

The Validity of Self-Reported Cocaine Use in Two High-Risk Populations

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ABSTRACT

Self-reports of drug use are extensively employed in research on drug use and in evaluations of drug abuse treatment and human immunodeficiency virus (HIV) prevention interventions. The chapter first summarizes recent research addressing the validity of drug use self-reports in high-risk populations. The results of two self-report validity studies are then compared, one for a sample of patients in methadone maintenance and the other for a sample of criminally involved young adults. Cocaine use was more accurately reported by the methadone patients; the possible reasons for this are explored.

INTRODUCTION

There is a continuing need to obtain more valid estimates of illicit drug use, both for the general population and for specific population groups believed to be at high risk for use. All broad-based surveys and the great majority of individual research studies have relied on self-reporting of drug use. Previous research with populations at risk for drug use indicates that the validity of self-reporting varies widely among studies (Magura et al. 1987). Although biological specimens (such as urine, hair, saliva, breath, and blood) can be very useful as objective indicators of drug and alcohol use in epidemiological and other research studies, sole reliance on them is often undesirable. Such specimens may be difficult or impossible to obtain in many studies, and all have inherent (although different) limitations in measuring the timing, duration, frequency, and intensity of drug use, as well as the routes of administration and social context of use. For example, the most widely used biological test, urinalysis, provides only reliable indications of heroin or cocaine use within the past 48 hours, but no information on route of administration, although the latter may be essential for assessing degree of dependence or HIV risks (e.g., intranasal, injecting, or smoking). Consequently, it is important

to develop a better understanding of the conditions under which valid self-reports of drug use may be obtained, or their degree of validity under various conditions. Conditions might be identified where valid self-reports are unattainable, which would argue for the need to obtain biological specimens if such research is to be done.

Much of the research on drug use self-reporting has focused on either of two high-risk populations: individuals involved with the drug abuse treatment system or with the criminal justice system. Magura and colleagues (1987) reviewed 13 studies published up to 1985 that examined the validity of drug use self-reports among samples of arrestees and past and present drug abuse treatment clients. Only studies that included comparisons of confidential self-reports with a criterion, usually urinalysis, were included. The mean conditional kappa (K_c) among studies for opiates and cocaine was about 0.5. (K_c measures the degree beyond chance to which self-reports agree with the criterion (Bishop et al. 1975); also see note to table 5.)

The authors concluded that:

"It is difficult to compare the results of the studies because of differences on such variables [as]...the type of population studied, the type and pattern of drug use, and the measurement procedures and conditions. Even when sample sizes were large enough to permit it, many studies failed to break down their data by treatment modality, present treatment status, or legal status" (Magura et al. 1987, p. 734).

Few of the studies examined possible correlates of drug use underreporting. However, there was some suggestion that higher criminality was associated with such underreporting. Inaccurate reports of drug use were found by Eckermann and associates (1971) to be correlated with severity of arrest charge and by Page and colleagues (1977) with number of prior arrests, although McGlothlin and associates (1977) found no correlation with legal status. In their empirical study accompanying the literature review, Magura and fellow researchers (1987) found a bivariate correlation between self-reported criminality and underreporting of drug use.

Studies published since 1985 have tended to support the tentative hypothesis that addicts not in treatment and having more criminal involvement are less accurate reporters of their illicit drug use than

addicts involved with drug abuse treatment. A review of these recent studies will be presented.

The chapter then compares the results of two studies conducted by the first author on the validity of self-reported cocaine use, one for a sample of patients in methadone treatment and the other for a sample of recently arrested young men. The comparison is of interest because the study methodologies, including the biological criterion of drug use (hair analysis), are identical or similar in all respects; thus the remaining sources of variability are the characteristics of the subject populations. This comparison is intended to provide some insights into the characteristics of subject populations associated with inaccurate reporting of illicit drug use even in a confidential research setting.

Review of Studies in High-Risk Populations Since 1985

The review considers, first, studies of persons involved with drug abuse treatment, and then studies of persons involved with the criminal justice system. Magura and colleagues (1987) compared self-reports of drug use with urinalysis for patients currently in methadone treatment in four clinics in New York City (N = 248); both the self-reports and urine tests were confidential. Among subjects who tested positive for each given drug, 65 percent (24/37) did not report opiate (e.g., heroin) use, 39 percent (36/93) did not report benzodiazepine (e.g., diazepam) use, and 15 percent (10/66) did not report cocaine use. Although opiate use was especially underreported, the current use rate as measured by urinalysis was relatively low (15 percent). There were also subjects who reported drug use not detected by urinalysis (e.g., 27 percent of subjects tested had positive cocaine urines versus 42 percent admitting to its use). This might be attributable to the fact that the time period for self-reporting was 1 month, whereas the urines could detect cocaine or opiate use only during the previous 2 or 3 days.

Twenty-five percent of the sample underreported one or more of the three drugs examined. However, of those who tested positive for multiple drugs, only 11 percent failed to report any of them. In a stepwise log-linear analysis, underreporting was associated with interviewer type (professional) and subject's age (30 years and over). The following variables were not independently associated with underreporting in the log-linear analysis: clinic site, number of medication pickup days, and self-reported current criminality.

Wasserman and coworkers (1993) obtained confidential urines and self-reports of drug use twice weekly for about 10 weeks for patients in four methadone treatment clinics in the San Francisco area. Subjects (N = 81) were told results would not be shared with clinic staff. Overall chance-corrected agreement between self-reports and urinalysis was fair to good, with median kappas of 0.61 for opiates and 0.50 for cocaine. However, the disagreements were almost always positive urinalyses that contradicted negative self-reports. Rates of positive urines were twice as high as rates of self-reported use for some of the time periods; cocaine underreporting was higher than for opiates. No demographic or treatment-related predictors of valid self-reporting were found. A current diagnosis of antisocial personality (based on "Diagnostic and Statistical Manual of Mental Disorders," 3d. ed., rev. (DSM-III-R) interview) predicted increased reporting of cocaine use; the authors suggest that this may indicate a general tendency in some patients to admit to socially disapproved behaviors. In support of this, Magura and associates (1987) found that self-reports of recent crime were associated with self-reports of drug use, but not with positive urinalysis.

Zanis and coworkers (1994) compared confidential self-reports of drug use with weekly clinic urinalysis for a sample of patients (N = 66) in methadone treatment for at least 6 months. Only 13 percent and 17 per-cent of subjects who tested positive for opiates and cocaine, respectively, failed to report using those drugs in the preceding month. In addition, 58 percent and 28 percent of those with negative urines for opiates and cocaine, respectively, did report using those drugs in the last month. As a result, opiate and cocaine use were self-reported more frequently in confidential interviews than were detected by weekly clinic urinalysis.

Zanis and associates (1994) suggest that reporting may have been very accurate in their study because subjects knew that their self-reports would be compared with urinalysis results. However, this knowledge also existed in the studies by Magura and colleagues (1987) and Wasserman and coworkers (1993), where there was substantial underreporting of drug use in some time periods. In addition, clients in treatment often do not admit drug use to their counselors until confronted with a positive urinalysis, and sometimes not even then. Further, since the confidential self-reports were retrospective for the last month, subjects already knew what their clinic urinalysis results had been, and many nonetheless reported drug use even when their urinalyses had been negative.

Hoffman and fellow researchers (1994) compared self-reports, urinalysis, and radioimmunoassay hair analysis for drug treatment clients. At intake to treatment, similar rates of opiate use were identified by self-report for the past 30 days (87 percent), urine (83 percent), and hair (93 percent). Cocaine use appeared to be slightly underreported at intake: self-reporting (67 percent), urine (67 percent), and hair (90 percent). Because most of the applications were apparently for methadone treatment, it was necessary to report heroin use, but not cocaine use. Nevertheless, three-quarters of those who subsequently tested positive for cocaine by urine or hair voluntarily reported using cocaine in the previous month. At followup after leaving treatment, 42 percent reported opiate use during the previous 90 days, but 70 percent were hair positive for opiates; in addition, 45 percent reported cocaine use, but 88 percent were hair positive for cocaine. Those with above-median hair concentrations of cocaine and opiates were more likely to report use than those with below-median hair concentrations. (The median cocaine concentration was 102 nanograms (ng) per 10 milligrams (mg) in hair and the median opiate concentration was 31 ng/10 mg in hair.)

Falck and coworkers (1992) compared self-reports of drug use with urinalysis for out-of-treatment injecting drug users who had participated in an acquired immunodeficiency syndrome (AIDS) prevention outreach project. Subjects were those reporting either daily use of heroin and/or cocaine, or abstinence from both drugs, at the time of the interview. Of those urine positive for opiates or cocaine, 45 percent denied current use of both drugs. Subjects whose primary drugs of choice were injected cocaine and crack (used with equal frequency) and those who were African American were more likely to underreport heroin/cocaine use. The following variables were not associated with underreporting: age, gender, educational level, treatment history, and project intervention assignment. Baumgartner and associates (1989) compared self-reports of drug use with results of urinalysis and hair analysis for a community supervision sample (probationers and parolees). Among those hair positive for cocaine at intake to community supervision, 29 percent failed to report recent use (past 90 days) in confidential interviews. Among those hair positive for morphine, 19 percent failed to report recent heroin or other opiate use.

Mieczkowski and colleagues (1991) compared self-reports of cocaine use with urinalysis and hair analysis for arrestees booked into the Pinellas County (Florida) Jail. The interviews were conducted by a

specially trained social worker; all interview and test data were confidential. Of those with positive urinalysis, 76 percent denied cocaine use in the preceding 48 hours. Of those with positive radioimmunoassay hair analysis for 1 month of hair growth, 72 percent denied cocaine use in the preceding month. Results for heroin (opiate) use indicated even greater underreporting; there were nearly nine times more positive hair test results for opiates than self-reported use within the previous month (8.9 percent versus 1.0 percent) (Mieczkowski et al. 1993).¹ This study did not investigate possible factors associated with underreporting of drug use.

Confidential self-reports of drug use were compared with urinalysis for samples of felony arrestees in 14 U.S. cities participating in the Drug Use Forecasting (DUF) system (National Institute of Justice 1990). Estimates of cocaine use based on urine tests were about twice as high as those based on self-reports. Estimates of heroin use based on urine tests were about 1.5 times as high as those based on self-reports. Feucht and colleagues (1994) found that only 12 percent (6/50) of juvenile arrestees in Cleveland who were found cocaine positive by hair analysis reported recent cocaine use on confidential interviews.¹

Underreporting of illicit drug use, even under conditions of research confidentiality, continues to be a problem for research studies. The greatest underreporting appears to be within criminal justice populations (as compared with noncriminal justice populations) (Mieczkowski et al. 1991, 1993; National Institute of Justice 1990; Feucht et al. 1994) and for addicts out of treatment (as compared with those in treatment) (Falck et al. 1992; followup sample in Hoffman et al. 1994), although one study of community corrections clients found only minimal underreporting (Baumgartner et al. 1989). Studies of addicts involved with drug abuse treatment have found small to moderate amounts of underreporting, although the results often vary by type of drug. In general, it remains very difficult to compare studies because of the myriad differences in study populations, methodologies, and time periods. A new issue in this regard is the recent development of hair analysis, which has a wider window of detection than urinalysis and thus increases the likelihood of detecting drug use underreporting. Finally, despite continuing research, there has been little explicit attention to factors that may be associated with underreporting in specific high-risk populations.

METHODS

Two studies were conducted recently to examine the validity of cocaine use self-reports in two different populations at high risk for use: methadone maintenance patients and criminally involved, young adult males.

Study 1 Sample

The subjects were 134 patients in two methadone maintenance treatment programs in New York City during 1988-89; they were part of a larger study of the cocaine problem in methadone treatment. Patients were randomly selected from each clinic's census for the study; the sampling was stratified to overrepresent patients with recent cocaine-positive clinic urinalysis. The cocaine-using subjects may not be representative of all cocaine-using methadone patients in New York City. The subjects were interviewed about drug use and other topics and provided hair and urine specimens to the researchers (Magura et al. 1992).

Study 2 Sample

The subjects were 121 male young adults who were originally recruited while in jail in New York City and were followed up in the community during 1992-93, at a median of 5 months after their release from jail. The subjects volunteered for the study while in jail and may not be representative of all young adult jail inmates in New York City. The subjects were interviewed both in jail and later in the community about drug use and other topics, and provided a hair specimen at the time of the community interview (Magura et al. 1995).

Study Procedures

In both studies, subjects were informed that participation was voluntary and all interview and testing information was confidential. Subjects gave written informed consent consistent with Federal human subjects regulations for drug treatment clients, prisoners, and minors in custody. The study was approved by the investigators' institutional review board and the data were protected by a Federal Certificate of Confidentiality. In the context of a 90-minute interview, subjects were asked to report whether they ever tried or used cocaine in any form, and the time of their most recent use. Subjects received a \$30 incentive. The interviews were conducted by trained paraprofessionals who were themselves in recovery.

Hair Sampling and Analysis Methods

A specimen of hair of up to 50 strands was cut at scalp level from each subject. Radioimmunoassay tests for cocaine were conducted on either 1.3 centimeter (cm) or 3.6-cm hair segments as measured from the scalp, each 1.3 cm corresponding to about 1 month of hair growth. Hair analysis for the presence of cocaine was performed by a toxicology laboratory specializing in such assays. The tests were blinded (i.e., the laboratory did not know whether drug use was reported by the subjects). One milligram of hair was washed for 15 minutes in ethanol and then three times for 30 minutes each in water with phosphate buffer. The specimen was then enzymatically digested, the melanin fraction removed, and tested for cocaine and its metabolites by radioimmunoassay. Removing the melanin fraction is intended to prevent differences in hair color from affecting the results. Separate results for cocaine and its metabolites are not yielded by the analytical method used.

Aliquots of the wash solution were also tested and wash kinetic curves from such data were compared to the cocaine levels in the hair digest. Three wash kinetic criteria based on hair from known cocaine users have been developed to distinguish between drug use and external contamination of the hair (Baumgartner and Hill 1993). For example, the first criterion requires that the ratio of the amount of cocaine in the digest to the amount of cocaine in the last wash exceed a value of 10. Specimens are regarded as indicating ingestion of cocaine rather than simply the residue of possible external contamination only when all three wash criteria cutoffs are passed. (Note, however, that there are possible, if unlikely, contamination scenarios that may elude detection by these criteria.)

Hair assay results are given in standardized units (i.e., ng of cocaine (including metabolites) per 10 mg of hair). The cutoff for defining cocaine positives was 2 ng/10 mg.

RESULTS

Sociodemographic characteristics of the two study samples are presented in tables 1 and 2. For the methadone sample, 60 percent self-reported recent cocaine use and 80 percent were hair positive for cocaine. For the young adult sample, 23 percent self-reported recent cocaine use and 67 percent were hair positive for cocaine.

Quantitative levels of cocaine in hair are given in table 3. Considering only the positives, it is clear that the methadone patient sample (median = 125 ng) has a higher hair concentration of cocaine than the young adult sample (median = 17 ng). The difference is particularly large at the greatest concentrations (above 300 ng). Although one must still be cautious about quantitative interpretations of hair analysis, this may indicate more use of cocaine by the methadone patients.¹

Hair analysis for cocaine was compared with self-reports of cocaine use within each sample (table 4). If a 1.3-cm or shorter hair segment was analyzed, self-reports of use in the last 4 to 6 weeks were compared. (Although 4 weeks should be sufficient to parallel the window of detection of a 1.3-cm hair segment, up to 6 weeks was used because subjects have difficulty reporting within exact time intervals; see also Ehrman and Robbins 1994.) If a 3.6-cm hair segment was analyzed, self-reports of use in the last 3 to 4 months were compared. Forty-six percent of the young adults' hair specimens were less than 1.3 cm long. Because drug use reports were not obtained for a time period of less than the previous month (4 weeks), the reports of subjects with hair less than 1.3 cm cover more time than the hair analysis. It is possible, though unlikely, that this could lead to more positive self-reports than positive hair analyses (i.e., if subjects used cocaine just before, but not within, the window of detection of their hair specimen).

There is moderate agreement beyond chance between self-reports and hair analysis for the methadone patients ($\kappa = 0.45$), and no agreement beyond chance ($\kappa = 0.00$) for the criminally involved young adults.

The most striking finding is that 73 percent of the methadone patients whose hair was positive admitted recent cocaine use, whereas only 23 percent of criminally involved young adults whose hair was positive did so. This is despite the fact that the young adults' self-reports cover more time than their hair analyses in about half the cases.

Since the median levels of cocaine in the hair were very different between the two samples, could this help account for the differences in underreporting? There was a statistically significant and strong association between hair level of cocaine and self-report of cocaine use among the methadone patients, but no significant association for the young adults (table 5). Even among young adults with the highest concentrations of cocaine (>100 ng), only 29 percent reported any recent cocaine use.¹

TABLE 1. *Characteristics (percent) of methadone patients (N = 134).*

		Marital status	
Gender		Single, never married	48%
Male	74%	Married	21
Female	26	Other	31
		Education	
Age		Less than high school	52%
Under 30 years	16%	HS graduate or GED	25
30 - 34 years	26	Some college	23
35 - 39 years	32		
40 and older	26		
		Employed (full- or part-time)	
Ethnicity			31%
African American	24%	Time in current program	
Hispanic	59	Under 12 months	37%
White	16	12 - 23 months	15
Other	1	24 - 35 months	11
		36 months and over	37

Some further investigation is possible and would lead to a better understanding of the apparent underreporting of cocaine use by the young adults. For example, how reliable are their reports of lifetime cocaine use? They were asked on both the in-jail and subsequent followup inter-views whether they had ever tried or used cocaine or crack in their lives. As shown in table 6, the reliability of lifetime reports of cocaine/crack use was high. Self-reports of cocaine use in the 90 days before arrest and in the 90 days before the followup interview were also compared. Although cocaine use potentially could vary between time periods, there was a strong association between reports of use in the two periods.

TABLE 2. *Characteristics (percent) of criminally involved young adult males (N = 121).*

Age		Prior arrests ^c	
17	5%	None	40%
18	13	One to four	35
19	41	Five or	
20	31	more	25
21 and over	10	Drug dealing - ever ^d	75%
Ethnicity		Drug dealing - last month ^d	41%
African American	63%	Arrested since release - yes ^e	23%
Hispanic	35	Education since release - yes ^f	29%
Other	2	Employed - last month ^g	38%
Arrest charge(s)			
Violence ^a	46%		
Property	12		
Drugs ^b	32		
Weapons	12		

NOTE: N = 121 except where noted below.

KEY: a = Includes homicide, attempted homicide, robbery, assault, rape, arson; b = Includes dealing and possession; c = Prior to the instant arrest leading to incarceration; d = Over 90% of drug dealing involved cocaine or crack. "Last month" is month before the followup interview; e = Based on 84 subjects with responses; f = Includes attending high school or GED classes at followup; graduated high school or received GED since release. Based on 119 subjects with responses; g = Full- or part-time legitimate employment at followup. Based on 110 subjects with responses.

Cocaine in hair was associated in expected directions with certain other variables, as suggested by past research on drug use and crime (e.g., Jessor and Jessor 1977; Elliot et al. 1985; Fagan et al. 1990; Dembo et al. 1993).

TABLE 3. *Levels of cocaine in hair for two samples (in ng/10 mg).*

	Percent methadone patients	Percent criminally involved young adults
Negative (0.0 to 1.9)	20	33
2.0 to 5.0	12	16
5.1 to 30.0	10	29
30.1 to 100.0	16	11
100.1 to 300.0	13	7
300.1 and over	30	5
	101%	101%
	(N = 134)	(N = 121)

NOTE: Totals do not sum to 100 percent due to rounding.

TABLE 4. *Cocaine self-reports by cocaine in hair for two samples.*

Cocaine in hair	Cocaine self-report	Percent methadone patients		Percent criminally involved young adults	
		No	Yes	No	Yes
	No	89	27	77	77
	Yes	11	73	23	23
		100%	100%	100%	100%
		(N=27)	(N=107)	(N=39)	(N=77)
		K = 0.45		K = 0.00	

NOTE: Cohen's Kappa (K) measures the degree of agreement between two classificatory variables (Bishop et al. 1975). Perfect agreement (i.e., all cases classified identically on both variables) is indicated by K = 1 and chance agreement only by K = 0.

TABLE 5. Cocaine self-reports by level of cocaine in hair for two samples.

		Methadone patients			Criminally involved young adults		
		0.0	2.0 to 9.9	≥10.0	0.0	2.0 to 9.9	≥10.0
Cocaine in hair (ng/10 mg)							
Cocaine self-reports							
	No	89%	74%	17%	77%	87%	70%
	Yes	11%	26%	83%	23%	13%	30%
		100%	100%	100%	100%	100%	100%
		(N = 27)	(N = 19)	(N = 88)	(N = 39)	(N = 31)	(N = 46)

TABLE 6. Self-reported cocaine use in jail (T₁) versus followup in community (T₂).

Ever tried cocaine (T ₂)		No	Yes
Ever tried cocaine (T ₁)	No	77	4
	Yes	5	35
		K = 0.83	
Cocaine use—Last 90 days (T ₂)		No	Yes
Cocaine use—Last 90 days (T ₁)	No	82	7
	Yes	7	20
		K = 0.66	

Cocaine was more likely to be present, and present at higher levels, in the hair of young adults who had higher numbers of previous arrests (a trend at $p = 0.08$), who were rearrested after release from jail ($p < 0.05$), who failed to continue their education after release from jail ($p < 0.01$), and who were not engaged in legitimate employment at followup ($p < 0.001$). Young adults who had a pending court case or were on probation or parole were less likely to have cocaine in their hair (a trend at $p = 0.10$).

There were no associations between self-reported cocaine use and any of the above variables (i.e., previous arrests, arrest since release,

education after release, employment at followup, and legal status at followup); this is inconsistent with earlier research cited above.

Self-reported cocaine use was associated with respondent ethnicity; 39 percent of Hispanics/others reported cocaine use versus 15 percent of African Americans ($p < 0.01$). Cocaine in hair was not associated with ethnicity.

Self-reported cocaine use was associated with self-reported drug dealing at followup; 36 percent of those denying cocaine use report dealing versus 59 percent of those admitting cocaine use also report dealing ($p < 0.05$). Cocaine in hair was not associated with self-reported drug dealing.

DISCUSSION

In personal interviews in the community, 23 percent of the young adults self-reported some form of cocaine use within the preceding 90 days. Analysis of hair specimens indicated that some amount of cocaine was probably ingested by 67 percent of the young adults within that time period. This latter rate, although high, still might underestimate cocaine use because most of the hair specimens were too short to provide for a full 90-day window of detection. In any event, hair analysis yielded a cocaine use prevalence rate 2.9 times as high as that indicated by confidential self-reports for this population (23 percent versus 67 percent, respectively).¹

Reliability of reporting was high; young adults who admitted or denied lifetime cocaine use during in-jail interviews were very likely to give the same answers on interviews conducted an average of 1 year later. Similarly, young adults interviewed in jail who reported using cocaine in the 90 days before their arrest were very likely to report using cocaine in the 90 days before their community interview. These patterns would not appear if young adults were answering the cocaine questions randomly. Nevertheless, it appears that many young adults who are using cocaine fail to report it, and fail to report it consistently.

The zero association between cocaine self-reports and cocaine in hair for the young adults is due partly to the nine who self-reported cocaine use, but whose hair was negative. These nine hair specimens averaged 0.8 cm in length, corresponding to a window of detection of about 3 weeks. Five of these young adults reported currently using

cocaine from 2 to 5 days per week, so that the drug was potentially detectable even in these short hair lengths. It may be that these young adults used substances they believed or were told to be cocaine or crack, but actually were not. Misidentification and misrepresentation of substances certainly occurs in the drug subculture. It may also be that the hair analysis failed to detect cocaine in the hair of these subjects. The authors cannot explain this finding at this time.

The substantial underreporting of cocaine use is also indicated by the relatively low percentage of subjects (32 percent at followup) who admit to ever trying cocaine or crack in their lifetimes (table 6); this seems unrealistic for inner-city, young-adult males in the context of the current cocaine/crack epidemic.

The study showed that the number of past arrests as well as rearrests were associated with the presence of cocaine in hair. Moreover, young adults who continued their educations or were legitimately employed at followup were less likely to test positive for cocaine in their hair. While causal inferences cannot be made from this study, it appears that these hair assay results are usually consistent with the findings of previous research on the associations among drug use, criminality, and prosocial behavior. In contrast, self-reports of cocaine use were not associated with the above variables. However, self-reported cocaine use was associated with self-reported drug dealing, seemingly a congruent result, while admitted drug dealing was not associated with cocaine in hair. Possibly subjects who are willing to admit to a serious illegal activity are also more likely to admit to cocaine use.

Young adults with an open legal case tended to be less likely to test positive for cocaine in their hair. These young adults may be influenced by potential sanctions if they are identified as drug users in their contacts with criminal justice personnel (i.e., through drug tests or the appearance of use).

What could explain the large observed difference in the validity of cocaine self-reporting between the two samples? The research conditions were very similar: confidentiality was assured, the interview questions were similar, the interviews were conducted by the same type of staff (minority persons in recovery), and the studies were conducted in the same city. However, the subject populations were very different. Some pertinent differences that may explain differential self-reporting are: the methadone patients were much

older than the young adults (mean 35 years versus 19 years); the methadone patients were an identified addict population and in treatment, whereas the young adults were not; some methadone patients may have had previous participation in drug research, or heard about such research, whereas the young adults probably had not; and the young adults were all current or recent criminal justice clients, whereas the methadone patients generally were not. The latter, when combined with a lack of previous exposure to social research, could have resulted in greater reluctance to admit drug use to persons who were not well known to the young adults.

The apparent underreporting of recent and lifetime cocaine use in the young adult group might be attributable to several factors. These criminally involved young adults might have been suspicious or fearful of the research interviewers, even though the interviewers were indigenous to the community and previously had interviewed the young adults in jail without untoward consequences. However, the fear explanation does not seem consistent with the young adults' far more frequent willingness to admit use of another illegal substance, marijuana (60 percent in the last month), and an illegal activity, involvement in drug (mainly crack) dealing (75 percent lifetime and 41 percent in the last month).

A second explanation for underreporting is that cocaine use, and especially crack use, is highly stigmatized in these young adults' reference groups (see also Dunlap and Johnson 1992; Hamid 1992), a view that is supported by interviews conducted with the young adults while they were still in jail. This stigmatization of personal use, however, does not extend to making money from selling crack. Thus many of the young adults might have been reluctant to admit using cocaine or crack in order to project a more favorable image of themselves to the interviewers, whereas crack dealing is a lucrative albeit illegal activity that suggests the young adults' enterprise and self-reliance (Inciardi and Pottieger 1991).

A third possibility is that cocaine use is rather infrequent for many of these young adults and, consequently, they do not define themselves as using the substance at all. Although the researchers emphasized to the subjects that they were interested in recording "one-time use" or trying "just one time," this may not have been sufficient to elicit accurate self-reports. The relatively low levels of cocaine found in their hair as compared with the methadone treatment sample is consistent with the idea that many of these young adults use the drug infrequently or lightly.¹ Infrequent use may also lead to poor recall.

The finding that African Americans are more likely than other groups to underreport drug use has been noted by several previous studies, including surveys of the general population (e.g., Page et al. 1977; Falck et al. 1992; Fendrich and Vaughn 1994). It has been suggested that matching interviewer and respondents by race/ethnicity might avoid this problem (Campbell 1981). However, both interviewers in the young adult study were African American, and apparently elicited more valid reporting from Hispanics than from African Americans. But note that the interviewers were considerably older (in their forties) than the young adults.

The study findings indicate that accurate estimates of cocaine/crack use among criminally involved, inner-city young male adults cannot rely solely on self-reports, even when obtained under conditions of confidentiality by street-wise indigenous interviewers for research purposes only. The apparent differential accuracy of self-reporting by ethnicity is an added complication in interpreting such self-reports.

The study found that drug use is reported with moderate accuracy to researchers by clients in treatment. Thus self-reports in this population could be useful in providing basic information about patterns of drug use (frequency, intensity, routes of administration) to supplement prevalence data, assuming of course that those who do and do not report their use exhibit similar patterns.

In conclusion, one must be cautious about offering general statements about the validity of drug use self-reports. The degree of accuracy obtained clearly depends upon the specific research conditions and, as this chapter suggests, the characteristics of the populations studied. More methodological research must be conducted on ways to improve the validity of drug use self-reporting in certain populations, particularly high-risk young adults and criminal justice populations. Also, research is needed to better understand the factors that lead to relatively more accurate reporting, such as that shown by methadone patients.

ENDNOTE

1. Refer to the Technical Note at the end of the Introduction (p. 13).

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