

The Validity of Self-Reported Drug Use Data: The Accuracy of Responses on Confidential Self-Administered Answered Sheets

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ABSTRACT

Official records offer a relatively inexpensive, nonintrusive strategy for checking on the accuracy of self-reported drug use. Responses of a small sample (N = 67) of former drug treatment clients interviewed using procedures exactly modeled on the National Household Survey on Drug Abuse were compared to their clinic records. The accuracy of reports compared to clinic records varied by drug, with the percentage of known users reporting their use highest for marijuana, followed by cocaine and hallucinogens, and lowest for heroin. Almost half of this sample of former treatment clients denied ever receiving drug treatment.

INTRODUCTION

Self-reported data are a mainstay of social research. Almost any topic can be investigated by asking questions; indeed, this may be the only way to obtain information on some topics such as attitudes, motivations, beliefs, and behaviors known only to the respondent. Unfortunately, self-reported data on such topics may be seriously flawed by respondents' inability or unwillingness to provide the requested information. If respondents are asked to report facts they have forgotten (or perhaps never knew), they may guess or invent answers. If respondents are asked to report facts that are potentially embarrassing or damaging, they may deny or distort what they know to be true. For these reasons, the validity of self-reported data, particularly self-reported drug use, simply cannot be taken for granted.

The National Household Survey on Drug Abuse (NHSDA) is a major source of information on the prevalence and patterns of illegal drug use in this country and the validity of its estimates depend upon the accuracy of the self-reports of respondents. The NHSDA collects

information about drug use on self-administered questionnaires during a face-to-face interview in the respondent's home with the assurance that no one will ever know how they respond. This procedure is designed to reduce the chance that respondents will give answers designed to make a favorable impression on the interviewer or others in the home or to avoid the possibility of negative social or legal sanctions associated with illicit drug use. The assumption is that the assurance of confidentiality and anonymity will offset any potential tendency of the respondent to distort the accuracy of responses.

The study reported here is designed as a criterion validity test of the NHSDA procedures. In criterion validity studies, two different measures of the same trait or experience are available: a candidate measure and an external, independent criterion measure that is treated as an error-free measure of the construct. The use of official records to verify respondent reports has a lengthy history in social science dating back at least to Hyman's classic World War II study of whether the sellers of war bonds, when interviewed, accurately reported this apparently disloyal act (Hyman 1944).

In the current study, the underreporting of illegal drug use was investigated in a sample of 67 former drug treatment clients by comparing their survey responses to clinic records on drug problems at time of admission. The criterion measures are based on self-reported marijuana, cocaine, hallucinogens, and heroin use.

Drug treatment records were obtained from the files of publicly funded drug treatment programs in three States. The study followed the NHSDA interviewing and questionnaire procedures closely. To avoid bias from interviewer expectations and to protect the respondent's privacy, the sample of treatment clients was embedded in a larger sample of respondents. Interviewers were not told that the respondents had been treated for drug abuse. Special sample selection directions, tailored to match the target respondent's age and sex, were used to select the former drug treatment client within the household, simulating the random selection screening instrument used in the NHSDA.

This analysis compares reports of past-year and lifetime use of marijuana, cocaine, hallucinogens, and heroin by the former drug treatment clients to the drugs listed as problematic at time of admission to treatment. This analysis also examines factors that might influence the respondents' willingness or ability to respond

accurately, such as the level of privacy during the interview and the amount of time between admission to the program and the interview.

The limitations of this validity study should be emphasized. Major difficulties in locating respondents based on addresses provided by the drug clinics resulted in a very low response rate. Only 67 eligible respondents were located and interviewed, despite an exhaustive search for former treatment clients. The small sample means differences in the population may not be detected by the analysis. The low response rate means the sample may not be representative of the treatment population. Furthermore, the extent to which reporting by former drug treatment clients resembles reporting by members of the general population of household members is unknown. Treatment may reduce denial of drug use; alternatively, clients in public drug treatment may be more motivated to underreport their past drug use than casual drug users. As a result, the findings of this analysis must be regarded as preliminary and used primarily to illustrate the potential for using official records to assess the validity of drug reports.

USING OFFICIAL RECORDS AS CRITERION MEASURES

Official records have some distinct advantages in the context of validating self-reported illicit drug use. Records based on existing data are relatively inexpensive to obtain. The method is unobtrusive, requiring no additional effort on the part of a survey respondent. One special advantage is the opportunity to check a wide range of questions, such as those about drug-related consequences, that cannot be validated with biochemical tests.

Unfortunately, official records may not always be satisfactory, independent, error-free criterion measures. Records may be incomplete. Definitions and data-collection procedures may vary over time and across locations. Occasional or periodic lapses in data entry, as well as occasional entry errors, can reduce the reliability of record-based data. In many cases, official records are based on self-reports provided in a setting that can affect willingness to report an illegal behavior. For example, arrestees may provide less accurate information on their drug use to intake personnel at a jail than to a researcher on a self-administered questionnaire given with a guarantee of confidentiality. Reluctance to disclose drug use can occur even in an alternative setting such as a clinic (which is expected to be less

conducive to underreporting) if the respondent is interested in conveying a positive image to the interviewer.

Records are also limited by the extent to which the individuals and events of interest are included by the mission or catchment area of the agency maintaining the records. Potential differences in drug use beliefs, behaviors, and attitudes between the individuals on whom records are maintained and the population to which the results will be generalized must always be considered. For example, clinic records reflect only the experiences of respondents who sought treatment and qualified for a treatment slot. Criminal justice records on arrests for driving under the influence are affected by factors such as speeding or breaking the law. In such cases, differences in risk-taking, poverty, or other characteristics of those arrested threaten the validity of comparisons to law-abiding citizens. Official records can rarely be used to assess overreporting due to omissions of some events. For example, hospital emergency room records will not include those drug overdose incidents for which respondents failed to seek medical help or went to a doctor's office or clinic. Similarly, only some drug-selling transactions will be reflected in official arrest records of drug dealers.

Despite these potential limitations, official records, used carefully, may be the best available criterion when circumstances or lack of resources prevent the use of a more objective measure of use. This type of criterion measure may be essential when the focus of investigation is the validity of self-reports of drug-related experiences not captured in biochemical tests.

THREATS TO VALIDITY OF SELF-REPORTED DRUG USE DATA: ISSUES AND FINDINGS

Response distortion to avoid social stigma is a serious risk in surveys of value-laden issues such as illicit drug use. Survey respondents may be unwilling to report drug use to avoid adverse reactions from others or to present themselves to the interviewer in a favorable way. Conversely, respondents with positive views of drug use may exaggerate their drug use to impress the interviewer or others, or to live up to a self-image that perceives drug use as positive. These hypotheses are consistent with social desirability theory (Edwards 1957), which suggests that distortion of self-reports, by underreporting or overreporting, occurs as a function of the perceived acceptability of the behavior in question.

Evidence from validity studies with highly reliable and valid external criteria (Cahalan 1968; Hyman 1944; Parry and Crossley 1950; Weiss 1968) indicates that many types of behavior viewed as socially desirable are overreported, while those viewed as less desirable are underreported. Several studies also indicate that the tendency to underreport varies across social groups that hold differing norms and values regarding the desirability of the behaviors or traits under investigation (Harrell 1985; Hyman 1944; Hindelang et al. 1981; Parry et al. 1971; Philips and Clancy 1970). Thus, even when validity studies indicate a bias towards underreporting a stigmatized behavior, the bias cannot be assumed to be constant across all respondents.

Underreporting has been found to vary by drug, with serious levels of underreporting associated with heroin, the most highly stigmatized drug at the time of these studies. Estimates of heroin prevalence based on indirect methods such as the item count or randomized response techniques that conceal the respondent's answers from the interviewer were higher than those produced by items modeled on the NHSDA, suggesting that the survey respondents underreported on direct questions about heroin use (Miller 1983, 1984). In an earlier study, Cisin and Parry (1980) found that approximately two-thirds of respondents identified as heroin users in clinic records denied heroin use during a survey. In that study, net levels of underreporting appeared to be very low for other drugs such as marijuana and cocaine. While these studies may indicate that only the most undesirable or stigmatized drug behaviors are likely to be underreported, Cisin and Parry noted that the clinic data criterion used in that study was subject to error and that some patients may have inadvertently failed to mention softer drugs such as marijuana during the intake history—thus giving a false degree of net validity to survey reports on the softer drug.

Factors other than social desirability also threaten the accuracy of self-reported drug use data. Respondents may fear legal consequences to reporting drug use if they distrust survey assurances of confidentiality. They may be unable to report drug use accurately, particularly when questions involve detailed accounts of drug consumption at times in the past. They may not be able to remember the circumstances of use, when they used a drug, or even whether they ever used a particular drug. Heavier drug users are likely to find particular facts more difficult to recall and may experience memory impairment.

A number of studies conducted during the 1960s and 1970s compared addicts' reported drug use, arrest record, and demographic information to hospital records, law enforcement records, biochemical tests, and reports

of significant others (Amsel et al. 1976; Ball 1967; Cottrell and O'Donnell 1967; Robins and Murphy 1967; Stephens 1972). For example, Ball compared the responses to a structured interview of 59 narcotic addicts to data from hospital records, Federal Bureau of Investigation (FBI) records, and tests conducted immediately after the interview to determine whether "deviant groups, especially those engaged in illegal behavior, are motivated to—and do—conceal or deny their proscribed behavior" (Ball 1967, p. 650). Five items were used for comparison: (1) the age of the subject, (2) age at onset of drug use, (3) type and place of first arrest, (4) total number of arrests, and (5) drug use at the time of interview. Responses to the items related to deviant behavior "indicate a rather surprising veracity on the part of former addicts" (Ball 1967, p. 653). However, recall of detailed information may have reduced the validity of some drug use items. Higher rates of distortion are reported on items that request exact information (e.g., age at first arrest and age of first drug use) (Ball 1967; Cottrell and O'Donnell 1967) than on easier questions such as, "Have you used marijuana?" Because the addicts appeared willing to provide authentic drug information, the implication is that faulty memory produced these inaccurate answers. In general, most research on former addicts concludes that addicts are willing to reveal the facts of their drug use and arrest record. A notable exception is a study by Amsel and colleagues (1976), which found relatively high denial rates for drug use.

Self-reported drug use data may also suffer if reports are inconsistent or incomplete. Analyses of self-reported drug use data collected by the NHSDA have found consistent patterns of self-reported friendship with users of specific drugs, opportunity to use these drugs, and actual use of these substances (Somerville and Miller 1980); and sequential patterns of the first use of various drugs that show a Guttman-like hierarchy of progressive statutes of involvement in drug use, so that for example, virtually all users of cocaine, hallucinogens, and/or heroin report that marijuana use preceded their first use of any these other illicit drugs (Harrell and Wirtz 1980). The convergence of birth cohort data derived from successive NHSDA surveys (see Cisin et al. 1978; Miller and Cisin 1983), as well as the consistency between trends reported by the NHSDA and those from the national surveys of high school seniors (c.f., Johnston et al. 1993; Substance Abuse and Mental Health Administration 1995), support the reliability of survey estimates over time. More recent analyses found that substantial proportions of those reporting some drug use provided at least one inconsistent response on the survey. Although the inconsistencies were most numerous for alcohol, the proportion giving inconsistent responses for illegal drugs was higher (Cox et al. 1992). The complexity of the cognitive task and the demands of

recall associated with questions about time periods may also contribute to measurement error on some NHSDA questions, including those about past-year drug use (Forsyth et al. 1992).

For purposes of the current study, the findings of these earlier studies suggest that former drug treatment clients generally appear willing to report past drug use, but that questions about past-year drug use may be subject to measurement error related to the cognitive complexity and demands on recall of these items.

METHODS

The sample consists of former clients of public treatment programs in Maryland (six programs), New Jersey (six programs), and Pennsylvania (three programs). Clients admitted to treatment between July and December of 1985 were selected for the sample. They were assumed to have used drugs listed as problems at the time of admission during the month before admission. Initially, 600 eligible cases were randomly selected, 50 from each of 12 strata defined by age (12 to 17, 18 to 25, and 26 and older), sex, and race (white and African American) to permit analysis by demographic characteristics. The two strata of young females 12 to 17 (African American and white) were dropped because so few cases were available and many of the available cases had male siblings in the sample. Due to problems in locating sample members from addresses provided in the clinic records, a second sample was selected midway through the study.

The study encountered substantial problems in locating respondents at the addresses provided in the clinic records. Although some problems may have resulted from data-entry errors at the clinic, a larger portion appeared to result from deliberate client misrepresentation. Address verification, undertaken by an independent tracing firm prior to interview assignment, found that 287 of 714 addresses listed in the clinic records did not exist, were out of State (which should have made the clients ineligible for pro-gram entry), or referred to vacant lots, office buildings, and other nonresi-dential structures. At another 243 addresses, the household did not contain anyone in the age/sex group of the former treatment client, despite the fact that residents in the majority of these cases said they had lived at that address for a year or longer. In a smaller number of cases, the household residents were new to the dwelling, so that it is possible that the target re-spondent had moved from the address. No household roster was obtained for 52 households (39 refused and 13 could not be contacted), leaving 132 households with potential respondents.

Interviews were completed with respondents in 73 (55 percent) of the 132 households. The selected individual refused interview in 28 households and was never found at home in 31 households. Interviews with six respondents were discarded because they did not match clinic clients on sex and date of birth. The remaining 67 respondents, all of whom had entered treatment within the year of their interview, form the sample used in the analysis. Most had been treated in outpatient programs (96 percent) and in programs focused on drug abstinence (94 percent). Almost half (48 percent) were referred to treatment through a court order.

Respondents were interviewed between April and August of 1986. Only clients who entered treatment less than 1 year before the interview were considered eligible so that their drug use during the month before admission could be considered a measure of past-year drug use.

The survey was designed to duplicate the NHSDA procedures for in-person interviews with randomly selected members of the household population. Respondent selection forms, or screening instruments, are used in the NHSDA to randomly select a member of the household for the interview. For NHSDA, the screening instruments are constructed to disproportionately sample by age group. For the validity study, the forms were modified to select the age and sex of the clinic patient residing at each address, but retained the appearance of a random selection procedure for the respondent and interviewer. The specificity of the selection criteria made it unlikely that the wrong member of a household containing the former clinic patient would be selected, although the final matching criterion was the actual date of birth recorded in both the interview and the clinic record.

Most interviewers (13 of 16) had worked on previous NHSDA surveys. Their training for this survey was similar to that used in earlier surveys. To reduce the chance that interviewers would become aware that respondents had been preselected on the basis of their known drug use, nontreatment households were included in the sample. These households were chosen during address verification on the basis of similarity in location and appearance to households of the former clinic patients and interspersed in the lists of addresses provided to interviewers. In these households, the respondent-selection procedures resulted in relatively few eligible respondents on the household listing and the results were not used in the analysis.

Interviewing followed the NHSDA procedures for minimizing denial of drug use. Respondents were assured that their answers would be kept private and confidential, never seen by the interviewer or anyone else in the household. Questions about illicit drug use were presented on self-administered answer sheets, sealed in an envelope at the end of the interview, and mailed immediately.

Respondents were invited to accompany the interviewer to the mailbox to ensure that the envelope was not opened.

The test of whether respondents reported drug use on the survey was based on answers to the question, "When was the most recent time that you used (the drug)?" Answers were classified as: ever used versus never used; and used in past year versus never used, or used most recently more than 12 months ago. Four classes of illicit drugs—marijuana, cocaine, hallucinogens, and heroin—were examined. Nonmedical use of psychotherapeutic drugs including sedatives, tranquilizers, and stimulants was excluded because so few of the sample clients were admitted to treatment for the abuse of these substances.

Clinic records from the Client-Oriented Data Acquisition Process (CODAP) system maintained by the National Institute of Drug Abuse (NIDA) (1987) provided data on the drugs (up to three) considered problems at the time of admission to treatment. Problems at time of admission were determined at the clinics during intake interviews and were used as the criterion measure of past-year use of these drugs. CODAP forms provided a consistent format across clinics for identifying drugs abused at the time of admission and use of these drugs in the month before admission. Records with missing information on sex, age, race, address, or drug use were excluded. Checks of the reliability of the computerized drug use items contained in the CODAP records found no inconsistencies with hard-copy files maintained at the clinics. Although many respondents reported drugs on the survey that were not listed in the clinic records, this cannot be interpreted as overreporting because no effort was made to list all drugs ever used in the records.

The analysis also examined the validity of self-reported data on drug treatment as reported in the NHSDA. This question is of particular interest in the validity study because all members of the sample were known to have been in treatment so that the validity of the criterion measure is high, and because questions about treatment participation cannot be validated using biochemical tests. Survey respondents were classified as: ever receiving treatment for the use of drugs other than alcohol versus never receiving treatment; and receiving treatment during the past year versus no treatment in the past year, based on two questions: "Have you ever gotten treatment for your other drug use, not counting cigarettes or alcohol?" and "Have you received treatment in the past 12 months for your drug use (not counting cigarettes or alcohol)?"

RESULTS

The analysis includes 49 respondents with a history of marijuana use, 25 known to have used cocaine, 20 hallucinogen users, 28 heroin users, and 7

psychotherapeutic drug (stimulants, sedatives, or tranquilizers) users. These numbers reflect the fact that most respondents (70 percent) had problems with more than one drug: 48 percent listed two drugs as problems at the time of admission to treatment and 22 percent listed three.

Table 1 describes the sample of abusers by drug category. Eighty-five percent of the respondents were 18 or older, and 72 percent were men. Demographic characteristics varied by type of drug abused. Marijuana and hallucinogen abusers were younger than the samples of heroin and cocaine abusers and included a greater proportion of white respondents.

For most analyses, all 67 cases were used. However, the analysis of self-reported past-year drug use was limited to respondents who used the drug(s) of abuse within the month before admission to the drug treatment program. Cases were limited to respondents interviewed within 11 months of clinic admission (333 days) to ensure that their drug use occurred within the past year at the time of interview. The sample of past-year users consisted of 28 marijuana users, 13 cocaine users, 6 hallucinogen users, and 17 heroin users.

Drug Use Underreporting by Drug

The number and percentage of known users who reported their use on the survey is shown in table 2. Almost all respondents admitted to treatment for marijuana use reported some previous marijuana use (96 percent). Clients treated for cocaine abuse were somewhat less likely to report any past use (84 percent of the users). Reporting accuracy was lower for heroin and hallucinogen use, with 68 to 70 percent of the users reporting any use of these substances. The accuracy

TABLE 1. *Demographic characteristics of respondents by drug abused at time of clinic admission.*

	Drug abused at admission/# affirmative respondents*				
	Marijuana	Cocaine	Hallucinogens	Heroin	Any drug
Total users	49	25	20	28	67
Age group					
12-17	9	2	7	0	10
18-25	19	13	6	12	27
26+	21	10	7	16	30
Sex					
Male	37	20	16	18	48
Female	12	5	4	10	19
Race					
White	26	10	16	7	39
African American	23	15	4	21	28

KEY: * = Drug use categories are not mutually exclusive.

of reporting of past-year use was generally lower. Most of those who had used marijuana in the month before clinic admission (N = 28) admitted past-year use on the survey (86 percent). Fewer of those who used cocaine in the month before treatment reported past-year use (69 percent), and even smaller portions of those whose records indicated use of heroin and hallucinogens in the month before admission reported past-year use. The results are consistent with the thesis that underreporting results from the risk of social stigma associated with revealing use of these drugs. Social desirability theory predicts that response accuracy will decline as the level of stigma increases, so that respondents are expected to be more willing to report the use of widely used drugs such as marijuana than use of those less prevalent and more deviant drugs such as heroin, with cocaine and hallucinogens in the middle.

TABLE 2. *Self-reported drug use by drug type and time period.*

Drug type and time period	Number admitted for abuse	Percent reporting use
Marijuana		
Ever use	49	96
Past-year use	28	86
Cocaine		
Ever use	25	84
Past-year use	13	69
Hallucinogens		
Ever use	20	70
Past-year use	6	33
Heroin		
Ever use	28	68
Past-year use	17	59

An analysis of reporting accuracy of users of more than one drug category was conducted to see whether reporting accuracy within individuals was related to the level of stigma associated with the drug category. This analysis controls for differences in the sample composition of the various drug user categories—differences that could affect reporting accuracy unrelated to drug stigma.

Clinic records indicated that 47 respondents abused two or more drugs at the time of admission. Almost three-quarters of these multiple-drug users (72 percent) reported all drugs used, while 9 percent denied use of all drug categories (table 3). The remaining 19 percent reported some drugs and failed to report others. In every case, the drugs not reported were more stigmatized than those reported. None of the multiple-drug users denied use of a lower stigma drug while reporting use of high-stigma drug. Thus, even respondents with considerable involvement in illicit drug use and exposure to the social norms of drug users are likely to underreport highly stigmatized drugs.

TABLE 3. *Patterns of underreporting drug use among abusers of more than one drug category.*

Reporting pattern	Number	Percent
Denied use of all abused drug categories	4	9
Denied use of all higher stigma drug categories, reported use of lower stigma drug category	9	19
Reported use of a higher stigma drug category, denied use of a lower stigma drug category	0	0
Reported use of all abused drug categories	34	72
Total	47	100

Other Potential Correlates of Drug Use Underreporting

The willingness of respondents to report deviant or socially undesirable behavior may well be influenced by the level of self-disclosure required. It would seem plausible from a social desirability perspective to expect underreporting to be more prevalent in the less private interviews, as reported elsewhere (Bradburn and Sudman 1979; Turner et al. 1992). Although the NHSDA questionnaire procedures are designed to maximize the amount of privacy afforded to respondents, it is sometimes necessary to hold an interview in the presence or hearing of others in the household. According to interviewer rating, 75 percent of the interviews in this survey were conducted under conditions of complete privacy, while 25 percent were conducted in less than totally private circumstances.

The analysis of response accuracy is shown in table 4. Response accuracy appears better under less than total privacy for the higher stigma drugs—cocaine, hallucinogens, and heroin. However, these differences are not statistically significant, possibly because of the small sample size. Respondents may be more willing to report drug use in nonprivate interviews in order to appear truthful to other members of the household who know of their drug involvement. However, the accuracy of reported marijuana use appeared higher under conditions of total privacy, although again this difference was not significant at the 0.05 level.

The willingness to report drug use may also be a function of the length of time since some drug use was initiated, with longer periods of use

TABLE 4. *Self-reported drug use by privacy during interview.*

Reporting pattern	Number admitted for abuse*	Percent reporting use of drug(s) on clinic record
All drugs on clinic record		
Total privacy	47	72
Less than total privacy	16	88
Marijuana		
Total privacy	36	100
Less than total privacy	11	82
Cocaine		
Total privacy	15	80
Less than total privacy	9	89
Hallucinogens		
Total privacy	12	58
Less than total privacy	8	88
Heroin		
Total privacy	18	61
Less than total privacy	6	82

KEY: * = Excludes 4 cases with missing data on privacy.

associated with increased self-acceptance of the drug user identity and label. For the same reason, respondents admitted to drug treatment more than once (43 percent of the sample) might be more willing to report drug use than respondents whose first admission had occurred in the preceding year. A logistic regression analysis was used to test the hypothesis that failure to report one or more drugs (all drug reports accurate versus at least one drug not reported) was a function of the number of years since the first use of an illicit drug. The results found that the length of time the respondent had used drugs was not related to whether all known drug use was reported. Similar analyses found no significant differences in reporting all known drug use between respondents admitted for the first time to drug treatment and those previously admitted.

Clients referred to treatment by the courts might be more likely to underreport drugs on a survey than other clients. They may fear legal consequences of admitting drug use, have less trust of others, feel greater hostility towards persons questioning them, or resist acknowledging drug involvement. There were significant differences in the percentage reporting all known drug use: 66 percent of court-

ordered clients reported use of all clinic-listed drugs compared to 86 percent of those who entered treatment voluntarily ($p < 0.05$).

Although willingness to report use of an illicit drug varies by demographic characteristics that define groups with differences in the level of stigma attached to drug use and perceptions of risk attached to reporting illegal behavior, this hypothesis could not be tested. The only drug use category with enough respondents to permit analysis of sociodemographic correlates of reporting accuracy was use of marijuana, but only 2 of 49 marijuana users failed to report their past use.

Drug Treatment Underreporting by Drug

Although the records indicated that all respondents had entered drug treatment during the year before the survey for use of an illicit drug, many failed to report their drug treatment on the survey. As table 5 indicates, 56 percent of all respondents reported ever receiving any treatment for use of a drug other than cigarettes and alcohol. However, the reluctance to report drug treatment did not increase with the level of stigma associated with the primary drug problem at the time of admission to treatment. Indeed, heroin abusers were slightly, but not significantly, more likely to give accurate reports on drug treatment experiences than were those whose primary drug of abuse was less stigmatized: 71 percent of those whose primary drug was heroin reported ever receiving drug treatment compared to about 50 percent of those whose primary drug was one of the other drugs. Similarly, only 38 percent of this group of clients treated within the past year reported receiving drug treatment during the past year. Again, failure to report past-year drug treatment did not increase with the stigma of the abused substance, and former heroin patients were more likely than abusers of other drugs to report past-year treatment.

Drug Treatment Underreporting by Previous Treatment Episodes

Willingness to report drug treatment was related to the number of treatment episodes. Compared to respondents with more than one

TABLE 5. *Reporting of drug treatment experience by primary drug at admission and time period.*

Primary drug and time period	Total number*	Percent reporting treatment
Marijuana		
Treatment ever	17	47
Treatment past year	17	29
Heroin		
Treatment ever	21	71
Treatment past year	21	52
Other drugs		
Treatment ever	28	50
Treatment past year	28	32
Total sample		
Treatment ever	66	56
Treatment past year	66	38

KEY: * = Excludes one case with missing data on treatment experience.

treatment experience, respondents who were admitted to treatment for drug abuse for the first time during the preceding year were less likely to report ever receiving drug treatment (43 percent compared to 72 percent, chi square = 5.6, $p < 0.05$) and less likely to report receiving drug treatment in the past year (36 percent compared to 68 percent, chi square = 6.6, $p < 0.05$). More than one treatment episode was more prevalent among the heroin abusers in the sample than among others: 76 percent of the heroin admissions had previously received drug treatment compared to 6 percent of the marijuana admissions and 41 percent of those admitted for other primary drugs. Thus, the slightly better accuracy of the drug treatment data of those admitted with heroin as the primary drug problem may be associated with multiple treatment episodes.

Other Potential Correlates of Drug Use Underreporting

Willingness to report drug treatment showed no significant relationship to other potential correlates of underreporting, including the privacy of the interview (completely private compared to less than completely private), the source of referral to treatment (court ordered compared to voluntary), and the time between entering treatment and the interview. Similarly, differences by age, sex, and race in the percentage reporting drug treatment in the past year or at any time in the past (table 6) were not statistically significant.

TABLE 6. *Reporting of receiving drug treatment by demographic characteristics.*

Demographic group	Total number*	Percent reporting treatment during past year	Percent reporting ever receiving treatment
Age			
12-17	9	33	67
18-25		30	44
26+		47	63
Sex			
Male	47	36	57
Female	19	42	53
Race			
White	32	44	56
African American	34	32	56
Total sample			
Treatment ever	66	56	56
Treatment past year	66	38	38

KEY: * = Excludes one case with missing data on treatment experience.

These results suggest that drug treatment is an experience that respondents from diverse social groups are reluctant to report in an interview, even under conditions designed to protect their anonymity and confidentiality.

DISCUSSION

The results indicate that underreporting of drug use increased as the social stigma associated with the drug increased. Most (more than 80 percent) of the former drug treatment clients interviewed using the NHSDA procedures reported ever using marijuana and cocaine when these drugs were listed as problems at the time respondents were admitted to drug treatment. A smaller portion, but still over two-thirds, of those whose clinic records indicated problems with hallucinogens and heroin reported ever using these drugs. More than 80 percent of the known marijuana users reported their past-year use, more than two-thirds of the known cocaine users reported their past-

year use, and less than two-thirds of the hallucinogen and heroin users reported past-year use. The within-user analysis shows that in every instance, mixed reporting accuracy errs on the side of failing to report: Known cocaine users reported their past-year use and fewer than two-thirds of the hallucinogen and heroin users reported past-year use. The within-user analysis shows that in every instance, mixed reporting accuracy errs on the side of failing to report more stigmatized drugs. The lower rates of past-year use may result from a combination of failure to recall the time of most recent use accurately and a reluctance to admit more recent drug use.

Reporting accuracy did not vary significantly by the privacy of the interview, the number of years of drug use, or whether the respondent had one or more drug treatment episodes. These findings should be interpreted with caution due to the small sample size. However, those former clients who entered drug treatment under court order were less likely to report their drug use accurately.

Past-year drug treatment should have been reported by 100 percent of the sample, but was reported by less than 40 percent of those known to have been admitted to treatment in the past year for drugs other than heroin. Failure to report treatment was not correlated with the level of stigma attached to the drugs listed as problems at the time of admission, with heroin abusers more likely to report past-year treatment than those admitted to treatment for the abuse of other drugs. Clients who had received drug treatment more than once were more likely to report any previous drug treatment and drug treatment in the past year than clients who had been in treatment only once. Since heroin users were more likely to have multiple treatment episodes, the tendency to underreport events associated with this stigmatized drug may have been offset by reduced denial associated with multiple treatment episodes. The privacy of the interview, court referral, and demographic characteristics were not related to the reporting accuracy. There was no significant relationship between reporting accuracy and the time elapsed between clinic admission and the interview, suggesting that memory failures did not play a substantive role in the underreporting.

The difficulty in locating respondents and the resulting low response indicate caution in generalizing these results to the population of former drug treatment clients. However, the effect of the bias introduced by the survey nonresponse may be to reduce the level of observed under-reporting, if it can be assumed that those former clients who provided incorrect addresses to the clinic would also be

less truthful in reporting their drug use and drug treatment on an interview. The small sample size also limits the power of the analysis to detect significant differences, suggesting that future study is indicated of factors found to be unrelated to underreporting.

The study illustrates both strengths and weaknesses of records-based validity studies of self-reported drug data. The validity test could be conducted in a natural setting that avoided bias introduced by interviewer expectations or the realization on the part of respondents that under-reporting would be detected. The research method did not require any special effort on the part of respondents, nor the expense of special tests. The criterion in this case was found to be reliable, since checks against clinic records showed that clinic files contained information on the use of the drugs that were not reported.

The disadvantages to record-based validation are also clearly demonstrated. The clinic records on address location were very inaccurate, resulting in a poor rate of locating sample members. As a result, the extent to which interviewed former treatment clients are representative of the population of former drug treatment clients is unknown. Further caution is required in generalizing the results to the household population included in the NHSDA. Underreporting may be less prevalent among those who have received treatment because their drug use is not a secret and they have had to discuss it in interviews with clinic personnel, while those who have not previously discussed their use may be more motivated to conceal their drug use. However, the opposite may true. Denial is known to be a problem among serious abusers, while casual users may be less likely to regard their use as a problem to be denied.

One of the two criterion measures, drug problems reported at the time of admission, must be viewed with some caution because it is based on self-reported data, albeit self-reports collected in a setting likely to produce accurate information. The level of underreporting on this criterion is unknown. Some of the discrepancies in past-year drug use may have resulted from errors in reporting past-month use at the time of clinic admission or, as noted above, from errors in recalling the recency of use. In contrast, the clinic records provided a very robust basis for a test of the validity of reports on drug treatment because all respondents were known to have received treatment, a population of treatment clients (limited to public treatment facilities in three States) served as the sampling frame, and alternative procedures are not available for verifying the validity of responses on this consequence of drug use. Future records-based validity tests must

be undertaken with careful assessment of these issues as they relate to the specific self-report data and set of records to be compared.

REFERENCES

- Amsel, Z.; Mandell, D.; and Matthias, C. Reliability and validity of self-reported illegal activities and drug use collected from narcotic addicts. *Int J Addict* 11(2):325-336, 1976.
- Ball, J. The reliability and validity of interview data from 59 narcotic drug addicts. *Am J Sociol* 72:650-654, 1967.
- Bradburn, M.N., and Sudman, S. *Improving Interview Methods and Questionnaire Design*. Washington, DC: Jossey-Bass, 1979.
- Cahalan, D. Correlates of respondent accuracy in the Denver validity survey. *Public Opin Q* 32:607-621, 1968.
- Cisin, I., and Parry, H.J. Sensitivity of survey techniques in measuring illicit drug use. In: Rittenhouse, J.D., ed. *Developmental Papers: Attempts to Improve the Measurement of Heroin Use in the National Survey*. Rockville, MD: National Institute on Drug Abuse, 1980.
- Cisin, I.H.; Miller, J.D.; and Harrell, A.V. *Highlights from the National Survey on Drug Abuse: 1977*. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1978.
- Cottrell, E.S., and O'Donnell, J.A. "Reliability of Admission Data." Report prepared for the National Institute of Mental Health Clinical Research Center, Lexington, KY, 1967.
- Cox, B.G.; Witt, M.B.; Traccarella, M.A.; and Perez-Michael, A.M. Inconsistent reporting of drug use in 1988. In: Turner, C.F.; Lessler, J.T.; and Gfroerer, J.C., eds. *Survey Measurement of Drug Use: Methodological Studies*. National Institute on Drug Abuse Pub. No. 271-88-8310. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1992. pp. 109-153.
- Edwards, A.L. *The Social Desirability Variable in Personality Assessment and Research*. New York: Dryden, 1957.
- Forsyth, B.; Lessler, J.; and Hubbard, M. Cognitive evaluation of the questionnaire. In: Turner, C.F.; Lessler, J.T.; and Gfroerer, J.C., eds. *Survey Measurement of Drug Use: Methodological Studies*. National Institute on Drug Abuse Pub. No. 271-88-8310. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1992. pp. 13-52.
- Harrell, A.V. Validation of self-report: The research record in self-report methods of estimating drug use. In: Rouse, B.E.; Kozel,

- N.J.; and Richards, L.G., eds. *Self-Report Methods of Estimating Drug Use: Meeting Current Challenges to Validity*. National Institute on Drug Abuse Research Monograph 57. DHHS Pub. No. (ADM)85-1402. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1985.
- Harrell, A.V., and Wirtz, P. "Developmental Sequences of Illicit Drug Use." Paper prepared for National Institute on Drug Abuse, 1980.
- Hindelang, M.J.; Hirschi, T.; and Weiss, J.G. *Measuring Delinquency*. Beverly Hills, CA: Sage Publications, 1981.
- Hyman, H. Do they tell the truth? *Public Opin Q* 8:557-559, 1944.
- Johnston, L.D.; O'Malley, P.M.; and Bachman, J.G. *National Survey Results on Drug Use from the Monitoring the Future Study, 1975-1992*. Rockville, MD: National Institute on Drug Abuse, 1993.
- Miller, J.D. "A New Survey Technique for Studying Deviant Behavior." Ph.D. diss., George Washington University, 1984.
- Miller, J.D. "The Nominative Technique: Method and Heroin Estimates from the 1982 National Survey on Drug Abuse." Paper prepared for the National Institute on Drug Abuse, 1983.
- Miller, J.D., and Cisin, I.H. *Highlights of the National Survey on Drug Abuse*. Washington, DC: Supt. of Docs., U.S. Govt. Print Off., 1983.
- National Institute on Drug Abuse. *Demographic Characteristics and Patterns of Drug Use of Clients Admitted to Drug Abuse Treatment Programs in Selected States: Annual Data 1983*. Washington, DC: U.S. Department of Health and Human Services, 1987.
- Parry, H.J., and Crossley, H.M., Validity of responses to survey questions. *Public Opin Q* 14:61-80, 1950.
- Parry, H.J.; Balter, M.B.; and Cisin, I.H. Primary levels of under-reporting psychotherapeutic drug use. *Public Opin Q* 34:582-592, 1970-1971.
- Philips, D.L., and Clancy, K.J. Response bias in field studies of mental illness. *Am Sociol Rev* 35:503-515, 1970.
- Robins, L.N., and Murphy, D.E. Drug use in normal population of young Negro men. *Am J Public Health* 57:1580, 1967.
- Somerville, S.N., and Miller, J.D. "Opportunity and Deviance: An Analysis of Drug Use Entry." Paper prepared for the National Institute on Drug Abuse, 1980.
- Stephens, R. The truthfulness of addict respondents in research projects. *Int J Addict* 7(3):549-588, 1972.

- Substance Abuse and Mental Health Services Administration. *National Household Survey on Drug Abuse: Main Findings 1992*. DHHS Pub. No. (SMA) 94-3012. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1995.
- Turner, C.; Lessler, J.; and Devore, J. Effects of mode of administration and wording on reporting of drug use. In: Turner, C.F.; Lessler, J.T.; and Gfroerer, J.C., eds. *Survey Measurement of Drug Use: Methodological Studies*. National Institute on Drug Abuse Pub. No. 271-88- 8310. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1992. pp. 177-220.
- Weiss, C. Validity of welfare mothers' interview responses. *Public Opin Q* 32:622-633, 1968.

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