Published in final edited form as:

J Subst Use. 2011 October 1; 16(5): 372–389. doi:10.3109/14659891003721133.

Self-report of illicit substance use versus urine toxicology results from at-risk pregnant women

KIMBERLY A. YONKERS^{1,2}, HEATHER B. HOWELL¹, NATHAN GOTMAN¹, and BRUCE J. ROUNSAVILLE¹

¹Department of Psychiatry, Yale School of Medicine, Yale University, New Haven, CT, USA

²Department of Obstetrics, Gynecology and Reproductive Sciences, Yale School of Medicine, Yale University, New Haven, CT, USA

Abstract

Introduction—Many factors comprise a patient's decision to disclose use of drugs. Pregnant women may report drug use because they would like help with their addiction but the stigma associated with drug use may dampen their willingness to disclose. Knowledge about the accuracy of self-reported drug use as compared to urine toxicology screens can assist clinicians in the management of substance use in pregnancy.

Method—We compared the urine toxicology screens and self-reported use of marijuana or cocaine for 168 women enrolled in an integrated obstetrical/substance abuse treatment program. We stratified by various periods of self-reported use *and* race and *utilized* Cohen's kappa to measure overall agreement between self-report and toxicology tests.

Results—Most women with a positive toxicology screen reported use in the past 28 days (78% for marijuana, 86% for cocaine). However, many women reported their most recent use to be outside of the assays' detection window (14% for marijuana, 57% for cocaine). We did not find differences in self-report for women with positive urine between Whites and non-Whites ($p = 1.00$). Agreement over the previous month was good (Kappa = 0.74 and 0.70 for marijuana and cocaine, respectively.)

Summary—A question about use of marijuana or cocaine during the preceding month rather than the prior few days may be a better indicator of use.

Keywords

Cocaine; marijuana; self-disclosure; urine toxicology

Introduction

Epidemiological studies show that about 5% of women use an illicit substance in pregnancy with marijuana and cocaine as the most commonly used illicit substances (Howell, Heiser, & Harrington, 1999; Ebrahim & Gfroerer, 2003). Maternal use of illicit drugs in pregnancy is associated with delivery of babies that are premature, small for gestational age or have developmental deficits (Kaltenbach & Finnegan, 1986; Zuckerman, Frank, Hingson, Amaro,

© 2010 Informa UK Ltd.

Correspondence: Dr Kimberly A. Yonkers, Department of Psychiatry, Yale School of Medicine, Yale University, 142 Temple Street, Suite 301, New Haven, CT 06510, USA. Tel: +203 764 6621. Fax: +203 764 6766. Kimberly.Yonkers@yale.edu.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Levenson, Kayne, Parker, Vinci, Aboagye, Fried, Cabral, Timperi, & Bauchner, 1989; Chasnoff, Griffith, Freier, & Murray, 1992; Ostrea, Ostrea, & Simpson, 1997; Kaltenbach, Berghella, & Finnegan, 1998; Cornelius, Goldschmidt, Day, & Larkby, 2002; Zuckerman, Frank, & Mayes, 2002). The consequences of drug use for mothers and their offspring make detection and treatment of pregnant women with a drug use disorder a public health priority.

Clinicians and researchers identify and monitor use of hazardous substances through self-report and biological samples, most commonly urinary toxicology screens. The reliability of self-report of substance misuse in relation to a urine toxicology test has been the subject of many studies (*cf.* Babor, Steinberg, Anton, & Del Boca, 2000; Del Boca & Noll, 2000). While some find high reliability for urine toxicology screens (Barnea, Rahav, & Teichman, 1987; Zanis, McLellan, & Randall, 1994) others findings dispute this (San, Torrens, Tato, Castillo, de la Torre, Arranz, 1998; Rockett, Putnam, Jia, & Smith, 2006). Reliability varies by drug of use, patient characteristics, the context in which the urine samples were obtained (Magure & Kang, 1996; Babor et al., 2000; Del Boca & Noll, 2000), and the way in which data about use are collected (Babor et al., 2000; Del Boca & Noll, 2000). For example, concordance between self-report and urine tests tends to be high among individuals entering a treatment program (Sherman & Bigelow, 1992; Magura & Kang, 1996) but is lower later in the treatment process, among prisoners and among individuals who either are no longer in treatment (Magura & Kang, 1996) or attend treatment erratically (Kilpatrick, Howlett, Sedgwick, & Ghodse, 2000). In addition, subjects or patients who are told that a biological sample of drug use will be obtained showing greater agreement between self-report and the biological measures via the “bogus pipeline” effect (Jones & Sigall, 1970; Roese & Jamieson, 1993). The “bogus pipeline” refers to procedures whereby subjects are told, or convinced that the clinician or researcher can use a physiological measurement or instrument to accurately obtain information about attitudes or behavior. This has been successfully used in substance use research whereby subjects who know that a biological assay will be obtained tend to report drug use more accurately (Babor et al., 2000; Del Boca & Noll, 2000).

Despite substantial information in general on the reliability of self-report in comparison to urine assessments for substance using patients (Lowe, Windsor, Adams, Morris, & Reese, 1986; Christmas, Knisley, Dawson, Dinsmoor, Weber, & Schnoll, 1992; Funkhouser, Butz, Feng, McCaul, & Rosenstein, 1993; Marques, Tippetts, & Branch, 1993; Horrigan, Piazza, & Weinstein, 1996), there are fewer data specific to pregnant patients for whom findings may differ. On the one hand, pregnant women may be especially motivated to elicit help for drug use in an attempt to develop a healthier lifestyle during pregnancy. On the other hand, the stigma of drug and alcohol addiction in pregnancy is profound and will lead some women to withhold information about hazardous substance use. However, the literature suggests that the bogus pipeline effect is still operative in pregnant women as indicated by a project that showed higher rates of disclosure about alcohol use if women were told that they would be tested than if they were not told they would be tested (Lowe et al., 1986).

The utility of self-report in a clinical setting is important to assess. Self-report can inform providers about the use of certain hazardous substances and can be informative about a period of use that is not yoked to intervals that would be identified in a positive urine screen (Horrigan, Piazza, & Weinstein, 1996). Accordingly, we compared self-report and urine toxicology information from a sample of 168 voluntary participants who were screened in a prenatal clinic and agreed to participate in substance use treatment while attending prenatal care. Because we were less concerned about the actual date of use and felt that the bogus pipeline effect would increase self-reports of substance use in general, we sought to determine the relationship between urine toxicology tests and self-report of drug use over a variety of time intervals prior to the assessment of cocaine or marijuana use.

Methods

Subjects

Women were eligible to participate if they had not yet completed their 29th week of pregnancy, spoke English or Spanish, and were at least 16 years of age. Potential subjects must have reported use of alcohol or an illicit drug, other than opiates, during 28 days prior to screening or scored at least 3 on the TWEAK (Russell, 1996; Chang, Wilkins-Haug, Berman, & Goetz, 1999) that was modified to query about alcohol *and* other drugs. Women were ineligible if they intended to terminate their pregnancy, were planning on moving out of the area, were already in receipt of substance use treatment, were not competent, were unwilling to provide consent, were in imminent danger to themselves or their fetus, or required emergent inpatient treatment.

Screening

Women were screened at a usual obstetrical appointment at any of three prenatal care centers. A research assistant or nurse would approach pregnant women, obtain consent to screen and ask them to complete a health questionnaire that included demographic information, plans for prenatal care, the Patient Health Questionnaire-2 (PHQ-2) (Kroenke, Spitzer, & Williams, 2003), the 4 P's (Chasnoff, McGourty, Bailey, Hutchins, Lightfoot, Pawson, Fahey, May, Brodie, McCulley, & Campbell, 2005; Chasnoff, Wells, McGourty, & Bailey, 2007), the modified TWEAK (Russell, 1996; Chang et al., 1999), and yes/no probes about individual substances of abuse (cigarettes, alcohol, marijuana, cocaine, opiates, and "other") within the previous 28 days. The TWEAK is a five-item screener that was originally designed to screen pregnant women for hazardous alcohol use (Russell, 1996; Chang et al., 1999). Because there are few short screening instruments that assess possible use of a range of hazardous substances in pregnancy, we modified the TWEAK for use in our project.

After this initial assessment, research staff explained the study to respondents who were potentially eligible and obtained written, informed consent to enroll in the related treatment study. Respondents who were interested in participation either underwent an immediate intake interview or completed an intake visit at the next prenatal visit.

Study intake visit

The intake assessment was completed largely via computer through the use of audio assisted software whereby questions were read to the respondent while they also appeared on screen. The assessment included interview questions about current and past pregnancy events and complications, the Addictions Severity Index-Lite (McLellan, Luborsky, Woody, & O'Brien, 1980), the Inventory of Depressive Symptomatology (Rush, Gullion, Basco, Jarrett, & Trivedi, 1996), and the MINI Neuropsychiatric Interview (Sheehan, Lecrubier, Sheehan, Amorim, Janava, Weiller, Hergueta, Baker, & Dunbar, 1998). The Time Line Follow Back (Sobell, Brown, Leo, & Sobell, 1996), which collects daily information on substance use, was obtained by study personnel in a face-to-face manner. We obtained a urine toxicology screen after the interview although occasionally this occurred earlier in the assessment. All subjects were aware that a urine test would be obtained.

Urine toxicology test

We used a commercially available immunochromatographic test that detects cannabinoids, cocaine, or opiates as well as their major metabolites in urine. The main metabolite of Δ^9 tetrahydrocannabinol (THC) is 11-nor- Δ^9 -(THC)-9-carboxylic acid, which can be detected at a minimal level of 50 ng/mL. The test will remain positive until about 3–10 days after smoking marijuana. Benzoylceognine, the main urinary metabolite of cocaine, is detected at

a minimal level of 300ng/mL. The test remains positive for 24–60h after use. Morphine, which is excreted in urine as a glucuronide, can be detected at a level of 300ng/mL. The detection window depends upon the opiate preparation. In this report we focus on cocaine and marijuana because relatively few women used opiates.

Study recruitment

We screened 2,665 women for study eligibility (see Fig. 1). Of those screened, 300 (11%) were potentially eligible and 181 (60% of eligible) enrolled in the study to date. We received data on both self-report and urine toxicology results for the first 168 women at intake. This report uses all subjects in the cohort although we focus only on results regarding the use of cocaine and marijuana. We did not limit the analysis to primary substance because it would not be unusual for a woman to use a variety of substances, including those that are not “primary” substances of abuse.

Statistical approach

We compared the results of urine toxicology tests and self-report for marijuana and cocaine use stratified by most recent reported use. We divided most recent self-report of use into various intervals before the day of the test depending on the detection window of the respective assay (i.e., starting at 1–10 days before for marijuana and 1–3 days before for cocaine), focusing on women who had a positive toxicology screen. We used Fisher's exact test to examine differences in urine and self-report by race/ethnicity. We used Cohen's kappa to measure agreement between self-report over the previous month and urine toxicology.

Results

The majority of subjects were in their 20s (Table I) and study intake occurred at a mean gestational point of 20.3 weeks (SD = 6.5). Most women had previous pregnancies and births. Nearly half of our subjects were African American and slightly more than one-quarter were Hispanic. Approximately one-third had less than high school education and an additional one-third had a high school education. About one-half of participants were married, dating or living with a partner.

In the past year, 45% of participants met criteria for a substance abuse diagnosis and 42% met criteria for a substance dependence diagnosis (Table II). The mean number of days reported in the past month for use of any hazardous substance other than nicotine was 5.5 days (SD = 8.3). Of those who indicated past or current problems with marijuana, the mean number of days of use in the past 28 days was 8.7 (SD = 9.3). Among women who indicated a history of cocaine misuse, the mean number of days of cocaine use in the prior month was 3.4 (SD = 5.3).

Table III presents the agreement between self-report of either marijuana or cocaine use and urine test results, stratified by time interval of the most recent self-report. Women who tested positive on their urine test were likely to report some use of the substance in question, but not necessarily recent use or use conforming to the expected test characteristics of the urine toxicology assay. Of the 69 women who tested positive for marijuana, 44 (64%) reported use within 1–10 days of the test. However, 54 (78%) reported some use within 28 days of the test. Of the 14 women who tested positive for cocaine, only 4 (29%) reported use within 1–3 days. However, 12 (86%) reported use within 28 days.

Conversely, anyone reporting use during the recommended interval of the test was very likely to test positive. Of the 47 women who reported using marijuana 1–10 days before the test, 44 (94%) tested positive. Of the four women who reported using cocaine 1–3 days before the test, all four tested positive.

Although race/ethnicity was related to likelihood to test positive, we did not find any differences in self-report. Non-Whites were more likely than Whites to test positive for marijuana (48 vs. 20%, $p = .002$) and for cocaine (11 vs. 0%, $p = .02$). However, for all women who tested positive for marijuana, there was no association between race/ethnicity and self-report ($p = 1.00$). Since no Whites tested positive for cocaine, it was not possible to perform a similar comparison of race/ethnicity by self-report for women who tested positive for cocaine.

For marijuana, agreement between self-report and toxicology results for the prior month was $\kappa = 0.74$ (95% CI = 0.63, 0.84). For cocaine, agreement between toxicology and self-report for the 1 month prior to the test was $\kappa = 0.7$ (95% CI, 0.51, 0.88).

Discussion

Understanding the accuracy of self-report for drug use has clinical utility since this is the most common method employed for identification of drug use in pregnancy. In fact, the American College of Obstetrics and Gynecology recommends screening for hazardous substance use in pregnancy (ACOG 2004). We assessed agreement between self-report and urine toxicology samples in women who had a history of illicit drug use and were willing to attend counseling sessions during their usual prenatal visits. Our findings showed that women accurately reported whether or not they used substances, but not necessarily when the use occurred. Specifically, subjects tended to report that they used earlier than would be suggested by toxicology screening. This trend was especially evident for cocaine.

While these results are reassuring for clinicians who query their patients for drug use in pregnancy, they may or may not reflect the typical clinical scenario. The circumstances in which women we tested were likely to promote accurate reports of use: women were enrolling in a treatment program (Sherman & Bigelow, 1992; Magura & Kang, 1996) and they knew that a biological test (urine toxicology) would be obtained (Lowe et al., 1986; Roesse & Jamieson, 1993). However, the embarrassment associated with admitting recent drug use may have led women to state that use occurred weeks rather than days before the visit. This strategy of admitting use but framing it as taking place weeks earlier may be particularly relevant for pregnant women who may feel particularly high disapprobation for hazardous substance use. Given this finding, clinicians should be alert to the possibility of current drug use, even among patients who claimed their last use of marijuana or cocaine was several weeks prior. However, our findings require replication with a larger, more representative cohort of pregnant women.

It is important to acknowledge that the time interval for optimal accuracy of self-report may be delimited and in our report, we could not look at the higher end of this boundary. The information we collected at intake only included data for the month prior to enrollment and this precluded examination of longer intervals. Other work with pregnant women has shown that intervals of assessment for binge drinking that are temporally distant from the assessment point are less accurate than evaluations that are done proximal to the binge drinking behavior (Strandberg-Larsen, Andersen, Olsen, Nielsen, & Grnbaek, 2006). In this case women were asked about binge drinking at the beginning of pregnancy, toward the end of pregnancy and again postpartum. At the early pregnancy interview, women were more likely to report binge drinking at the beginning of pregnancy than were women who were interviewed about that time interval at a postpartum interview. A variety of reasons may contribute to this problem with recall bias, including factors mentioned above.

In sum, our analysis of pregnant substance users found good agreement with one month self-report of either cocaine or marijuana use and urine toxicology reports. Many women who

screened positive reported use later than suggested by the toxicology screening test, particularly for cocaine. Positive reports of drug use during the prior month may indicate to clinicians that a patient is also currently using drugs.

Acknowledgments

This article was supported by Grant R01 DA 019135 from the National Institute on Drug Abuse to Drs. Yonkers and Rounsaville.

References

- ACOG. ACOG committee opinion #294: At-risk drinking and illicit drug use: Ethical issues in obstetric and gynecologic practice. *Obstetrics and Gynecology*. 2004; 103:1021–1031. [PubMed: 15121596]
- Babor TF, Steinberg K, Anton RAY, Del Boca F. Talk is cheap: Measuring drinking outcomes in clinical trials (*). (Statistical data included). *Journal of Studies on Alcohol*. 2000; 61:55. [PubMed: 10627097]
- Barnea Z, Rahav G, Teichman M. The reliability and consistency of self-reports on substance use in a longitudinal study. *British Journal of Addiction*. 1987; 82:891–898. [PubMed: 3479170]
- Chang G, Wilkins-Haug L, Berman S, Goetz M. The TWEAK: Application in a prenatal setting. *Journal of Studies on Alcohol*. 1999; 60:306–309. [PubMed: 10371256]
- Chasnoff IJ, Griffith DR, Freier C, Murray J. Cocaine/polydrug use in pregnancy: Two-year follow-up. *Pediatrics*. 1992; 89:284–289. [PubMed: 1370867]
- Chasnoff IJ, McGourty RF, Bailey GW, Hutchins E, Lightfoot SO, Pawson LL, Fahey C, May B, Brodie P, McCulley L, Campbell J. The 4P's Plus screen for substance use in pregnancy: Clinical application and outcomes. *Journal of Perinatology*. 2005; 25:368–374. [PubMed: 15703775]
- Chasnoff IJ, Wells AM, McGourty RF, Bailey LK. Validation of the 4P's Plus screen for substance use in pregnancy validation of the 4P's Plus. *Journal of Perinatology*. 2007; 27:744–748. [PubMed: 17805340]
- Christmas JT, Knisely JS, Dawson KS, Dinsmoor MJ, Weber SE, Schnoll SH. Comparison of questionnaire screening and urine toxicology for detection of pregnancy complicated by substance use. *Obstetrics & Gynecology*. 1992; 80:750–754. [PubMed: 1407909]
- Cornelius MD, Goldschmidt L, Day NL, Larkby C. Alcohol, tobacco and marijuana use among pregnant teenagers: 6-year follow-up of offspring growth effects. *Neurotoxicology and Teratology*. 2002; 24:703–710. [PubMed: 12460652]
- Del Boca FK, Noll JA. Truth or consequences: The validity of self-report data in health services research on addiction. *Addiction*. 2000; 95:347–360. [PubMed: 10795351]
- Ebrahim SH, Gfroerer J. Pregnancy-related substance use in the United States during 1996–1998. *Obstetrics and Gynecology*. 2003; 101:374–379. [PubMed: 12576263]
- Funkhouser AW, Butz AM, Feng TI, McCaul ME, Rosenstein BJ. Prenatal care and drug use in pregnant women. *Drug and Alcohol Dependence*. 1993; 33:1–9. [PubMed: 8396528]
- Horrigan TJ, Piazza NJ, Weinstein L. The substance abuse subtle screening inventory is more cost effective and has better selectivity than urine toxicology for the detection of substance abuse in pregnancy. *Journal of Perinatology*. 1996; 16:326–330. [PubMed: 8915928]
- Howell EM, Heiser N, Harrington M. A review of recent findings on substance abuse treatment for pregnant women. *Journal of Substance Abuse Treatment*. 1999; 16:195–219. [PubMed: 10194738]
- Jones E, Sigall H. The bogus pipeline: A new paradigm for measuring affect and attitude. *Psychological Bulletin*. 1970; 76:349–364.
- Kaltenbach K, Berghella V, Finnegan L. Opioid dependence during pregnancy. *Substance Abuse in Pregnancy*. 1998; 25:139–151.
- Kaltenbach K, Finnegan LP. Neonatal abstinence syndrome, pharmacotherapy and developmental outcome. *Neurobehavioral Toxicology and Teratology*. 1986; 8:353–355. [PubMed: 3762845]
- Kilpatrick B, Howlett M, Sedgwick P, Ghodse AH. Drug use, self report and urinalysis. *Drug and Alcohol Dependence*. 2000; 58:111–116. [PubMed: 10669061]

- Kroenke KMD, Spitzer RLMD, Williams JBWDSW. The patient health questionnaire-2: Validity of a two-item depression screener. *Medical Care*. 2003; 41:1284–1292. [PubMed: 14583691]
- Lowe JB, Windsor RA, Adams B, Morris J, Reese Y. Use of a bogus pipeline method to increase accuracy of self-reported alcohol consumption among pregnant women. *Journal of Studies on Alcohol*. 1986; 47:173–175. [PubMed: 3713181]
- Magura S, Kang S-Y. Validity of self-reported drug use in high risk populations: A meta-analytical review. *Substance Use & Misuse*. 1996; 31:1131–1153. [PubMed: 8853234]
- Marques PR, Tippetts AS, Branch DG. Cocaine in the hair of mother-infant pairs: Quantitative analysis and correlations with urine measures and self-report. *American Journal of Drug & Alcohol Abuse*. 1993; 19:159–175. [PubMed: 8484355]
- McLellan AT, Luborsky L, Woody GE, O'Brien CP. An improved diagnostic evaluation instrument for substance abuse patients: The addiction severity index. *The Journal of Nervous and Mental Disease*. 1980; 168:26–33. [PubMed: 7351540]
- Ostrea EM, Ostrea AR, Simpson PM. Mortality within the first 2 years in infants exposed to cocaine, opiate, or cannabinoid during gestation. *Pediatrics*. 1997; 100:79–83. [PubMed: 9200364]
- Rockett IRH, Putnam SL, Jia H, Smith GS. Declared and undeclared substance use among emergency department patients: A population-based study. *Addiction*. 2006; 101:706–712. [PubMed: 16669904]
- Roesse N, Jamieson D. Twenty years of bogus pipeline research: A critical review and meta-analysis. *Psychological Bulletin*. 1993; 114:363–375.
- Rush AJ, Gullion CM, Basco MR, Jarrett RB, Trivedi MH. The inventory of depressive symptomatology (IDS) psychometric properties. *Psychological Medicine*. 1996; 26:477–486. [PubMed: 8733206]
- Russell M. Detecting risk drinking during pregnancy: A comparison of four screening questionnaires. *American Journal of Public Health*. 1996; 86:1435–1439. [PubMed: 8876514]
- San L, Torrens M, Tato J, Castillo C, de la Torre R, Arranz B. Monitoring patterns of substance use in drug-dependent patients. *Journal of Substance Abuse Treatment*. 1998; 15:425–430. [PubMed: 9750999]
- Sheehan D, Lecrubier Y, Sheehan K, Amorim P, Janava J, Weiller E, Hergueta T, Baker R, Dunbar G. The mini-international neuropsychiatric interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *The Journal of Clinical Psychiatry*. 1998; 59:22–33. [PubMed: 9881538]
- Sherman MF, Bigelow GE. Validity of patients' self-reported drug use as a function of treatment status. *Drug & Alcohol Dependence*. 1992; 30:1–11. [PubMed: 1317286]
- Sobell L, Brown J, Leo G, Sobell M. The reliability of the alcohol timeline follow back when administered by telephone and by computer. *Drug and Alcohol Dependence*. 1996; 42:49–54. [PubMed: 8889403]
- Strandberg-Larsen K, Andersen AM, Olsen J, Nielsen NR, Grnbaek M. Do women give the same information on binge drinking during pregnancy when asked repeatedly? *European Journal of Clinical Nutrition*. 2006; 60:1294–1298. [PubMed: 16721393]
- Zanis DA, McLellan AT, Randall M. Can you trust patient self-reports of drug use during treatment? *Drug & Alcohol Dependence*. 1994; 35:127–132. [PubMed: 8055734]
- Zuckerman B, Frank D, Hingson R, Amaro H, Levenson S, Kayne H, Parker S, Vinci R, Aboagye K, Fried L, Cabral H, Timperi R, Bauchner H. Effects on maternal marijuana and cocaine use on fetal growth. *The New England Journal of Medicine*. 1989; 320:762–768. [PubMed: 2784193]
- Zuckerman B, Frank DA, Mayes L. Cocaine-exposed infants and developmental outcomes: "Crack kids" revisited. *The journal of the American Medical Association*. 2002; 287:1990–1991.

Figure 1.
PRIDE study enrollment.

Table ICharacteristics for $N = 168$ participants

Characteristics	Mean (SD)
Maternal age	25.2 (6.0)
Gravida	3.1 (2.4)
Parity	1.1 (1.3)
Gestational age at intake (in weeks)	20.3 (6.5)
	<i>N</i> (%)
Race/ethnicity	
Black, non-Hispanic	78 (46)
White, non-Hispanic	40 (24)
Hispanic	43 (26)
Other	7 (4)
Education	
Above high School	45 (27)
High School	62 (37)
Less than high School	61 (36)
Relationship status	
Married/dating/living with partner	87 (52)
Single/divorced/separated/widowed from partner	80 (48)

Table IIDrug measures for $N = 168$ participants

Drug measures	<i>N</i> (%)	Mean (SD)
Diagnoses of any substance abuse in past year	76 (45)	
Diagnoses of any substance dependence in past year	70 (42)	
Days self-reported use 28 days prior by substance use calendar (excludes cigarettes)		5.5 (8.3)
No. of times in past treatment for drug problems		
0	119 (71)	
1	13 (8)	
2+	33 (20)	
Marijuana ($n = 78, 47\%$) ^a		
Average No. of days of using marijuana 28 days prior		8.7 (9.3)
Marijuana abuse in past year	13 (17)	
Marijuana dependence in past year	34 (44)	
Cocaine ($n = 32, 19\%$) ^a		
Average No. of days of using cocaine 28 days prior		3.4 (5.3)
Cocaine abuse in past year	4 (13)	
Cocaine dependence in past year	21 (66)	

^aWe defined risk groups as either abuse, dependence or any use in the 28 days prior.

Table III

Time interval for use according to self-report use and results of urine toxicology test

Self report time interval since urine test	Total (N = 168)		White (N = 40)		Non White (N = 128)	
	-Urine N (%) ^a	+Urine N (%) ^a	-Urine N (%) ^a	+Urine N (%) ^a	-Urine N (%) ^a	+Urine N (%) ^a
Marijuana (total)	99 (59)	69 (41)	32 (80)	8 (20)	67 (52)	61 (48)
1–10 days prior	3 (3)	44 (64)	0 (0)	5 (62)	3 (4)	39 (64)
11–20 days prior	1 (1)	7 (10)	1 (3)	1 (13)	0 (0)	6 (10)
21–28 days prior	3 (3)	3 (4)	0 (0)	0 (0)	3 (4)	3 (5)
No use within 28 days	92 (93)	15 (22)	31 (97)	2 (25)	61 (91)	13 (21)
Cocaine (total)	154 (92)	14 (8)	40 (100)	0 (0)	114 (89)	14 (11)
1–3 days prior	0 (0)	4 (29)	0 (0)	0 (0)	0 (0)	4 (29)
4–15 days prior	5 (3)	5 (36)	4 (10)	0 (0)	1 (1)	5 (36)
16–28 days prior	2 (1)	3 (21)	1 (3)	0 (0)	1 (1)	3 (21)
No use within 28 days	147 (95)	2 (14)	35 (88)	0 (0)	112 (98)	2 (14)

^aPercents are row percents for total use, and column percents for time intervals.