterns, costs, and consequences. Ohio University Press: Athens, OH, 1987.
6. Mondanaro J. Chemically dependent women: Assessment and treatment. Lexington, MA: Lexington Books, 1989.

7. Inciardi JA. Patterns of methaqualone abuse. Methaqualone traffic, abuse, and regulation. Washington, DC: US Government Printing Office, 1973.
8. Inciardi JA, Petersen DM, Chambers CD. Methaqualone abuse patterns, diversion paths and adverse reactions. *J Fla Med Assoc* 1974;61:279-283.
9. Grinspoon L, Hedblom P. The speed culture: Amphetamine use and abuse in America. Cambridge, MA: Harvard University Press, 1975.
10. Klee H, ed. Amphetamine misuse: International perspectives on current trends. Harwood Academic Publishers: Amsterdam, 1997.
11. Zacny J, Bigelow G, Compton P, et al. College on problems of drug dependence taskforce on prescription opioid non-medical use and abuse: Position statement. *Drug Alcohol Depend* 2003;69(3):215-232.
12. Schultze QJ, Anker RM, Bratt JD, et al. Dancing in the dark: Youth, popular culture and the electronic media. Grand Rapids, MI: William B. Eerdmans Publishing Company, 1991.
13. Beck J, Rosenbaum M. Pursuit of ecstasy: The MDMA experience. Albany, NY: State University of New York Press, 1994.
14. Thornton S. Club cultures: Music, media and subcultural capital. Hanover, NH: University Press of New England, 1996.
15. Silcott M. Rave America: New school dancescapescapes. Toronto, Ontario, Canada: ECW Press, 1999.
16. Reynolds S. Generation ecstasy: Into the world of techno and rave culture. Boston: Little, Brown and Company, 1998.
17. Owen F. Clubland: The fabulous rise and murderous fall of club culture. New York: St. Martin's Press, 2003.
18. Chase M. Health debate: A doctor fights for new warnings—on Viagra labels the worry: Does drug foster behavior that spreads AIDS virus and syphilis?—Pfizer doesn't see connection. *Wall Street Journal* 2003 March 7: A1.
19. Oliver P, Keen J. Concomitant drugs of misuse and drug using behaviours associated with fatal opiate-related poisonings in Sheffield, UK, 1997-2000. *Addiction* 2003;98:191-197.
20. Chu PL, McFarland W, Gibson S, et al. Viagra use in a community-recruited sample of men who have sex with men, San Francisco. *JAIDS* 2003;33(2):191-193.
21. Allman TD. Miami: City of the future. New York: The Atlantic Monthly Press, 1987.
22. Didion J. Miami. New York: Simon & Schuster, 1987.
23. Portes A, Stepick A. City on the edge: The transformation of Miami. Berkeley, CA: University of California Press, 1993.
24. Kilborn PT. Miami Beach clubgoers creating new, unwanted image. *New York Times* 2000 February 27: 1.22.
25. Schwartz N. Group warns of resurgence in drug use: Region's health, police officials form task force. *Sun-Sentinel* 2003 November 6: 1B.
26. Shister N. Club chaos: Understanding the South Beach effect. *Boston Review*. 1999.
27. Patron EJ. A menacing mixture: Club drugs and HIV meds. 2000, *GayHealth*.
28. Haddow I. 'Club drugs' hit Miami. 2000, *BBC News*.



29. Guzman R. Miami Beach scrambles to rein in its nightclubs. *Wall Street Journal* 1999 September 8: F1.
30. Brandt PR. Journeys; South Beach: From hot to cold, back to hot again. *New York Times* 2003 December 5: F1.
31. Trebay G. Miami is just blown away. *New York Times* 2001 June 3: 9.1.
32. U.S. Drug Enforcement Administration, DEA briefs & background, drugs and drug abuse, state factsheets, Florida. 2004.
33. Substance Abuse and Mental Health Services Administration, Office of Applied Studies, The DAWN report: Club drugs, 2001 update. 2002.
34. Cooper JR, Czechowicz DJ, Molinari SP, et al., eds. Impact of prescription drug diversion control systems on medical practice and patient care [Research Monograph]. Vol. 131. National Institute on Drug Abuse: Rockville, MD, 1993.
35. Nicholi Jr. AM. The nontherapeutic use of psychoactive drugs: A modern epidemic. *N Engl J Med* 1983 April 21;308(16):925-933.
36. Joranson DE, Ryan KM, Gilson AM, et al. Trends in medical use and abuse of opioid analgesics. *J Am Med Assoc* 2000 April 5;283(13):1710-1714.
37. Meadows M. Prescription drug use and abuse. *FDA Consumer* 2001 September-October;35(5):18-24.
38. Frischer M, Blenkinsopp A. Medicine misuse or drug abuse? A critical appraisal of current issues and research in the UK. *Critical Public Health* 1999;9(3): 181-195.
39. Wilford BB, Finch J, Czechowicz DJ, et al. An overview of prescription drug misuse and abuse: Defining the problem and seeking solutions. *J Law Med Ethics* 1994 Fall;22(3):197-203.
40. Simoni-Wastila L. The use of abusable prescription drugs: The role of gender. *J Womens Health Gend Based Med* 2000;9(3):289-297.
41. Cottler LB, Womack SB, Compton WM, et al. Ecstasy abuse and dependence among adolescents and young adults: Applicability and reliability of DSM-IV criteria. *Hum Psychopharmacol* 2001;16:599-606.
42. Boyd CJ, McCabe SE, d' Arcy H. Ecstasy use among college undergraduates: Gender, race and sexual identity. *J Subst Abuse Treat* 2003;24:209-215.
43. Oh S, Atherley R. Rave fever. *Maclean's*. 2000. pp. 38-43.
44. Freese TE, Miotto K, Reback CJ. The effects and consequences of selected club drugs. *J Subst Abuse Treat* 2002;23(2):151-156.
45. Klitzman RL, Greenberg JD, Pollack LM, et al. MDMA ('ecstasy') use, and its association with high risk behaviors, mental health, and other factors among gay/bisexual men in New York city. *Drug Alcohol Depend* 2002;66(2):115-125.
46. Luongo, M. (2002, Tuesday, March 25). Club Drugs and Sex: You Might Drop More Than E. *GayHealth*, Retrieved October 15, 2003, from <http://www.gayhealth.com/templates/107410502228866985486700005/drugs?record=209>
47. Garbo, J. (2001, Monday, June 11). Drug Use Puts Circuit Party Attendees at Risk for HIV. *GayHealth*, Retrieved October 15, 2003, from <http://www.gayhealth.com/templates/107410486955570559715700008/news?record=583>
48. McCardle K, Luebbers S, Carter JD, et al. Chronic MDMA (ecstasy) use, cognition and mood. *Psychopharmacology* 2004;173:434-439.
49. Roiser JP, Sahakian BJ. Relationship between ecstasy use and depression. A study controlling poly-drug use. *Psychopharmacology* 2004;173:411-417.

50. MacInnes N, Handley SL, Harding GFA. Former chronic methylenedioxy-methamphetamine (MDMA or ecstasy) users report mild depressive symptoms. *Journal of Psychopharmacology* 2001;15(3):181-186.
51. Parrott AC, Milani RM, Parmar R, et al. Recreational ecstasy/MDMA and other drug users from the UK and Italy: Psychiatric symptoms and psychobiological problems. *Psychopharmacology* 2001;159:77-82.
52. Schifano F, Di Furia L, Gorza G, et al. MDMA ('ecstasy') consumption in the context of polydrug abuse: A report on 150 patients. *Drug and Alcohol Dependence* 1998; 52:85-90.
53. U.S. Census Bureau. Census. State and county quickfacts: Miami-Dade county, FL 2000.
54. National Institute on Drug Abuse Community Research Branch. Risk Behavior Assessment questionnaire: Final version: National AIDS research project, 1993, September.
55. Robbins LN, Cottler LB. The Substance Abuse Module (for the DIS and CIDI). St. Louis, MO, 1990.
56. Radloff L. The CES-D scale: A self-report depression scale for researchers in the general population. *Appl Psychol Meas* 1977;1:385-401.