Published in final edited form as:
*J Drug Issues*. 2005 ; 35(4): 917–940.

# The Variation in Arrestees' Disclosure of Recent Drug Use Across Locations, Drugs, and Demographic Characteristics

**Andrew Golub, Ph.D. [principal investigator]**,
*National Development and Research Institutes, Inc. Dr. Golub's research focuses on understanding drug use trends and their significance in context.*

**Hilary James Liberty, Ph.D. [principal investigator]**, and
*National Development and Research Institutes, Inc. He is currently overseeing an extensive meta-analysis of all published and many unpublished studies of illicit drug use disclosure.*

**Bruce D. Johnson, Ph.D. [director]**
*Institute for Special Populations Research at National Development and Research Institutes, Inc. In over 30 years of drug research, Dr. Johnson has studied and written about a wide range of drugs, drug markets, drug-related lifestyles, consequences of use, and drug policies.*

## Abstract

This study provides a comprehensive multivariate analysis of drug use disclosure among arrestees interviewed between 2000 and 2001 at 37 sites across the U.S. served by the Arrestee Drug Abuse Monitoring (ADAM) Program. Rates varied widely by drug and across sites. The marijuana disclosure rate varied from 68% in Fort Lauderdale to 93% in Spokane. The cocaine/crack disclosure rate varied from 28% in Chicago to 70% in Kansas City. Moreover, covariates of disclosure differed across drugs. This wide variation in disclosure suggests extreme caution be used when comparing self-reports of prevalence across drugs, locations, and individual characteristics – certainly at least for arrestees.

## Introduction

An extensive literature continually examines the prevalence of illicit drug use and its variation over time and across different subpopulations. Much of this literature depends on self-reports of use. However, self-reports of drug use reflect both the underlying prevalence of use and respondents' accurate reporting of that use. The prevalence of self-reported use underestimates prevalence to the extent that respondents do not report their use. Furthermore, comparisons of the use of different drugs (e.g., marijuana and heroin) or the use by different subpopulations (e.g., males and females) will be biased to the extent that some respondents are more willing to disclose use. Hence, there has been continual research into the extent of drug use disclosure and its covariates (for reviews, see Harrison, 1997, and Magura & Kang, 1996). Much of this validity literature has examined drug use among high-risk populations including persons in drug treatment and in the criminal justice system. Administrators and analysts associated with these and related agencies hold great interest in drug use within these populations.

This study set out to systematically document the variation in disclosure of drug use among American arrestees over time and across drugs, locations, and respondent characteristics. The

analysis was made possible by the extensive data collected by the Arrestee Drug Abuse Monitoring Program (ADAM, formerly the Drug Use Forecasting or DUF Program). Starting in 1987, the program obtained urine samples and self-reports of drug use from arrestees at numerous sites across the United States. Since January 29, 2004, the ADAM program has been on hiatus as a Federal cost-saving measure (National Institute of Justice [NIJ], 2004). The combined 1987-2001 public-release dataset contains data from over 400,000 arrestees, and typically more than half the respondents each year are detected as recent users of at least one illicit drug. Hence, the ADAM data provides much opportunity to analyze disclosure and its covariates among the illicit drug users that come to the attention of the criminal justice system. As an exploratory analysis, the project ran several logistic regressions to identify covariates of disclosure using the complete 1987-2001 ADAM dataset. These analyses are not reported here due to substantial methodological and interpretive difficulties associated with the results. However, that analysis provided an initial indication that interview year and site were two of the strongest covariates of disclosure.

This paper focuses on the massive variation in drug use disclosure across sites. It also examines variation across drugs and demographic characteristics. We prepared a separate paper on the impact of nondisclosure on drug use trends (Golub, Liberty & Johnson, 2005). Local policy makers primarily concern themselves with drug use and its associated problems in their jurisdictions. Hence, they tend to be interested in local data. The massive variation across locations reported in this paper suggests that they may be poorly served by national estimates for drug use disclosure. Moreover, the value of nationwide prevalence estimates based on self-report data may be questionable given the extent of nondisclosure and its geographic variation. For this analysis, we eliminated an important methodological challenge by using only the ADAM data collected in 2000 and 2001. Prior to 2000, the ADAM program collected a convenience sample of arrestees. Starting in 2000, the ADAM program implemented procedures to assure that estimates based on ADAM data were representative of arrestees passing through each site (ADAM, 2003; Hunt & Rhodes, 2001).

## Prior Literature

Self-reports and detected use (urinalysis) provide parallel indicators of recent use. Table 1 illustrates the four possible outcomes of the two indicators and introduces the terminology used in this paper. The major diagonal in Table 1 identifies the circumstances in which the two indicators corroborate each other as either a confirmed nonuser or a confirmed user. Some authors describe detected users that do not report recent use as concealing or denying their behavior. We take the view that arrestees do not have to report their drug use. Hence, we refer arrestees whose data fall in the upper right corner of Table 1 as nondisclosers. We refer to detected nonusers that report recent use (the lower left corner of Table 1) as overreporters.

There are many more single number measures used to summarize the findings of a two-by-two comparison than there are cells in Table 1. The best choice of a measure depends upon how the findings will be used. This study primarily analyzed the disclosure rate calculated as the percentage of detected users that self-reported use (confirmed users ÷ all detected users). The disclosure rate can be viewed as the sensitivity of the self-report indicator, presuming the urinalysis test accurately measures recent use.

We developed a fairly comprehensive collection of disclosure studies published since 1990 as part a larger meta-analysis of the validity of self-reported drug use. Table 2 provides a summary of published disclosure rates for various drugs based on ADAM or similar arrestee data. The detection characteristics of the EMIT urinalysis test used by ADAM vary across drugs (ADAM, 2003). The test can detect use of marijuana (or hashish) up to 30 days after use depending on the frequency of use. Hence, detected marijuana use is compared to self-reported use in the past 30 days in Table 2 and throughout most of this paper. For cocaine, heroin,

methamphetamine, and PCP, the detection window for the ADAM urinalysis test is a few days (ADAM, 2003). Accordingly, self-reports of use in the past two to three days are compared to detected use for these drugs. The ADAM test does not distinguish between recent use of powder cocaine and crack, although the questionnaire does. Detected use of cocaine was compared to a self-report of either powder cocaine or crack (hereafter cocaine/crack).

Overall, the published disclosure rates varied substantially across drugs, across studies, and between adult and juvenile arrestees. The variation across studies served as an important precedent to this study, suggesting there may be substantial variation in disclosure rates across locations. However, studies varied according to years analyzed which could also account for much of the variation. Disclosure rates for adult arrestees were often close to about half, indicating that detected users were about equally likely to disclose their use or not. However, most studies found higher marijuana disclosure rates (48% to 92%). Several studies also found higher heroin disclosure rates (45% to 80%). The cocaine/crack disclosure rate (45% to 62%) was nearly always close to one half. Lu, Taylor, and Riley (2001) were the only authors to report methamphetamine results; they found the methamphetamine disclosure rate (56%, not listed in Table 2) was close to one half. Studies found much lower PCP disclosure rates (11% to 33%). Juvenile arrestees had high marijuana disclosure rates (58% to 78%) and low PCP disclosure rates (29% to 36%) just like their adult counterparts. Juvenile arrestees had lower cocaine/crack (16% to 34%) and heroin (5% to 33%) disclosure rates than adult arrestees.

Some of the studies listed in Table 2 also examined covariates of disclosure using logistic regression. The next two tables provide a summary of odds ratios (hereafter ORs) associated with marijuana disclosure (Table 3) and cocaine/crack disclosure (Table 4). Not all prior studies examined all of these factors. In these cases, the appropriate cells in Tables 3 and 4 were left blank. To provide a contrast, estimated ORs that were not statistically significant are indicated with a double hyphen, "--".[1] Several studies also looked at correlates of heroin disclosure. However, the number of detected heroin users analyzed in each study was relatively small: Golub, Johnson, Taylor, and Liberty (2002) analyzed data for n = 105 detected heroin users; Gray and Wish (1999), n = 169; Hser (1997), n = 238; Lu and colleagues (2001), n = 156. As a result, nearly all the covariates of heroin disclosure were not statistically significant even though many of the ORs were above 2.0 or below 0.5. These ORs could represent potentially substantial differences that the analyses were unable to identify as significant due to a lack of statistical power. Lu and colleagues also analyzed covariates for methamphetamine disclosure with a sample of n = 164 detected users with a similar lack of significant findings.

The logistic regression findings when statistically significant were generally consistent across prior studies. However, there were strong differences between covariates of cocaine/crack and marijuana. Marijuana disclosure (Table 3) decreased with age while one study found cocaine/crack disclosure (OR = 1.05 for each year, Table 4) increased with age. Black arrestees were as likely as White arrestees to disclose marijuana use (Table 3) but substantially less likely to disclose cocaine/crack use (ORs = 0.2 to 1.0[2], Table 4). One study found that Hispanic arrestees were more likely to disclose their marijuana use (OR = 1.8, Table 3), but no studies found any variation associated with cocaine/crack disclosure (Table 4). Several studies (but not all) found that females were more likely to disclose marijuana use (OR = 1.0-2.0, Table 3), and one study also found higher rates for cocaine/crack disclosure among females (OR = 2.4, Table 4). Arrest for a drug offense was sometimes associated with higher disclosure of marijuana use (OR = 1.0-1.8, Table 3) and once with cocaine/crack use (OR = 2.2, Table 4). One study found that

[1]Some prior studies included other factors that we excluded from Tables 3 and 4. Additionally, we modified the format of results to provide a uniform presentation across studies. Hosmer & Lemeshow (1989) describe how to derive alternative representations of logistic regression models.

[2]We report a best estimate for the OR of 1.0 whenever the Wald Statistic was not statistically significant. These ORs are identified with double hyphens in Tables 3 and 4.

report of a prior arrest was associated with a higher rate of disclosure for both marijuana (OR = 1.5, Table 3) and cocaine/crack (OR = 1.8, Table 4). Another study, however, found a lower rate of marijuana disclosure (OR = 0.4, Table 3) among those that reported a prior arrest.

A few prior studies examined variation in disclosure rates across ADAM sites (detailed findings not reproduced here). Wish, Gray, Sushinsky, Yacoubian, and Fitzgerald (2000) reported that cocaine/crack disclosure rates ranged from 25% to 65% across sites (1995 to 1996) among male arrestees and from 32% to 73% among female arrestees. In a series of logistic regression analysis for disclosure among 1999 arrestees across six sites, Lu and colleagues (2001) found significant variation in crack (ORs = 0.4-1.0) and marijuana (ORs = 0.4-1.2) disclosure.

Only one of the prior disclosure studies examined variation over time. In a series of logistic regression analyses for disclosure among 1992-1996 juvenile arrestees, Kim, Fendrich & Wislar (2000) found that 1996 arrestees were substantially less likely to disclose use of marijuana (OR=0.5) than arrestees in previous years; the variation in cocaine/crack disclosure across years was not significant.

This study advances the literature on drug use disclosure in two ways. First, it examines covariates of disclosure among arrestees using a very large sample. This provides for highly reliable estimates. Second, it analyzes variation across 37 different sites to provide insight into the extent to which findings from one study might be generalizable to other locations. Our analysis pertains most directly to the study of drug use among arrestees. However, similar problems may affect the study of drug use within the general population. Fendrich, Johnson, Wislar, Hubbell, & Spiehler (2004) collected self-report and urinalysis data from 627 Chicago residents in 2001. They compared urinalysis results with self-reports of any use in the past 30 days. Most detected marijuana users disclosed their use (71%). However, the disclosure rates for cocaine/crack (30%) and heroin (25%) were even lower than observed in most of the studies of arrestees (Table 2).

## Stigma

Del Boca and Noll (2000) describe how inaccurate survey responses emerge from four components of a complex socio-psychological interaction: respondent characteristics (e.g., need for approval, sobriety, anxiety, fatigue); task characteristics (e.g., understandability of questions, salience of information, confidentiality, interviewer rapport, length of survey); motivation (e.g., denial, threat of embarrassment); and cognition (e.g., attentiveness, comprehension). This model organizes a wide range of potential causes for nondisclosure (and overreporting). Most of the studies of arrestee drug use disclosure referenced in Table 2 focus on stigma or social desirability to explain why disclosure rates are lower for some illicit drugs and some subpopulations. Compared to marijuana, powder cocaine, crack, and heroin have a stronger psychopharmacological effect and are more likely to cause dependence (Grinspoon & Bakalar, 1997). Hence, it seems reasonable to expect that marijuana use would be less stigmatized and that disclosure rates would be higher. Some groups may be more concerned about social stigma than others. Minorities, females and juveniles experience reminders that we live in a society dominated by whites, males and adults. Consequently, they may be more aware of how their responses will be perceived and perhaps less trusting of social institutions such as surveys, despite assurances of anonymity. Hence, they may be less likely to disclose their illicit drug use.

The use of stigma theory in this manner is at best an ad hoc explanation analysts turn to after the fact. In these studies, race/ethnicity, gender, and age variables serve as proxies for stigma, because the studies do not explicitly include measures of stigma. Most central to our purposes, the ADAM questionnaire does not include any such questions. Consequently, we do not include

in our analysis any direct measures of stigma nor of any other psycho-social factors that may facilitate inaccurate responses. We return to this issue in the Discussion section.

## Methods

### Study Sample and Participation

This analysis examined the ADAM adult arrestee data collected 2000-2001 from 37 sites (see Table 7 for a listing) and juvenile arrestee data collected from nine sites.[3] During this period, ADAM randomly selected adult male arrestees and calculated post-sampling stratification weights to account for any differential probability of inclusion associated with time of arrest and booking facility (Hunt & Rhodes, 2001). The data for adult female and juvenile arrestees represent convenience samples based on the population available when the ADAM interviews took place.[4] Adult female and juvenile arrestees were assigned initial sample weights of 1.0 reflecting the fact that the sampling plan provided no information as to which arrestees were more (or less) likely to have been sampled.

The ADAM 2000-01 public-use data files provide basic information about age, race/ethnicity and arrest charge for all potential ADAM adult arrestee respondents, whether they agreed to participate or not. Overall, 95,749 adult arrestees were selected as potential ADAM participants according to systematic sampling procedures. However, some were unavailable at the time of the ADAM interview and others declined to participate. Overall, 53,538 adult arrestees participated in the program, 56% of the candidate pool. Many of these non-participants were unavailable for the interview. ADAM (2003) reported a median refusal rate of 19% across sites interviewing adult male arrestees in 2000, which is much lower than the 44% non-participation rate we calculated for the 2000-01 adult male and female arrestees. Among adult arrestee participants, 89% provided urine samples yielding the final sample of 47,724 adult ADAM-arrestees interviewed 2000-01 included in this analysis. To this, we added 4,474 juvenile ADAM-arrestees interviewed 2000-01 that provided urine.

Sample weights were adjusted to control for any potential bias due to non-participation among adult arrestees. We used logistic regression to identify any systematic variation in non-participation associated with age, race/ethnicity and arrest charge for data from each site, in each year and for male and female adult arrestees separately—as long as the site-year-gender subsample contained at least 50 cases. To avoid an over reliance on any one case, no individual weight was increased more than 10-fold. Sample weights were further adjusted so that adult female arrestees accounted for 20% in each year at each site that collected data from at least 50 adult male and 50 adult female arrestees. This modification was designed to help assure that analyses were not unduly biased by variation in the proportion of adult female arrestees participating in ADAM across sites and across years. The Federal Bureau of Investigation (FBI)

[3]Several sites did not collect data from adult male and adult female arrestees in both years including the following: Atlanta (2000 only), Ft. Lauderdale (2000 only), Houston (2000 only), Kansas City (2001 males only), Los Angeles (2000 females only), Miami (2000 males only), Minneapolis (2000-01 males and a few 2000 females), San Antonio (2000-01 males and very few females 2000-01), Spokane (2000-01 males and a few 2000 females). The ADAM program collected data in all five New York City boroughs during the first quarter of 2000. Subsequently the program collected data only in Manhattan. The data from the Bronx, Brooklyn, Queens, and Staten Island were excluded from this analysis. The ADAM program collected juvenile arrestee data in Birmingham, Cleveland (males only), Denver, Los Angeles (2000 only), Phoenix. Portland, San Antonio, San Diego, and Tucson.

[4]We included the adult female and juvenile data so that the study could estimate differences in disclosure across gender and age in a multivariate analyses. Calculations based on the adult male sample will provide unbiased estimates for the target population of adult male arrestees in 2000-01. Parameter estimates for gender and juvenile age could be biased if two conditions prevail: 1) the samples of adult female and juvenile arrestees systematically differed from the target populations, and 2) the factors by which they differed were also associated with differences in disclosure. Any such bias might actually be controlled by the inclusion of other potential covariates in the multivariate model of disclosure. Similar to our treatment of adult female and juvenile arrestees, we combined data across sites for the multivariate analysis to estimate the variation across sites controlling for other characteristics.

estimated that females comprised 22% of all arrestees nationwide in 2000 (FBI, 2002) and 23% in 2001 (FBI, 2001) as part of their Uniform Crime Reporting (UCR) Program.

## Measures

For this analysis, self-reports of recent drug use were compared to urinalysis results for marijuana, cocaine/crack, heroin, methamphetamine, methadone, and PCP. The detection characteristics of the EMIT urinalysis test used by ADAM vary across drugs (ADAM, 2003). The EMIT test can detect use of marijuana (or hashish) up to 30 days after use depending on the frequency of use. The test can detect the use of cocaine/crack and opiates within the past two to three days. The most common opiate used by arrestees has been heroin, so we refer to "detected opiate/heroin use" in this paper. The EMIT test can detect amphetamine use within two to four days. ADAM employs a GC/MS test to confirm detected amphetamine use and to identify whether methamphetamine was consumed. The EMIT test can detect use of methadone in the last two to four days and PCP in the last three to eight days.

There was a slight change in the ADAM questionnaire from 2000 (ADAM, 2001) to 2001 (ADAM, 2002). In 2000, respondents were asked, "During the past two days, on how many days did you use [name drug]?" In 2001, the question pertained to the past three days. Respondents were identified as self-reported users if they reported use on any of the past two or three days for each of the drugs, except marijuana. Respondents were asked separate questions about recent use of powder cocaine and crack. Arrestees that reported use of either were designated self-reported cocaine/crack users. This comparison provided a fairly good match between the self-report look-back window and urinalysis detection window for cocaine/crack, heroin, methamphetamine, and methadone. For PCP, the urinalysis detection window was potentially longer than the self-report look-back window, which could potentially have caused underreporting of use. For marijuana, the study used self-report of any use in the past 30 days. For less frequent marijuana users, the urinalysis test has a shorter detection window, which could result in overreporting of use.

## Data Analysis

This study primarily examined variation in disclosure rates. However, we anticipated that the findings might be put to a variety of uses by different readers. So, we provide all four table cells (see Table 1) to allow subsequent analysts to calculate the measure of their choosing from our study. We also provide Kappa statistics (calculated as K = [observed agreement − expected agreement]/[l − expected agreement]), a measure widely used in the self-report validity literature. Kappa reflects both the nondisclosure and overreporting rates, simultaneously. In our study, however, nondisclosure and overreporting represent two very different types of survey response behaviors potentially based on very different motivations. Drug use is a sensitive subject, particularly among arrestees facing possible sanctions by the criminal justice system. Hence, nondisclosure can represent a prudent behavior, despite assurance by interviewers that all responses will be used for scientific research only. On the other hand, overreporting can result from bragging or exaggeration. Hence, the covariates of each behavior may differ substantially. We provide overreporting rates by drug calculated as the percentage of detected nonusers that self-reported use (overreporters ÷ all detected nonusers). We do not examine covariates of overreporting because these rates were relatively small.

We used logistic regression to measure the extent to which disclosure of each drug varied across arrestee characteristics obtained by ADAM. Logistic regression has the desirable characteristic of estimating the variation associated with each independent variable after controlling for all other variables included in the analysis (Hosmer & Lemeshow, 1989). Each independent variable was coded as a series of dummy variables corresponding to its various categories. A reference level was chosen for each independent variable corresponding to either the lowest

level or the most common category. The Wald statistic was used to test whether the variation explained by each independent variable was statistically significant and as a rough measure of its relative importance.

We included age, race/ethnicity, and gender as independent variables in our analysis based on prior research that suggested disclosure rates can vary across these basic demographic factors, possibly because of different experiences of stigma associated with drug use. We included juvenile arrestees in this analysis in order to identify variation in disclosure across a wider range of ages. We excluded juvenile arrestees from overall estimates of disclosure rates and from estimates of disclosure rates by site. It was unclear how to weight juvenile arrestees for these purposes, especially given that most sites had not surveyed juveniles. Juvenile arrestees were asked to self-identify their race/ethnicity as White, Black, Hispanic, or other. Adult arrestees were asked about Hispanic ethnicity separately from race. In order to combine adult and juvenile arrestees, adult Hispanic arrestees were identified as Hispanic, regardless of whether they designated their race as White, Black, or other.

We hypothesized that disclosure rates could vary substantially across sites for a wide range of reasons, including variation in police-community relations and variation in community's attitudes towards illicit drug use. Top arrest charge was included because the reason for an arrest could affect a person's willingness to disclose sensitive information. Arrest charges were categorized as drug possession, drug sales, property index, violent index, and less serious. The FBI designated several of the most serious and commonly reported offenses as index offenses and has tracked their prevalence since the establishment of the UCR program in 1929 (2002). The property index offenses include burglary, larceny, auto theft, and arson. The violent index offenses include murder, rape, robbery, and aggravated assault. All other charges were included in the “less serious” offense designation. Some of the most common less serious offenses were DWI and other traffic offenses, probation/parole violation, domestic violence, disturbing the peace, and trespassing. Self-report of a prior arrest was included as a possible covariate. Prior studies found mixed results (see Tables 3 and 4).

## Results

### Disclosure Rates by Drug

Table 5 indicates that disclosure rates varied substantially across drugs. Adult arrestees were most likely to disclose recent marijuana use (82%) followed by methadone (69%). The disclosure rates for cocaine/crack, heroin, and methamphetamine were all about one half (48% to 58%). PCP (22%) had by far the lowest disclosure rate. We developed three post hoc potential explanations for the low PCP disclosure rate: longer detection window, greater stigma, and unawareness of use. In the end, none seemed completely satisfactory. Many detected PCP users could have used within the last four to eight days, resulting in a positive urine test and a correct self-report of nonuse within the last two to three days. Alternatively, PCP use may carry a particularly substantial stigma, even more than heroin or crack. This stigma does not seem to have a basis in pharmacology. PCP has a pronounced effect and substantial risks for misuse. However, our personal subjective estimate is that the risks associated with use of PCP are not that much greater than those for heroin or crack and might even be less. Perhaps the stigma associated with PCP use is related to its lack of renown. PCP users may be more afraid of the reaction of others. Heroin and crack users have a more established reputation and may be more accustomed to others' reactions.

Lastly, many detected PCP users may have been unaware of their PCP use. Holland, Nelson, Ravikuma, and Elwood (1998) noted that many emergency room patients reported smoking “wet” or embalming-fluid soaked marijuana. They presented their observations of patients' behavior and some lab evidence to suggest that their marijuana had been adulterated with PCP.

Their finding led us to hypothesize that many of the detected PCP users among ADAM arrestees may have been smoking marijuana and were unaware that they were also consuming PCP. According to this explanation, we might expect that detected PCP users also recently consumed marijuana. We might further expect that those that had not used marijuana may have consumed PCP knowingly and consequently be more likely to disclose recent PCP use. This hypothesis was partially confirmed and partially disaffirmed. Most detected PCP users had also recently used marijuana (73%). However, those detected PCP users that had not used marijuana recently were about as likely to disclose their recent PCP use (28%) as those detected as recent marijuana users (20%). The difference in their PCP disclosure rates was only marginally significant; a z-test was significant at the $\alpha = .05$ but not the $\alpha = .01$ level.

As expected, the overreporting rate was small (1% or less) for each drug except marijuana (19%, based on past 30 day look-back window). The rate of detected use for cocaine/crack, opiate/heroin, methamphetamine, and PCP greatly exceeded the rate of self-reported use because of the relatively low disclosure rates. For methadone, the rate of self-reported use nearly equaled the detected prevalence. The overall prevalence of methadone use was so low that overreporting in effect compensated for nondisclosure.

The particularly high marijuana overreporting rate can be partially attributed to a longer look-back window. For less frequent marijuana users, the urinalysis detection window can be as short as seven days (ADAM, 2003). Thus, less frequent users might have accurately reported they used in the last eight to 30 days while the urinalysis might have accurately detected they had not used in the last seven days. To test this potential explanation, we recalculated the overreporting rate using a look-back window of two to three days and found a marijuana overreporting rate of 7%. Thus, well over half the estimated overreporting of marijuana use might be due to a variation in the detection window for the urinalysis test.

Several prior studies have identified that recent drug users (as detected by urinalysis) are more likely to self-report use that occurred further in the past (Gray & Wish, 1999; Harrison, 1995; Kim, Fendrich, & Wislar, 2000). Consistent with these previous findings, Table 5 indicates that self-reported use among detected users increased substantially with the length of the look-back window. Nearly all detected marijuana users (95%) reported some lifetime use. Self-reports of lifetime use for cocaine/crack, heroin and methamphetamine (70% to 87%) were not quite as high as for marijuana but were much higher than self-reports of use in the past two to three days (49% to 58%). This provides some evidence that responses to questions regarding previous drug use may be more valid than those for current drug use. However, this analysis does not represent a true test of long-term disclosure rates because only recent users are detected by urinalysis. This calculation does not identify the disclosure by former users, persons that had used in the past but had not used recently.

## Covariates Of Disclosure

Table 6 presents the covariates of disclosure. For each drug, the largest amount of variation (largest Wald statistics) was associated with site, except for methamphetamine where it was the second largest. The next section of the findings examines variation across sites in detail. The remainder of this section reviews the most significant covariates of disclosure other than site based on large Wald statistics, ORs much different from 1.0, and consistency across models for disclosure of different drugs.

The association between disclosure and age differed substantially across drugs and was particularly substantial for marijuana and cocaine/crack (Wald = 208.5 and 302.2, respectively). Disclosure of marijuana use decreased with age (the lowest rates were among arrestees age 40 and above, OR = 0.5), while disclosure of cocaine/crack use increased with age (the highest rates were among arrestees age 40 to 49, OR = 2.0). This neatly parallels prior

research on drug use trends among arrestees (Golub & Johnson, 2001). Persons born since 1970 have been more likely to use marijuana and much less likely to use crack than their predecessors. Indeed, ethnographic data indicate that in the 1990s crack became heavily stigmatized among inner-city youths (Furst, Johnson, Dunlap, & Curtis, 1999). Heroin and methamphetamine disclosure rates both peaked among arrestees age 30 to 39 (maximum OR = 1.1 to 1.6), with lower rates among younger and older arrestees.

Race/ethnicity was associated with substantial variation in disclosure for methamphetamine (the Wald statistic for race/ethnicity of 59.7 was nearly as large as the Wald statistic for top charge of 83.2) and smaller variation for marijuana, cocaine/crack, and heroin (Wald = 25.6 to 50.5). White arrestees were much more likely to disclose recent use of methamphetamine (OR = 2.5) than were black arrestees and somewhat more likely to disclose use of marijuana, cocaine/crack, and heroin (OR = 1.2 to 1.3). Hispanic arrestees were more likely than Black arrestees to disclose use of heroin (OR = 1.8) and methamphetamine (OR= 1.6), but not marijuana and cocaine/crack (OR = 0.9).

The variation associated with gender was only significant for cocaine/crack and methadone. Female arrestees were more likely to disclose both (OR = 1.6 to 2.1).

Top arrest charge proved to be highly associated with disclosure for methamphetamine where it explained the largest amount of variation (Wald = 83.2) and to a lesser extent for each of the other drugs except methadone (Wald not significant). Arrestees charged with drug offenses (OR = 1.0 to 2.6) were generally more likely than those charged with less serious offenses to disclose recent use of each drug except methadone. Arrestees for property index offenses (OR = 1.2 to 1.8) had higher disclosure rates than those charged with less serious offenses for each drug except PCP (OR = 0.5) and methadone. Arrestees for violent index offenses (OR = 0.9 to 1.1) had comparable rates as those charged with less serious offenses for each drug except PCP (OR = 0.6).

Arrestees that did not report having had a prior arrest were substantially less likely to disclose use of each drug (OR = 0.4 to 0.6) except for methadone and PCP (Wald not significant).

## Variation Across Sites

Table 7 presents the disclosure rates (and Kappa) for each drug for adult arrestees from each ADAM site. In general, the disclosure rates by site for the various drugs were correlated. The strongest correlation was between disclosure rates for marijuana with cocaine/crack ($\rho = .68$) followed by marijuana with methamphetainine ($\rho = .62$), cocaine/crack with methamphetamine ($\rho = .51$), and cocaine/crack with heroin ($\rho = .39$). Correlations of heroin with marijuana and heroin with methamphetamine were not statistically significant. Too few sites had enough detected methadone or PCP cases to allow for a meaningful analysis of correlations.

Figure 1 presents a scatter plot of the disclosure rates for marijuana and cocaine/crack. The diagonal line indicates the results of a regression analysis predicting each site's cocaine/crack disclosure rate from its marijuana disclosure rate.[5] Kansas City had the highest rate of disclosure for marijuana (91%) as well as one of the highest rates for cocaine/crack (70%). Four other sites (Honolulu, Seattle, Spokane, and Tucson) had particularly high rates for both marijuana (86% to 93%) and cocaine/crack (56% to 62%) as well as above median rates for heroin (57% to 62%) and median or above for methamphetamine (57% to 75%) (see Table 7).

Several sites (Atlanta, Ft. Lauderdale, Indianapolis, Laredo, Miami, and San Antonio) had particularly low disclosure rates for marijuana (68% to 74%) and cocaine/crack (35% to 41%).

[5]The estimated model was (cocaine/crack disclosure rate) = −0.4 + 1.0 × (marijuana disclosure rate).

Indianapolis (17%) and Laredo (51%) also had relatively low disclosure rates for heroin, whereas San Antonio (67%) had one of the highest rates for heroin (see Table 7).

Several sites exhibited relatively high rates of disclosure for one drug but more moderate rates for other drugs. Houston had a low disclosure rate for cocaine/crack (31%), the lowest rate for heroin (3%), but a relatively more moderate rate for marijuana (78%) (see Table 6). Chicago had a low disclosure rate for cocaine/crack (28%), but a relatively more moderate rate for marijuana (79%), and one of the highest rates for heroin (64%). San Jose had a low disclosure rate for cocaine/crack (39%), but a relatively high rate for marijuana (87%), and a rate just below the median for both heroin (51%) and methamphetamine (56%).

## Discussion

This analysis raises serious doubts about the validity of self-reported drug use, at least among arrestees. Prior research suggests that similar problems may exist with other high-risk populations (Magura & Kang, 1996) and with general population samples (Fendrich et al., 2004). Accordingly, we strongly advocate that researchers use biological indicators of recent drug use whenever possible. Self-reported rates of drug use simultaneously reflect the underlying rate of use and the rate of disclosure, which complicates the interpretation of findings. This study replicated previous findings that disclosure rates on the order of one half are not uncommon.

There are several possible ways to deal with the problem of nondisclosure: (1) correct for nondisclosure by dividing the rate of self-reported drug use by an estimated non-disclosure rate, (2) limit analyses of self-report data to comparisons in use across drugs and subpopulations, and (3) limit analyses of self-report data to studies of drug use characteristics such as variation in frequency of use or mode of consumption. An understanding of the nature of inaccurate responses could potentially support successful implementation of the first or second strategy. We would probably need more research into the nature of response errors as well as development of techniques for its measurement to support these efforts. One approach is to ask respondents about their willingness to disclose use. Johnston, O'Malley, and Bachman (2002, p. 59) reported that, “The great majority of [Monitoring the Future or MTF] respondents, when asked, say they would answer such questions honestly if they were users.” Further analyses could potentially identify how respondents' willingness to disclose varies across drugs and subpopulations. This information could then potentially yield unbiased estimates of prevalence rates as the self-reported rate of use divided by the appropriate disclosure rate.

However, the findings of this study suggest that a comprehensive model of disclosure would be complicated and of limited generalizability. This comprehensive analysis found that disclosure rate varied substantially across drugs from a low of 22% for PCP up to a high of 82% for marijuana. This militates against the second strategy of using self-report rates for comparisons of use for various drugs. It also complicates the use of a correction term as suggested by the first strategy. At a minimum, the first strategy requires different estimates of the disclosure rate for each drug. However, this study also found that the disclosure rate sometimes (but not always) varied substantially across age, race/ethnicity, gender, arrest charge, and self-report of a prior arrest. This militates further against using self-report data for comparing use across various subpopulations. It also further complicates any attempt to correct estimates for nondisclosure. Different correction terms would be needed for different drugs and different subpopulations for each drug.

The final complication is that disclosure varies widely across locations, at least among arrestees. In this study, the marijuana disclosure rate varied from a low of 68% in Fort Lauderdale to a high of 93% in Spokane. The cocaine/crack disclosure rate varied from 28%

in Chicago to 70% in Kansas City. This variation could be attributable to a wide variety of differences across sites including, among others, the nature of the holding facility and the privacy it provides, the nature of the arrest experience and the hostility it engenders, the nature of police-community relations, the extent to which illicit drug users are prosecuted and the level of sanctions, and simply differences in communities' disapproval of various drugs. Hence, any disclosure rates based on data from one location might not necessarily apply to other locations. Similarly, there appears to be little justification for using national disclosure rates such as the 82% for marijuana and 48% for cocaine/crack when interpreting location-specific findings. Any correction for nondisclosure would need to be specific for each drug, each subpopulation, and each location. Moreover, these correction terms might even change over time.

Accordingly, we return to our original recommendation of using biological indicators of drug use when possible, certainly when studying arrestees. We also recommend using the third strategy described above when practical – limiting the use of self-report data to exploring the characteristics of drug use habits among users. This strategy is justified to the extent that disclosers provide accurate answers to these additional questions and that these disclosers' behaviors do not differ substantially from those of nondisclosers. For example, self-report data could be used to analyze the proportion of cocaine/crack users that smoke crack as opposed to snorting powder cocaine. Self-report data might also provide insight into whether marijuana users tend to smoke on a daily or less frequent basis. Unfortunately, there is very limited evidence to indicate whether arrestees provide accurate responses to these questions or whether a nonresponse bias pertains.

Drug researchers have been fortunate that the ADAM program collected urinalysis data. These data provide an objective measure of recent drug use among arrestees not subject to the nondisclosure vagaries associated with self-report data. Two of America's most widely cited drug use surveys do not currently collect biological data: the MTF survey of high school students (Johnston, O'Malley, & Bachman, 2002) and the NSDUH survey of household residents (Substance Abuse and Mental Health Services Administration [SAMHSA], 2003). The problems that affect the validity of self-reported drug use among arrestees could likely also pertain to studies of the general population.

## Acknowledgments

This research was supported by a grant from the National Institute on Drug Abuse (DA011356). The opinions expressed in this report do not represent the official position of the U.S. Government, the National Institute on Drug Abuse, nor National Development and Research Institutes.

## References

Arrestee Drug Abuse Monitoring (ADAM). 2000 Arrestee Drug Abuse Monitoring (ADAM) program in the United States: Codebook and data collection instrument. ICPSR; Ann Arbor, MI: 2001.

Arrestee Drug Abuse Monitoring (ADAM). 2001 Arrestee Drug Abuse Monitoring (ADAM) program in the United States: Codebook and data collection instrument. ICPSR; Ann Arbor, MI: 2002.

Arrestee Drug Abuse Monitoring (ADAM). 2000 Arrestee Drug Abuse Monitor: Annual report. National Institutes of Justice; Washington, DC: 2003. NCJ 193013Retrieved April 13, 2004, from www.adam-nij.net

Del Boca F, Noll JE. Truth or consequences: The validity of self-report data in health services research on addictions. Addiction 2000;95(Supplement 3):S347–S360. [PubMed: 11132362]

Federal Bureau of Investigation (FBI). Crime in the United States 2000: Uniform crime reports. 2001. Retrieved April 13, 2004, from www.fbi.gov/ucr

Federal Bureau of Investigation (FBI). Crime in the United States 2001: Uniform crime reports. 2002. Retrieved April 13, 2004, from www.fbi.gov/ucr

Fendrich M, Johnson T, Wislar JS, Hubbell A, Spiehler V. The utility of drug testing in epidemiological research: Results from a general population survey. Addiction 2004;99(2):197–208. [PubMed: 14756712]

Fendrich M, Xu Y. The validity of drug use reports from juvenile arrestees. The International Journal of the Addictions 1994;29(8):971–985. [PubMed: 7960302]

Furst RT, Johnson BD, Dunlap E, Curtis R. The stigmatized image of the crack head: A sociocultural exploration of a barrier to cocaine smoking among a cohort of youth in New York City. Deviant Behavior 1999;20:153–181.

Golub A, Johnson BD. Cohort changes in illegal drug use among arrestees in Manhattan: From the heroin injection generation to the blunts generation. Substance Use and Misuse 1999;34(13):1733–1763. [PubMed: 10540971]

Golub, A.; Johnson, BD. The rise of marijuana as the drug of choice among youthful arrestees. National Institute of Justice Research in brief; 2001. NCJ 187490. Retrieved April 13, 2004, from www.adam-nij.net

Golub, A.; Johnson, BD. Arrestee Drug Abuse Monitoring (ADAM) Program. In: Levinson, D., editor. Encyclopedia of crime and punishment. 1. Sage; Thousand Oaks, CA: 2002. p. 62-64.

Golub A, Johnson BD, Taylor A, Liberty HJ. The validity of arrestees' self-reports: Variations across questions and persons. Justice Quarterly 2002;19(3):101–126.

Golub A, Liberty H, Johnson BD. 2005 Inaccuracies in self-reports and urinalysis tests: Impacts on monitoring marijuana-use trends among arrestees. Journal of Drug Issues 35(4):915–946.In press

Gray TA, Wish ED. Correlates of underreporting recent drug use by female arrestees. Journal of Drug Issues 1999;29(1):91–106.

Grinspoon, L.; Bakalar, JB. Marihuana. In: Lowinson, JH.; Ruiz, P.; Millman, RB.; Langrod, JG., editors. Substance abuse: A comprehensive textbook. 3rd ed.. Williams and Wilkins; Baltimore, MD: 1997. p. 199-206.

Harrison, L. Journal of Drug Issues. 25. The validity of self-reported data on drug use; 1995. p. 91-111.

Harrison, L. The validity of self-reported drug use in survey research: An overview and critique of research methods. In: Harrison, L.; Hughes, A., editors. The validity of self reported drug use: Improving the accuracy of survey estimates. NIDA; Washington, DC: 1997. p. 17-36.National Institute on Drug Abuse Research Monograph 167

Holland JA, Nelson L, Ravikumar PR, Elwood WN. Embalming fluid soaked marijuana: New high or new guise for PCP? Journal of Psychoactive Drugs 1998;30(2):215–219. [PubMed: 9692385]

Hosmer, DW.; Lemeshow, S. Applied logistic regression. Wiley; New York: 1989.

Hser, YI. Self-reported drug use: Results of selected empirical investigations of validity. In: Harrison, L.; Hughes, A., editors. The validity of self reported drug use: Improving the accuracy of survey estimates. NIDA; Washington, DC: 1997. p. 320-343.National Institute on Drug Abuse Research Monograph 167

Hunt, D.; Rhodes, W. Methodology guide for ADAM. National Institute of Justice; Washington, DC: 2001. Retrieved April 13, 2004, from www.adam-nij.net

Johnston, LD.; O'Malley, PM.; Bachman, JG. Monitoring the Future national survey results on drug use, 1975-2001: Volume I. Secondary school students. National Institute on Drug Abuse; Bethesda, MD: 2002. NIH Publication No. 02-5106

Johnston LD, O'Malley PM, Bachman JG. Correction to a recent article appearing in the Journal of Psychoactive Drugs. Journal of Psychoactive Drugs 2003;35(4):524.

Kim JYS, Fendrich M, Wislar JS. The validity of juvenile arrestees drug use reporting: A gender comparison. Journal of Research in Crime and Delinquency 2000;37(4):419–432.

Lu NT, Taylor BG, Riley KJ. The validity of adult arrestee self-reports of crack cocaine use. American Journal of Drug and Alcohol Abuse 2001;27:399–419. [PubMed: 11506259]

Magura S, Kang SY. Validity of self-reported drug use in high risk populations: A meta-analytical review. Substance Use and Misuse 1996;31(9):1131–1153. [PubMed: 8853234]

National Institute of Justice (NIJ). NIJ provides further information on ADAM Program decision. 2004. Retrieved April 13, 2004, from www.ojp.usdoj.gov/nij/pdf/adam_letter.pdf

Stephens RC, Feucht TE. Reliability of self-reported drug use and urinalysis in the drug use forecasting system. The Prison Journal 1993;73(34):279–289.

Substance Abuse and Mental Health Services Administration (SAMHSA). Results from the 2002 National Survey on Drug Use and Health: National findings. United States Department of Health and Human Services; Rockville, MD: 2003. Office of Applied Studies, NHSDA Series H-22, DHHS Publication No. SMA 03-3836

Wish ED, Gray T, Sushinsky J, Yacoubian GS Jr. Fitzgerald N. An experiment to enhance the reporting of drug use by arrestees. Journal of Drug Issues 2000;30(1):55–76.

Yacoubian GS, VanderWall KL, Johnson RJ, Urbach BJ, Peters RJ. Comparing the validity of self-reported recent drug use between adult and juvenile arrestees. Journal of Psychoactive Drugs 2003;35 (2):279–284. [PubMed: 12924751]

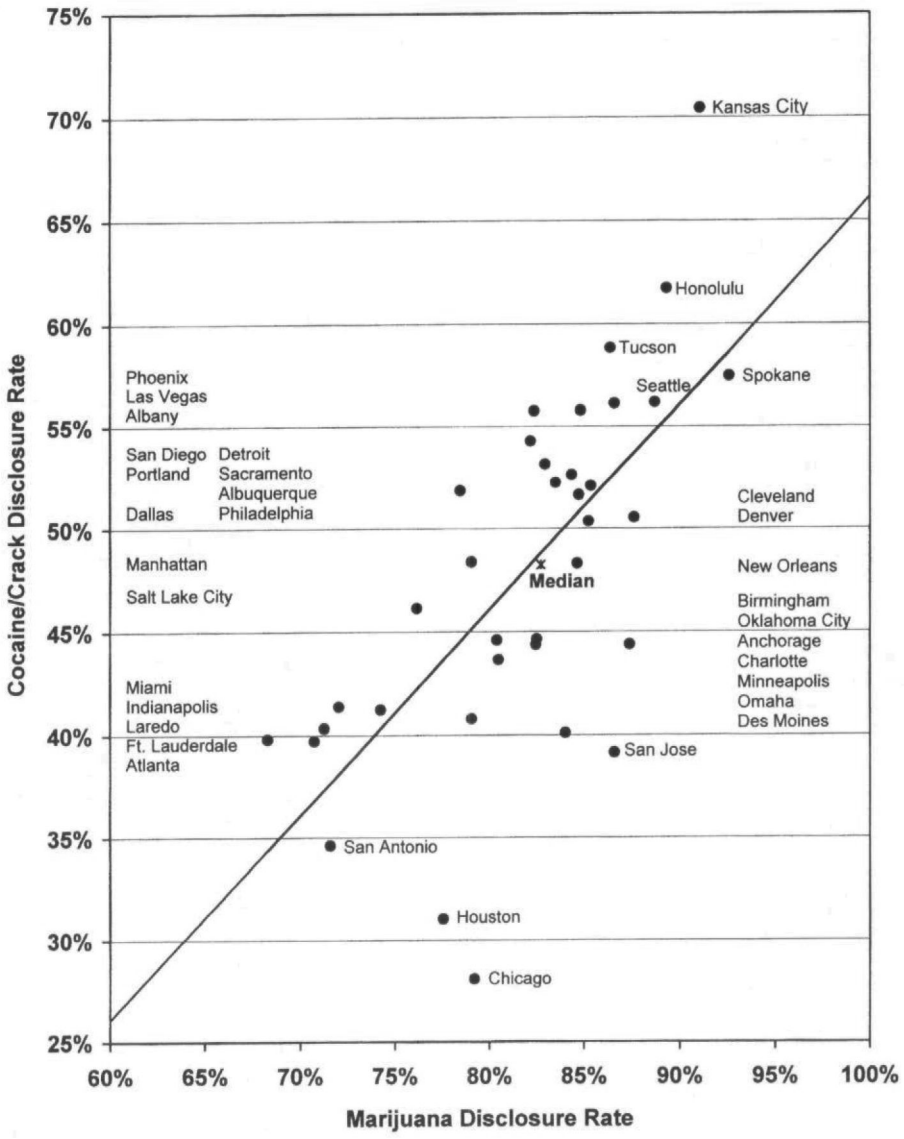


**Figure 1.**
Variation Across ADAM Sites in Marijuana and Cocaine/Crack Disclosure

**Table 1**

A Comparison of Self-Reported and Detected Drug Use

| | | Detected Use | |
|---|---|---|---|
| | | **No** | **Yes** |
| **Self-reported Use** | **No** | Confirmed nonuser | Nondiscloser |
| | **Yes** | Overreporter | Confirmed user |

**Table 2**

Prior Studies on Drug Use Disclosure With ADAM

| Authors | ADAM Subpopulation | Disclosure Rates | | | |
|---|---|---|---|---|---|
| | | Marijuana | Cocaine/Crack | Heroin | PCP |
| Harrison (1995) | 1989 | 55% | 48% | 56% | |
| Stephens & Feucht(1993) | 1989-93 Cleveland | 48%[ab] | 50%[b] | 45%[b] | 17%[b] |
| Harrison (1997) | 1991 | 53%[a] | 48% | 52% | |
| Hser (1997) | Los Angeles[c] | 77% | 62% | 74% | 33% |
| Gray & Wish (1999) | 1995 females Baltimore[c] | 92% | 59% | 80% | |
| Wish, et al. (2000) | 1995-96 Cleveland, Detroit, and Houston | 82% | 45% | 53% | |
| Yacoubian et al. (2003) | 1997 Los Angeles | 51%[a] | 54%[e] | 54% | 11% |
| Lu, Taylor, & Riley (2001) | I999(1st quarter) 6 sites | 64%[a] | 48% | 46% | |
| Golub et al. (2002) | 1999 New York City[d] | 81% | 58% | 62% | |
| **Juvenile Arrestees Only** | | | | | |
| Fendrich & Xu (1994) | 1990 male juveniles | 58% | 16% | 5% | 29% |
| Kim etal. (2000) | 1992-1996 juveniles | 78%[b] | 25%[b] | | |
| Yacoubian etal. (2003) | 1997 juveniles Los Angeles | 63%[a] | 34%[e] | 33% | 36% |

[a] Compared to self-report of marijuana use in the past two to three days.

[b] Males and females were originally reported separately. A combined estimate is presented here.

[c] The sample of arrestees was not from the ADAM program.

[d] Sample includes half ADAM respondents and half other arrestees.

[e] This estimate was reported in Journal of Psychoactive Drugs (2003) and corrects for a mistake presented in Yacoubian et al. (2003).

**Table 3**

Prior Studies of Covariates for Marijuana Disclosure Using ADAM

| Covariates | Odds Ratios (OR) | | | | |
|---|---|---|---|---|---|
| | **Hser**[d] | **Lu**[a] | **Golub** | **Fendrich**[g] | **Kim** |
| Age | 0.2[e] | .98[f] | -- | -- | -- |
| Black | -- | -- | -- | -- | -- |
| Hispanic | -- | -- | -- | -- | 1.8 |
| Female | 2.0 | -- | -- | | 1.3 |
| Drug offense | | 1.8 | -- | -- | 1.5 |
| Prior Arrest | -- | 1.5 | 0.4 | | |

Blank = not tested, -- = not significant at α = .05 level.

[a] Compared to self-report of use in the past two to three days.

[b] Crack only (a special test was used that distinguishes crack from powder cocaine metabolites).

[c] Non-White.

[d] Hser also included emergency room and STD clinic respondents in the regression analysis.

[e] Among persons age 40+.

[f] Age coded as a continuous variable.

[g] Based on bivariate analyses.

**Table 4**

Prior Studies of Covariates for Cocaine/Crack Disclosure Using ADAM

| Covariates | Odds Ratios (OR) | | | | | |
|---|---|---|---|---|---|---|
| | **Hser**[d] | **Gray** | **Lu**[b] | **Golub** | **Fendrich** | **Kim** |
| Age | -- | -- | 1.05[f] | -- | -- | -- |
| Black | -- | 0.5[c] | 0.4 | -- | 0.2 | 0.2 |
| Hispanic | -- | | -- | -- | -- | -- |
| Female | -- | | 2.4 | -- | | -- |
| Drug offense | -- | 2.2 | -- | -- | -- | -- |
| Prior Arrest | -- | | 1.8 | -- | | |

Blank = not tested, -- = not significant at α = .05 level.

[a] Compared to self-report of use in the past two to three days.

[b] Crack only (a special test was used that distinguishes crack from powder cocaine metabolites).

[c] Non-white.

[d] Hser also included emergency room and STD clinic respondents in the regression analysis.

[e] Among persons age 40+.

[f] Age coded as a continuous variable.

**Table 5**

Disclosure Rate by Drug Type, ADAM-Adult Arrestees 2000-2001

| | Marijuana | Cocaine/ Crack | Heroin | Methamphetamine | Methadone | PCP |
|---|---|---|---|---|---|---|
| Among detected users, self-reported use in | | | | | | |
| Past two-three days | 62.8% | 48.5% | 52.8% | 57.9% | 69.2% | 22.4% |
| Past 30 days | 82.3% | 63.1% | 60.0% | 72.5% | -- | -- |
| Past 12 months | 87.4% | 67.5% | 62.7% | 77.0% | -- | -- |
| Lifetime (ever) | 95.4% | 79.6% | 70.4% | 86.8% | -- | -- |
| Overreporting rate based on report of use in | | | | | | |
| Past two to three days | 6.8% | 1.3% | 0.6% | 0.8% | 0.4% | 0.2% |
| Past 30 days | 18.9% | | | | | |
| Prevalence rate | | | | | | |
| Detected | 39.1% | 29.0% | 7.6% | 11.6% | 1.5% | 1.6% |
| Self-reported[a] | 43.7% | 15.0% | 4.4% | 6.8% | 1.4% | 0.6% |
| 2×2 Table[a] | | | | | | |
| Confirmed nonusers | 49.3% | 70.2% | 92.2% | 87.8% | 98.1% | 98.1% |
| Overreporters | 11.5% | 1.0% | 0.6% | 0.7% | 0.4% | 0.2% |
| Nondisclosers | 6.9% | 14.9% | 3.4% | 4.9% | 0.4% | 1.3% |
| Confirmed users | 32.3% | 14.0% | 3.8% | 6.7% | 1.0% | 0.4% |
| Kappa[a] | 0.621 | 0.550 | 0.637 | 0.678 | 0.690 | 0.321 |

-- Questions regarding past-month, past-year, and lifetime use of methadone and PCP not asked.

[a]Based on self-reported use in the last 48 to 72 hours for each drug except marijuana, which is based on self-reported use in the past 30 days.

**Table 6**

Covariates of Drug Use Disclosure, Logistic Regression Results, ADAM Adult and Juvenile Arrestees 2000-2001

| | p[a] | Odds Ratio (Wald Statistic) | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Marijuana** | **Cocaine/ Crack** | **Heroin** | **Methamphetamine** | **Methadone** | **PCP** |
| Site[b] | | (320.2) | (311.2) | (263.0) | (76.3) | (55.2) | (36.3) |
| Age | | (208.5) | (302.2) | (31.3) | (22.2) | (1.6) | (4.0) |
| 12-17 | 9% | 1.2 | 0.8 | --[d] | --[d] | --[e] | --[e] |
| 18-20 | 13% | 1.1 | 0.7 | 1.1 | 0.9 | --[e] | --[e] |
| 21-29[c] | 30% | 1.0 | 1.0 | 1.0 | 1.0 | --[e] | --[e] |
| 30-39 | 27% | 0.8 | 1.7 | 1.6 | 1.1 | --[e] | --[e] |
| 40-49 | 17% | 0.5 | 2.0 | 1.3 | 0.9 | --[e] | --[e] |
| 50+ | 5% | 0.5 | 1.7 | 1.2 | 0.5 | --[e] | --[e] |
| Race/Ethnicity | | (50.5) | (37.8) | (25.6) | (59.7) | (5.0) | (4.9) |
| Black[c] | 34% | 1.0 | 1.0 | 1.0 | 1.0 | --[e] | --[e] |
| White | 32% | 1.3 | 1.3 | 1.2 | 2.5 | --[e] | --[e] |
| Hispanic | 24% | 0.9 | 0.9 | 1.8 | 1.6 | --[e] | --[e] |
| Other/missing | 10% | 1.0 | 1.1 | 1.2 | 1.7 | --[e] | --[e] |
| Gender | | (3.2) | (89.0) | (0.8) | (0.0) | (10.4) | (0.1) |
| Male[c] | 85% | --[e] | 1.0 | --[e] | --[e] | 1.0 | --[e] |
| Female | 15% | --[e] | 1.6 | --[e] | --[e] | 2.1 | --[e] |
| Top Charge | | (69.4) | (144.9) | (67.5) | (83.2) | (3.3) | (19.1) |
| Drug possession | 12% | 1.6 | 1.6 | 2.0 | 1.8 | --[e] | 1.7 |
| Drug sales | 3% | 1.4 | 1.3 | 1.0 | 2.6 | --[e] | --[d] |
| Property index | 10% | 1.2 | 1.6 | 1.8 | 1.2 | --[e] | 0.5 |
| Violent index | 6% | 1.0 | 1.0 | 0.9 | 1.1 | --[e] | 0.6 |
| Less serious[c] | 69% | 1.0 | 1 0 | 1.0 | 1.0 | --[e] | 1.0 |
| Ever arrested | | (130.3) | (182.2) | (53.4) | (44.2) | (3.6) | (4.5) |
| Yes[c] | 81% | 1.0 | 1.0 | 1.0 | 1.0 | --[e] | --[e] |
| No | 19% | 0.6 | 0.4 | 0.4 | 0.5 | --[e] | --[e] |
| Sample size of detected users | 47,724[f] | 18,174 | 13,655 | 3,430 | 4,888 | 719 | 761 |

[a] Prevalence within the complete sample of adult arrestees.

[b] For economy of presentation, the odds ratios associated with sites are not included in this table. The variation across site was statistically significant for each drug.

[c] Reference category.

--[d] Odds ratio based on fewer than 50 cases with the attribute level.

--[e] Wald statistic not significant at .01 level.

[f] Number of adult arrestees in the complete sample (excludes 4,474 juvenile arrestees).

**Table 7**

Disclosure Rates (and Kappa) by Drug and Site, ADAM-Adult Arrestees 2000-2001

| | Disclosure Rate (%) | | | | | | Kappa | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Site** | **MJ** | **CC** | **HE** | **MT** | **MD** | **PC** | **MJ** | **CC** | **HE** | **MT** | **MD** | **PC** |
| Albany | 87 | 56 | -- | -- | -- | -- | .66 | .62 | -- | -- | -- | -- |
| Albuquerque | 85 | 52 | 62 | 58 | -- | -- | .63 | .55 | .68 | .68 | -- | -- |
| Anchorage | 83 | 45 | 9 | -- | -- | -- | .60 | .53 | .15 | -- | -- | -- |
| Atlanta | 71 | 40 | -- | -- | -- | -- | .56 | .39 | -- | -- | -- | -- |
| Birmingham | 80 | 45 | 8 | -- | -- | -- | .63 | .50 | .14 | -- | -- | -- |
| Charlotte | 82 | 44 | -- | -- | -- | -- | .63 | .47 | -- | -- | -- | -- |
| Chicago | 79 | 28 | 64 | -- | -- | -- | .61 | .28 | .70 | -- | -- | -- |
| Cleveland | 85 | 50 | 64 | -- | -- | 22 | .62 | .55 | .74 | -- | -- | .32 |
| Dallas | 78 | 52 | -- | -- | -- | -- | .61 | .58 | -- | -- | -- | -- |
| Denver | 88 | 51 | 53 | 61 | -- | -- | .65 | .54 | .64 | .70 | -- | -- |
| Des Moines | 84 | 40 | -- | 57 | -- | -- | .69 | .53 | -- | .64 | -- | -- |
| Detroit | 84 | 53 | 49 | -- | -- | -- | .70 | .61 | .60 | -- | -- | -- |
| Ft. Lauderdale | 68 | 40 | -- | -- | -- | -- | .53 | .45 | -- | -- | -- | -- |
| Honolulu | 89 | 62 | 61 | 67 | -- | -- | .63 | .69 | .69 | .68 | -- | -- |
| Houston | 78 | 31 | 3 | -- | -- | -- | .62 | .38 | .04 | -- | -- | -- |
| Indianapolis | 74 | 41 | 17 | -- | -- | -- | .59 | .47 | .27 | -- | -- | -- |
| Kansas City, MO | 91 | 70 | -- | -- | -- | -- | .55 | .67 | -- | -- | -- | -- |
| Laredo | 71 | 40 | 51 | -- | -- | -- | .67 | .42 | .64 | -- | -- | -- |
| Las Vegas | 85 | 56 | 53 | 55 | -- | 28 | .62 | .63 | .65 | .61 | -- | .36 |
| Los Angeles | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manhattan | 79 | 48 | 62 | -- | 61 | -- | .55 | .47 | .68 | -- | .68 | -- |
| Miami | 72 | 41 | -- | -- | -- | -- | .58 | .44 | -- | -- | -- | -- |
| Minneapolis | 87 | 44 | 40 | -- | -- | -- | .66 | .51 | .55 | -- | -- | -- |
| New Orleans | 85 | 48 | 64 | -- | -- | -- | .66 | .53 | .70 | -- | -- | -- |
| Oklahoma City | 80 | 44 | 13 | 49 | -- | 29 | .58 | .52 | .21 | .58 | -- | .39 |
| Omaha | 79 | 41 | -- | 51 | -- | -- | .60 | .50 | -- | .62 | -- | -- |
| Philadelphia | 85 | 52 | 72 | -- | -- | 32 | .63 | .56 | .77 | -- | -- | .41 |
| Phoenix | 82 | 56 | 66 | 56 | -- | 17 | .60 | .62 | .73 | .62 | -- | .26 |
| Portland, OR | 83 | 53 | 56 | 56 | -- | -- | .62 | .61 | .67 | .63 | -- | -- |
| Sacramento | 84 | 52 | 43 | 57 | -- | -- | .58 | .60 | .52 | .60 | -- | -- |
| Salt Lake City | 76 | 46 | 44 | 64 | -- | -- | .57 | .56 | .56 | .69 | -- | -- |
| San Antonio | 72 | 35 | 67 | -- | -- | -- | .60 | .43 | .76 | -- | -- | -- |
| San Diego | 82 | 54 | 51 | 58 | -- | -- | .60 | .63 | .64 | .63 | -- | -- |
| San Jose | 87 | 39 | 51 | 56 | -- | -- | .68 | .50 | .63 | .62 | -- | -- |
| Seattle | 89 | 56 | 62 | 62 | -- | -- | .60 | .60 | .68 | .70 | -- | -- |
| Spokane | 93 | 57 | 57 | 75 | -- | -- | .68 | .66 | .65 | .80 | -- | -- |
| Tucson | 86 | 59 | 60 | 57 | -- | -- | .68 | .61 | .68 | .64 | -- | -- |
| Site median | 83 | 48 | 53 | 57 | 61 | 28 | .62 | .54 | .65 | .64 | .68 | .36 |

MJ = marijuana, CC = cocaine/crack, HE = heroin, MT = methamphetamine, MD = methadone, PC = PCP

-- fewer than 50 arrestees detected as users