

The Reliability and Consistency of Drug Reporting in Ethnographic Samples

Michael Fendrich, Mary Ellen Mackesy-Amiti, Joseph S. Wislar, and Paul Goldstein

ABSTRACT

Findings are addressed concerning the reliability of reporting on drug dealing and drug use. Reports provided in retrospective life history interviews are compared with reports gathered and summarized from eight prospective weekly interviews. Most subjects reporting involvement in drug dealing during the weekly interviews, also reported involvement in this behavior during the life history report. There was a tendency for subjects to deny current involvement in drug dealing during the life history reports, even though they reported involvement in drug dealing in the weekly interviews. Binary indicators derived from life history interviews about current drug use were consistent with reports provided prospectively. Subjects reported considerably higher use quantities and frequencies for substances in the life history reports than they did in the weekly interview reports. These results are examined in the context of other recent work examining the reliability of retrospective substance involvement reports. Implications for ethnographic research on drug use are discussed.

INTRODUCTION

A growing body of ethnographic research describes drug use practices in untreated samples drawn from subcultures where many forms of drug use are normative (Adler 1993; Goldstein et al. 1990; Johnson et al. 1985; Waldorf et al. 1991; Weibel 1988). In ethnographic studies, groups of users are followed for weeks, months, or years, in order to evaluate drug use patterns, correlates, and consequences. More recently, ethnographic research approaches have been incorporated into the planning and evaluation of human immunodeficiency virus (HIV) prevention programs with intravenous (IV) drug users (Stephens et al. 1991; Weibel 1988). Conclusions with respect to program effectiveness as well as about the generalizability of previous findings

from ethnographic studies of drug abusers require a clear understanding of the validity of the interview measures and procedures employed in these studies.

Ethnographic research places an emphasis on observational accounts of subject behavior (Goldstein et al. 1991). Thus, discussions of validity in ethnographic research on drug use have focused on observational verification of subject responses. For example, Biernecki and Waldorf (1981, p. 151) report that in their study of former opiate addicts, researchers would verify reports of nonuse by asking to "examine a respondent's arms in order to check for relatively fresh signs of needle injections." Johnson and colleagues (1985) discuss observations drawn from a visit to a heroin addict's apartment as validating lifestyle information provided in earlier interviews. Biernecki and Waldorf (1981), Johnson and colleagues (1985), and Goldstein and colleagues (1987, 1988) also report that information provided by a subject was sometimes validated by information provided by other informants enlisted in the research project (triangulation). Adler (1993) discusses the use of cross-checking to verify accounts provided by participants in a study of drug dealers. This procedure included corroboration of accounts with other sources and investigation of available hard facts (such as arrest records, visible evidence, and newspaper reports), as well as direct, critical observation of the drug scene around them.

These earlier approaches failed to address a more basic issue in the assessment of validity. For measures to be valid, they need to be reliable (Lord and Novick 1968). To the extent that informants provide consistent responses when they are asked to discuss the same behavior, their responses may be considered reliable. But the question is: To what extent are ethnographic accounts provided by individuals reliable? Johnson and colleagues (1985) and Goldstein and colleagues (1987) note that they examined internal consistencies and the correspondence between replicate measures of the same behaviors within their respective research summaries. Nevertheless, neither of these studies provided a formal statistical assessment of reliability. Fendrich and colleagues (1992) reanalyzed the data discussed in Goldstein and colleagues (1987, 1988) to statistically assess the consistency of drug use reports provided in prospective weekly interviews. They found that individuals were more consistent in their reports of drug use frequency (days of consumption) than they were in their reports of drug use amount (cost of drugs consumed) over an 8-week period. A particularly striking finding was a general tendency for respondents to report diminishing levels of drug use (irrespective

of measure) over the 8-week reporting period. The authors suggested three possible interpretations of this finding. It may have reflected real changes in behavior. It also may reflect the phenomenon of retest artifact (Jorm et al. 1989). Psychiatric research suggests that levels of symptomatology (and substance use) diminish when subjects are reinterviewed (Bromet et al. 1986; Rubio-Stipec et al. 1992). Finally, since subjects were aware that drug use was an important qualifying characteristic for study entry (and subsequent receipt of subject payment), higher initial reporting levels could have reflected perceived demand characteristics of the study; subjects may have overestimated their levels of drug use initially to appear as better qualified subjects.

In this chapter, the authors follow up on previous analyses of reliability in ethnographic research by examining the reliability of retrospectively provided life history information about drug use and drug dealing. Retrospective summary information about typical patterns of substance use and involvement in drug dealing is compared to prospectively gathered weekly reports about similar behavior. The aim is to address the following questions: How consistent is retrospectively provided information with information provided prospectively? Does consistency with respect to reporting on drug dealing differ from consistency with respect to reporting on drug use? Does consistency vary by type of substance or by type of substance use measure (i.e., frequency versus volume)? Are retrospective reports an overestimate or underestimate of behavior reported prospectively? Do trends in reporting consistency vary by respondent characteristics?

METHODS

Sample

Two different ethnographic studies were undertaken on the Lower East Side of New York City between 1984 and 1987. Interviews for a study examining the drugs/violence nexus among adult male drug users and distributors were carried out between November 1984 and April 1986 (Project DRIVE (Drug Related Involvement in Violent Episodes)) (Goldstein et al. 1987). Interviews for a similar study of female drug users and distributors were carried out between April 1986 and May 1987 (Project FEMDRIVE (Female Drug Related Involvement in Violent Episodes)) (Goldstein et al. 1988). Respondents from both studies were adults over the age of 18 who

were recruited from field contacts, through snowball sampling techniques, and from a local methadone maintenance treatment program. Interviewing took place in an ethnographic field station established solely for the purposes of these projects. Descriptive characteristics of this sample have been discussed in detail elsewhere (Fendrich et al. 1992). To briefly summarize, both samples were racially and ethnically heterogeneous, with African Americans representing the modal racial category. The majority of the men and women were high school graduates, and a substantial portion had attended college. The modal living situation for both men and women was in shelters for the homeless.

Study Design

Respondents in both studies were interviewed using a similar set of semistructured interview instruments. Upon recruitment to the study, all respondents were given a life history interview (DRIVE respondents completed this interview in an average of 2.5 sessions; FEMDRIVE respondents completed this interview in an average of 5 sessions). This interview focused on a wide range of issues, including drug use history, participation in treatment programs, involvement in drug sales and distribution, criminal history, and history of involvement in violence. After the final life history interview session, respondents were interviewed in detail about their activity over the previous 7 days. Detailed information was collected about drug use and drug dealing, criminal activity, violent perpetrations and victimizations, sources of income, and types of expenditures on each of the 7 days. Data covering 7 discrete days were collected for each respondent. Respondents were asked to return to the field station to complete additional indepth interviews about daily activity over the course of 7 weeks. The eight weekly interviews were not necessarily consecutive. Interviews about daily behavior pertaining to 8 distinct weeks were obtained for 152 males for the initial study and 133 females for the second study. All subjects included in these analyses completed all phases of the study.

Interview Format

Life History Interview. The life history survey was a semistructured, open-ended interview in which respondents were asked to describe patterns of substance use, exposure to violence, and criminal involvement; they were asked to recall whether they had ever tried a particular substance. Respondents who disclosed substance involvement were asked about specific periods of involvement; for

each period of involvement, participants were asked to specify their frequency and typical cost of substance use. Participants were also asked about their involvement in a number of specific criminal behaviors. Respondents who disclosed criminal involvement were asked about specific periods of involvement; for each period of involvement, they were asked to specify how often they were involved as well as whether any violence or injuries resulted from their involvement.

Weekly Interview. The weekly interviews were constructed in a more structured, diary format. For each weekly interview, the respondent was asked to retrospectively report on the estimated dollar amount of substances purchased and on the estimated dollar amount consumed. The substances covered in the weekly interviews paralleled those asked about in the life history report. Additionally, the respondent was asked about a range of economic and criminal activities engaged in on each day of the previous week. Specific daily criminal activities along with dollar amounts they generated were recorded by interviewers.

Measures

Life History Interview Measures. For these analyses, three life history measures of drug-dealing involvement were constructed—one general measure of lifetime drug dealing and two indices reflecting recent drug dealing. The latter two measures are based on reports provided by informants of the "age of last involvement" with this activity; included is an indicator of involvement in the past 2 years and involvement in the past year. Two measures of substance use were derived from the life history interviews for use in comparative analyses. One described the most recent typical use frequency for each substance; the other the most recent typical cost per use day for each substance.¹ Current use status was also coded in the life history interview. Based on an examination of the data,² use frequency categories were divided into four mutually exclusive groups (coded on a scale from 1 to 4, with 4 indicating a higher frequency): Infrequent users were those who characterized their use as monthly or less; moderate users were those admitting to use on weekends or on no more than 2 days during any particular week; regular users used at least 3 days per week but no more than 5 days per week; daily users used nearly every day (6 or 7 days per week). Most recent cost per day was derived from an actual dollar amount estimate of typical cost-per-day of use provided for each substance.

Weekly Interview Measures. A measure of weekly drug dealing was constructed by evaluating whether any drug dealing was reported over the course of the 8-week interview period. To obtain an estimate of drug use cost comparable to that used in the life history report, the authors constructed a use volume index. The total dollar amount consumed in the course of 8 weeks was divided by the total number of days in which use was indicated. Those who consumed no substances over the course of 8 weeks were assigned a "0" on this measure. For each substance, use volume on the weekly interviews was compared to the typical cost-per-day estimates provided in the life history reports. Frequency pattern variables for the weekly interviews were constructed as measures of the total number of days used per week of use. First, a numerator was constructed based on the total number of use days over the course of 8 weeks. Next, a denominator was constructed based on the total number of weeks during which use was recorded. Thus, for each substance, each individual had a ratio of days used per use week. All individuals with no use were coded as "0" on this ratio. As a final step, this measure was divided into four use categories (ranging from light use to daily use) that were roughly equivalent to the four categories coded for in the life history measure.³

The measures used for this study are described and summarized in table 1, which indicates the source of each measure (life history report or weekly interview) and any transformations made on each measure for the purposes of data analysis. This table also indicates the variables that were compared in quantitative analyses.

RESULTS

Drug-Dealing Activity

The first focus in the analysis compares drug-dealing activity reported in the life history section of the interview with that reported in the weekly interviews. Comparisons are described for the three life history indices of drug dealing in table 2.⁴ Lifetime prevalence of drug-dealing activity exceeds the prevalence of this behavior during the weekly interviews. In DRIVE, 81 percent of the respondents disclosed in the life history interview that they had been involved in drug dealing at least once in their lifetimes; 66 percent of the respondents disclosed involvement in drug dealing during the weekly interviews. Similarly, 67 percent of the FEMDRIVE respondents disclosed involvement in drug dealing during

Measure	Definition	Source	Comparison measure
Any drug dealing	Subject has dealt drugs	Life history interview	Weekly drug dealing
Recent drug dealing: last 2 years	Age at last occurrence of drug dealing was no more than 2 years less than current age	Life history interview	Weekly drug dealing
Recent drug dealing: last year	Age at last occurrence of drug dealing was no more than 1 year less than current age	Life history interview	Weekly drug dealing
Weekly drug dealing	Any drug dealing reported in any of the 8 weeks	Weekly interview	Any drug dealing/recent drug dealing
Current use	Subject using substance at time of interview (explicitly stated, or last reported use in the current year), or quit using less than 1 month ago	Life history interview	Weekly use
Weekly use	Subject reported use of substance in any of the 8 weeks	Weekly interview	Current use
Cost per day	Typical cost per day of drug use for the most recent period of use	Life history interview	Use volume
Frequency pattern	Typical frequency of use for the most recent period of use, coded into four categories: infrequent (once a month or less), moderate (2 times/ month to 2 days/week), regular (3-4 days/week), and daily (5-7 days/week)	Life history interview	Average days per week
Use volume	Average dollar amount of drug used per day of drug use (total cost of drug used over 8 weeks/number of days used over 8 weeks)	Weekly interview	Cost per day
Average days per week	Average number of days used per week used (total number of days used over 8 weeks/number of weeks used); recoded into four categories: infrequent (< 0.5), moderate (0.5-2.5), regular (2.5-5.5), and daily (5.5 or more)	Weekly interview	Frequency pattern

TABLE 2. *Drug dealing: Life history and weekly interviews.*

Life history measure	Life history prevalence	Weekly prevalence	Sensitivity of LH report		Kappa	Conditional Kappa
	%	%	%	(n1/n2)		
DRIVE						
Any drug dealing (N = 146)	80.8	66.4	83.5	(81/97)	0.09	0.15
Dealing in past 2 years (N = 123)	36.6	64.2	39.2	(31/79)	0.06	0.04
Dealing in past year (N = 123)	28.5	64.2	32.9	(26/79)	0.1	0.06
FEMDRIVE						
Any drug dealing (N = 132)	67.4	43.2	78.9	(45/57)	0.19	0.35
Dealing in past 2 years (N = 128)	22.7	43.8	30.4	(17/56)	0.14	0.1
Dealing in past year (N = 128)	13.3	43.8	16.1	(9/56)	0.05	0.03

KEY: 1 = Sensitivity is defined as the percentage of weekly drug dealers (n2) who also identify themselves as drug dealers (either lifetime, in the past 2 years, or in the past year) in the life history report (n1).

the life history interview; 43 percent disclosed involvement with this activity during the weekly interviews (see table 2).

Since lifetime behavior encompasses a longer frame of reference than current behavior, one should expect current behavior to differ from past behavior. Nevertheless, three additional statistics suggest a certain degree of unexpected inconsistency with respect to lifetime and weekly interview reports. The sensitivity of life history reports was considerably less than unity for both DRIVE and FEMDRIVE. In both samples, close to 20 percent of those disclosing drug-dealing activity during the weekly interviews reported that they never were involved in drug dealing during the life history interviews. This may suggest underreporting of lifetime drug dealing in the life history reports. This possible underreporting is also supported by relatively low conditional Kappa statistics. The Kappa statistic should approach at least a value of 0.40 to be considered "fair." Conditional

Kappa statistics (Bishop et al. 1975) measure agreement with respect to drug-dealing behavior, conditional on that behavior's occurring during the weekly interviews.⁵ Note that when lifetime drug dealing is the comparison measure, conditional Kappa statistics for neither sample reach a level considered to be acceptable. Although there is general inconsistency with respect to the reporting of drug-dealing behavior (Kappas of 0.09 and 0.19 were observed for lifetime drug-dealing comparisons in DRIVE and FEMDRIVE), the use of conditional statistics yield substantial improvements in the evaluation of chance-corrected agreement only for FEMDRIVE (the coefficient increases from 0.19 to 0.35 in FEMDRIVE and from 0.09 to 0.15 in DRIVE). Both of the conditional agreement statistics suggest poor levels of agreement conditional on drug-dealing reports in the weekly interviews.

As a second step, the agreement between recent drug-dealing activity in the life history reports and drug-dealing activity in the weekly interviews was examined. When reports provided in the weekly interviews were used as criteria, sensitivity rates sharply declined from their previous levels in both DRIVE and FEMDRIVE. In DRIVE, only 39 percent of those reporting involvement in drug dealing during the weekly inter-views also reported life history involvement in this behavior during the past 2 years; 33 percent of those reporting involvement during the weekly interviews also reported life history involvement during the past year. In FEMDRIVE, the shift to the more narrowly defined dealing recency measure results in a dramatic decrement of sensitivity: Only 30 percent of those reporting involvement in drug dealing during the weekly interviews also reported life history involvement in the past 2 years, and only 16 percent of those reporting involvement during the weekly interviews also reported life history involvement in the past year. These findings are paralleled by relatively low coefficients for Kappa and conditional Kappa statistics for both measures of recent involvement in both samples.

Current Drug Use Reporting

Table 3 describes the overall rates of substance involvement across inter-views and presents the agreement between binary measures of substance involvement for all subjects who had complete life history responses

TABLE 3. *Current substance use involvement in life history and weekly interviews: Prevalence and agreement statistics.*

Substance	Reported Any Involvement								Agreement coefficient Kappa	Conditional Kappa
	Life history prevalence_		Weekly interview prevalence		Sensitivity _					
	N	%	N	%	N	%		(n1/n2)		
DRIVE										
Heroin	151	55.0	83	50.3	76	91	(69/76)	0.72	0.80	
Cocaine	150	80.7	121	81.3	122	92	(112/122)	0.59	0.58	
Marijuana	148	79.1	117	77.0	114	90	(103/114)	0.51	0.54	
Alcohol	146	74.7	109	83.6	122	84	(103/122)	0.49	0.38	
FEMDRIVE										
Heroin	133	47.4	63	38.3	51	84	(43/51)	0.57	0.70	
Cocaine	132	79.5	105	78.0	103	88	(91/103)	0.41	0.43	
Marijuana	128	60.9	78	60.2	77	87	(66/77)	0.66	0.66	
Alcohol	121	71.1	86	71.9	87	83	(72/87)	0.41	0.41	

KEY: 1 = Respondents who were classified as current users based on the life history interview. 2 = Sensitivity is defined as the percentage of weekly drug users (n2) who also identify themselves as drug users in the life history report (n1).

available on the questionnaire. Use in the life history reports is limited to those who were counted as current⁶ users at the time of the retrospective interview. In general, rates of reported use were consistently close across interview phases for most substances. In DRIVE, only alcohol use reports show a statistically significant shift across interviews; a significant number of respondents shifted from noncurrent use in the life history to current use in the weekly interviews (McNemar $\chi^2 = 6.76$; $p < 0.01$). In FEMDRIVE, only heroin use reports show a statistically significant change across interviews; a significant number of respondents shift from current use in the life history reports to nonuse in the weekly interviews (McNemar $\chi^2 = 5.14$; $p < 0.05$).

Kappa coefficients evaluating the overall level of agreement on the binary measure of use at each phase of interviewing are displayed in

the last column of table 3. While agreement between interviews with respect to classification of current use was far from perfect, all coefficients fell within a range considered to be "fair to good." With one exception (marijuana use reports), levels of agreement were generally higher between interviews for DRIVE men than for FEMDRIVE women. In DRIVE, the largest coefficient measured agreement on heroin use; a Kappa of 0.72 suggested a relatively high level of agreement. The agreement coefficient for heroin was also relatively high in FEMDRIVE; a Kappa of 0.57 was second only to the coefficient of 0.66 generated for FEMDRIVE reports of current marijuana use. The coefficients for current cocaine use (0.41) and current alcohol use (0.41) in FEMDRIVE barely exceeded a level indicative of poor agreement.

The findings in table 3 stand in contrast to findings about reports of drug dealing suggested in table 2. New reports of previously unreported current drug use behavior during the weekly interviews were relatively infrequent. Assessment of conditional levels of agreement and sensitivity statistics in both samples underscores the relative consistency of use reports across interview phases. When respondents reported use in the weekly interviews, they almost always were classified as current users in the life history interviews. Sensitivity statistics all exceeded 80 percent in FEMDRIVE; three of four sensitivity statistics were at least 90 percent in DRIVE. Conditional Kappa values for heroin use classification status jumped to 0.80 in DRIVE and to 0.70 in FEMDRIVE.

It should also be noted that alcohol was the substance that was most underreported⁷ during the life history reports. Nineteen DRIVE and 15 FEMDRIVE subjects who were not classified as current alcohol users in the life history reports disclosed alcohol use during the weekly interviews. This underreporting stands in considerable contrast with the relatively low levels of life history underreporting for heroin in both samples (only seven subjects in DRIVE and eight subjects in FEMDRIVE underreported heroin use in the life history reports). Inspection of case files suggested that subjects who were involved in a variety of harder substances may have minimized their involvement with alcohol during the life history interviews.

The data suggest that, at least with respect to heroin and cocaine use, the phenomenon of overreporting was more common than the phenomenon of underreporting. Fourteen DRIVE subjects and 20 FEMDRIVE subjects who were classified as current heroin users from the life history data reported no use during weekly interviews. Nine

DRIVE subjects and 14 FEMDRIVE subjects classified as current cocaine users in the life history reports reported no use during the weekly interviews. Followup analyses suggested that current life history users who failed to report any heroin use during the weekly reports ("stoppers") were significantly more likely to be enrolled in methadone maintenance programs for the entire 8-week prospective interview period (for DRIVE, 0^2 , 2 d.f. = 16.88, $p < 0.001$; for FEMDRIVE, 0^2 , 2 d.f. = 14.53, $p < 0.001$). Another variable differentiating stoppers from nonstoppers was most recent use quantity (cost per day) reported in the life history interview. Two differences in FEMDRIVE and one difference in DRIVE were nonsignificant but reflected an important trend in the data. For cocaine use in both studies and for heroin use in FEMDRIVE, subjects who stopped reporting use of the substance during the weekly interviews reported a lower most recent cost of use in the life history than did those who reported continued use. In FEMDRIVE, heroin and cocaine use was \$23 and \$34 less, respectively, for stoppers.

Levels of Drug Use

Table 4a describes summary statistics comparing levels of drug use over each phase of interviewing for DRIVE men; the analogous table for FEMDRIVE women is 4b.⁸ Immediately apparent are the reduced sample sizes in the comparisons. For example, even though there were 83 current DRIVE heroin users in the life history report, volume comparisons are based on only 57 users. A great deal of information was missing from the life history data about use quantities. In a review of case files, the authors found numerous instances where exact dollar amounts pertaining to a subject's recent experience were not actually recorded. Some subjects were supplied with drugs for free so that their typical cost for substances was listed as \$0. These subjects were excluded from comparisons. Problems with missing data and noncomparable cost values underscore the difficulties of using ethnographic data for examining issues of reliability in a systematic way. Most of the information contained in the more structured weekly interview format was complete.⁹

When the mean values across interviews are compared, retrospective reports appear to considerably overestimate weekly volume measures (cost per use day) for heroin and cocaine. Indeed, the estimated typical heroin cost per day in the life history report is more than twice the value reported in the weekly interviews. Similarly, the estimated value for

TABLE 4a. Comparisons of life history reports of substance use to weekly reports by substance—DRIVE.

Measure	Measurement occasion				N	Paired t	Zero-order correlation	Intraclass correlation
	Life history interview		Weekly interview					
	Mean	(SD)	Mean	(SD)				
Heroin volume	66.0	(65.2)	31.3	(24.9)	57	4.25**	0.33	0.09
Cocaine volume	65.6	(70.6)	34.3	(39.4)	75	4.19**	0.42	0.27
Marijuana volume	04.5	(2.5)	3.2	(2.0)	58	3.73**	0.33	0.23
Alcohol volume	06.3	(6.2)	5.6	(4.7)	37	0.50	0.00	0.01
Heroin frequency	03.1	(1.2)	2.7	(1.1)	70	2.69*	0.41	0.37
Cocaine frequency	02.9	(1.2)	2.6	(0.8)	103	3.02*	0.47	0.41
Marijuana frequency	03.0	(1.2)	3.0	(1.0)	101	0.20	0.61	0.60
Alcohol frequency	02.8	(1.3)	2.9	(0.9)	84	-0.98	0.52	0.49

KEY: * = $p < 0.01$; ** = $p < 0.001$.

cocaine cost per day reported in the life history approaches twice the value reported in the weekly interviews. Estimates provided for marijuana and alcohol dollar costs correspond more closely between interviews. Nevertheless, statistical comparisons reflect significant decreases in mean levels for all substances except alcohol (table 4a). Including only decreases of greater than \$5 per use day in the calculations, more than two-thirds of all heroin users and nearly two-thirds of all cocaine users show a decrease in volume between life history and weekly interviews (see table 4a).

TABLE 4b. Comparisons of life history reports of substance use to weekly reports by substance—FEMDRIVE.

Measure	Measurement occasion							Intraclass correlation
	Life history interview		Weekly interview		N	Paired t	Zero-order correlation	
	Mean	(SD)	Mean	(SD)				
Heroin volume	90.2	(75.2)	30.1	(28.9)	45	5.06**	0.04	-0.19
Cocaine volume	76.5	(97.3)	30.9	(27.1)	58	3.73**	0.29	0.05
Marijuana volume	6.7	(6.9)	3.1	(2.5)	38	3.05*	0.03	-0.10
Alcohol volume	8.2	(9.9)	3.2	(2.2)	29	2.98*	0.51	0.10
Heroin frequency	3.1	(1.3)	2.4	(1.1)	57	3.61*	0.41	0.32
Cocaine frequency	2.8	(1.1)	2.4	(0.8)	89	4.25**	0.46	0.19
Marijuana frequency	2.5	(1.2)	2.2	(0.7)	70	2.85*	0.49	0.40
Alcohol frequency	2.4	(1.2)	2.4	(0.9)	79	0.50	0.42	0.41

KEY: * = $p < 0.01$; ** = $p < 0.001$.

DRIVE frequency patterns gauged across the two types of interview segments show much closer correspondence than volume measures. Slight reductions in frequency patterns derived from the weekly interview compared with the life history reports were observed only for heroin and cocaine. There is no substance for which a majority drop more than one scale point in the weekly interviews compared to the life history report. Table 5 shows that although most subjects don't show increases in their use frequency reports, subjects were just as likely to report the same levels of heroin and cocaine use frequency as they were to report decreased use frequency for these substances.

TABLE 5. *Change in drug use frequency,^a current users.*

		Frequency pattern change							
Sample	Drug	Decrease		Same		Increase		Total	Weekly
		%	N	%	N	%	N	N	nonusers
DRIVE	Heroin	41	29	40	28	19	13	70	12
	Cocaine	41	42	40	41	19	20	103	9
	Marijuana	27	27	49	49	25	25	101	9
	Alcohol	25	21	43	36	32	27	84	3
FEMDRIVE	Heroin	46	26	35	20	19	11	57	17
	Cocaine	46	41	37	33	17	15	89	12
	Marijuana	44	31	37	26	19	13	70	11
	Alcohol	30	24	41	32	29	23	79	11

KEY: a = Frequency change is calculated by subtracting weekly pattern based on average days per week used from life history most recent pattern.

Table 4b highlights volume and frequency comparisons over the two interview phases for FEMDRIVE women. Volume reductions for all substances are more pronounced for FEMDRIVE women than they were for DRIVE men. Mean heroin volume generated from the weekly interview reports is one-third of the mean volume generated from the life history report. Mean cocaine volume generated from the weekly reports is less than one-half of the volume generated from the life history reports.

All volume comparisons reflect significant decreases. Over three-quarters of all FEMDRIVE current heroin users reported reduced heroin volume use (see table 6). Slightly less than three-quarters of all current cocaine users reported reduced volume use in the weekly reports. Another striking contrast is the relatively low magnitude of the correlation coefficients generated for cocaine and heroin use volume reports (table 4b). In contrast to DRIVE reports, there seems to be little correspondence between use volume reports for heroin and cocaine use across interview phases for FEMDRIVE; in other words, those who appear as high volume users in the life history reports are not likely to appear as high volume users in the weekly reports. The only substance showing consistency with

Sample	Drug	Mean	Median	N	% Decrease	% Same	% Increase	We non
DRIVE	Heroin	-34.7	-18.6	57	67	12	21	
	Cocaine	-31.3	-15.8	75	65	13	21	
	Marijuana	-1.3	-1	58	55	26	19	
	Alcohol	-0.6	0	37	35	22	43	
FEMDRIVE	Heroin	-60.1	-46.7	45	78	4	18	1
	Cocaine	-45.6	-23.3	58	74	7	19	
	Marijuana	-3.6	-2	38	53	21	26	
	Alcohol	-4.9	-1.9	29	66	28	7	

KEY: a = Volume change is calculated by subtracting weekly volume from life history most recent cost per day. Thus, a positive score indicates an increase, and a negative score indicates a decrease from the life history interview to the weekly reports.

NOTE: For heroin and cocaine, volume change of less than \$5 was considered as no change; for marijuana and alcohol, change of less than \$1 was considered as no change.

respect to volume level ranking was alcohol. Women who were large volume consumers of alcohol in the life history were also large volume consumers in the weekly reports. FEMDRIVE frequency comparisons across interview phases show levels of stability that are similar to those indicated in DRIVE (see table 4b). Frequencies for all substances reflect significantly diminished levels of use in the weekly reports compared with life history reports. Nevertheless, as in DRIVE, the absolute magnitude of the frequency differences is small. Additionally, both zero-order correlations and intraclass correlation coefficients suggest that compared with volume indicators, frequency magnitude estimates are relatively consistent across interview phases. As in DRIVE, frequency decreases were only slightly more common than level frequency reports; frequency increases were relatively uncommon for all substances (see table 5).

Correlates of Changes in Volume and Frequency Measures

Additional exploratory analyses attempted to identify correlates of diminished use frequency and use volume reports for heroin and cocaine, the two substances showing the largest declines in mean value across measures and samples. Building on earlier work in this area (Fendrich and Vaughn 1994), the authors looked at two sets of variables including a set of four demographic indicators (subject age at the life history interview, race/ethnicity, homeless shelter residence versus nonshelter, and education level) and two drug involvement indicators (life history drug use frequency and weekly involvement in drug dealing).

Frequency Change Comparisons. Frequency change variables were converted to dichotomous change indicators (reduction versus nonreduction); bivariate cross-tabulations examining the seven variables were examined, setting alpha to 0.01 in order to adjust for multiple comparisons (data not shown here). Six comparisons yielded significant results; four of the significant comparisons involved a single variable, use frequency. For both samples and for both drugs, those who were classified as daily users in the life history reports were significantly more likely than other users to report decreased use frequencies in the weekly interviews. Race/ethnic differences suggested that Hispanic women in FEMDRIVE had significantly elevated rates of heroin frequency reduction. FEMDRIVE women who were residents of homeless shelters were significantly less likely than others to report diminished heroin use frequency.

Volume Change Comparisons. Analysis of covariance (results not shown here) was used to assess the impact of the same seven indicators discussed above on change in volume level reports (continuous measures of change were the dependent variables; baseline volume reports were covariates in all models). Again, setting alpha to 0.01, only two variables reached significance in any of the analyses: age and race. In FEMDRIVE, older respondents showed significantly greater cocaine volume decrease compared with younger respondents. Race/ethnicity effects varied in FEMDRIVE: For heroin volume comparisons, African-American and Hispanic respondents showed a greater decrease in volume than white respondents. For cocaine volume comparisons, African-American respondents showed less of a volume decrease than white respondents. In DRIVE, a nonsignificant trend suggested that respondents 25 years old or younger showed lower heroin and cocaine volume decreases compared with older respondents.

DISCUSSION

Summary of the Findings

Drug Dealing. Most of the subjects who reported involvement in drug dealing during the weekly interviews also disclosed lifetime involvement in that behavior in the retrospective interview. Discrepancies with respect to dealing concerned the timing of dealing involvement. In general, respondents who reported involvement in drug dealing during the weekly interviews did not disclose recent involvement in this behavior in the life history report; if they admitted to drug dealing in the life history reports, they described this behavior as having last occurred in the more distant past (i.e., more than 2 years before the life history interview).

Drug Use. Current use reports of heroin and cocaine were relatively consistent across interview phases. Inconsistencies in drug use reports were mainly in the area of reported use quantities and frequencies. Subjects tended to report higher use volume and frequency for substances in the life history reports than they did in the weekly interview reports. Reductions in the weekly report compared with the life history report were particularly striking for heroin and cocaine. About two-thirds of all male weekly heroin and cocaine users and about three-quarters of all female heroin and cocaine users reported reduced volume use in the weekly interviews. In general, reports of use frequency were considerably more consistent across interview

phases than were reports of use volume. In both DRIVE and FEMDRIVE, cocaine was the substance that showed the highest rate of decrease in reported use frequency over the course of the two phases of interviewing. In both DRIVE and FEMDRIVE, heroin showed the highest rate of decrease in reported use volume over the course of the two phases of interviewing.

Correlates of Decrease in Reported Drug Use. Reduction in reported drug use, especially reduction in volume of heroin and cocaine, was very prevalent; consequently, no single variable consistently differentiated reducers from nonreducers. The phenomenon of use cessation was examined among life history current heroin users (weekly stoppers were compared with life history current users). Life history current heroin users enrolled in methadone treatment throughout the course of the weekly interviews were significantly more likely to cease using heroin over the course of the weekly interviews. For both DRIVE and FEMDRIVE heroin and cocaine users, those who were classified as daily users in the life history reports were significantly more likely than other users to report decreased use frequencies in the weekly reports.

Limitations

The analyses presented in this chapter are based on samples of drug users and distributors residing in New York City during the mid- to late 1980s. The findings may not be generalizable beyond this particular setting. Possible limitations with respect to generalizability beyond the specific time period are particularly important. The data were collected during a period in which cocaine use, crack in particular, was beginning to rise. In previous comparative analyses (Fendrich and Vaughn 1994), the authors have noted that historical shifts in attitudes about drug use may influence the willingness to disclose drug involvement. Magura and Kang (this volume) present findings from more recent data that stand in contrast to the current analyses; their results indicate that respondents were more willing to discuss drug dealing than drug use.

Implications

The authors treated the differences discussed above as if they reflected inconsistencies. However, the possibility exists that the differences reflect real changes in behavior. An examination of a range of behaviors characterizing the samples investigated here reinforces a sense of their instability: Many of the subjects included in the two

samples were intermittently involved in treatment during the course of the study. Subjects were in and out of jail during the course of the study; many resided in homeless shelters. These indicators of lifestyle instability may be accompanied by instability of actual drug use as well, resulting in unstable estimates of typical drug use.

Another variable that could affect shifts in behavior is the time between interviews. If shifts in behavior are occurring, one might expect more between interview phases if those interview phases are far apart; these shifts would lead to greater reporting discrepancies on use indices. The mean time between the first life history interview and the last weekly interview was 71 days for DRIVE and 97 days for FEMDRIVE; the total study period could have lasted as long as 317 days for DRIVE and 430 days for FEMDRIVE. The associations between interview timespan and changes in reported use levels for DRIVE and FEMDRIVE cocaine and heroin volume and frequency measures were investigated. The data suggest that for DRIVE subjects, larger decreases in levels of cocaine use volume may be associated with a longer study period ($r = 0.23$; $p < 0.05$).

Preliminary inspection of the case files suggests that some of the discrepancy in drug-dealing reports may be the result of discrepant definitions of drug dealing between interviewers and subjects. This seems especially applicable to low-level or sporadic dealers who reported they occasionally sold small quantities of substances during the weekly interviews. For example, some of the women on methadone maintenance who did not report involvement in drug dealing during the life history interviews reported in weekly interviews that they sold their methadone from the program. This raises the possibility that these subjects did not view this activity as drug dealing. In future analyses, the authors plan to examine the impact of other possible discrepancies in definitions of drug dealing on the consistency of drug-dealing reports.

Support for the hypothesis that life history reports are an exaggeration of current behavior derives partly from previous observations in ethno-graphic research. In a previous study of heroin addicts, Goldstein (1981, p. 82) noted:

When addicts are asked how much heroin they have used during the course of a year, or longer, they may very well respond in terms of the "ideal" addict—the one they would like to be but, in fact, approximate only infrequently. They may forget about those days when

they were not able to get over, and as a result, used little or no heroin.

These observations underscore some of the special difficulties involved with obtaining reliable reports about drug use from subjects for whom drug use consumes a major social role. Overestimation is not the only problem that has been observed in the literature. Impairment from drug use at the time of the interview or residual effects from drugs after intoxication can affect subject responses. Adler (1993, p. 22) notes that subjects who were high on marijuana were particularly difficult to interview since they became "confused, sleepy, or involved in eating." Possible cognitive effects of drug involvement need to be considered when interpreting the reports of active drug users.

In comparing the findings derived from the life history reports to those in the weekly interviews, differences in structure between the two assessments must be underscored. The life history reports were relatively open ended; the historical recollection of behavior was relatively unprompted, and respondents were forced to provide their own parameters for initiation and cessation of behaviors and for estimates of typical patterns and dollar cost of drug consumption. The lack of structure made it more difficult to code quantitative values for comparison in the analysis; the coding of an unstructured instrument is subject to greater error and discrepancy.

In the semistructured life history format, many subjects were unable to provide quantitative estimates for recent behavior. In the weekly inter-views, information was collected in a diary format; respondents were prompted to recall specific quantities (dollar amounts) of substances used on specific days over the course of the previous week. Additionally, respondents were prompted to provide detailed information about dollar income and specific sources of that income. In the more structured format, inconsistencies can be handled more directly in the interview. Because respondents were asked about sources of income leading to purchase and consumption of drugs, it may have been more difficult for them to deny ongoing involvement in income-generating criminal behavior such as drug dealing. Thus, the more structured format may have elicited better information about ongoing involvement in illicit criminal behavior and drug use. In an unstructured retrospective format, those who were most drug involved may have been most prone to exaggeration and over-estimation of their typical behavior. The structured format with daily behavior prompts may have allowed for more realistic estimates of

behavior. This conclusion is supported by research in other contexts; for example, cognitive studies have shown that dietary recall and recall of health services use are aided by the provision of memory cues and prompts about recent activity and experience (Jobe and Mingay 1991).

Findings with respect to subjects' unwillingness to disclose current involvement in drug dealing in the life history format parallel findings described by Hser and colleagues (1992). In contrast, the authors' findings obtained from a comparison of drug use volume and frequency measures reinforce the findings of Collins and colleagues (1985), Johnson and colleagues (1985), and Czarnecki and colleagues (1990): Retrospective reports of drug use may overestimate actual (current) use. The contrast between reporting for drug dealing and drug use underscores the point that even in ethnographic studies, certain kinds of information may be perceived as sensitive. Drug dealing may be a more sensitive topic than drug use; willingness to disclose such involvement may emerge as subjects become more comfortable with the field site and the data-gathering process established by the ethnographers.

Findings with respect to drug use consistency patterns parallel the authors' previous work in this area in two respects. Just as the authors observed a decline in reported use levels over the 8-week interview period (Fendrich et al. 1992), they also saw a decline in use quantities reported in the life history in comparison to the weekly reports. This supports the notion that continued interviews about quantities of drug use may in fact result in a retest artifact, which has previously been discussed in the literature. As in a previous study with this sample (Fendrich et al. 1992), the authors found that use frequency reports were considerably more consistent than reports related to dollar amount; in contrast to correlations between volume measures (based on dollar amount), correlations between frequency measures at each phase of interviewing were generally at an acceptable level. These findings continue to raise questions about the utility of dollar-based quantitative measures in ethnographic research.

These findings warn against static, retrospective assessments of lifetime patterns of drug use behavior. As in earlier methodological studies of substance abuse (Aiken 1986; Anglin et al. 1993; Collins et al. 1985; Czarnecki et al. 1990; Johnson et al. 1985), retrospective accounts in DRIVE and FEMDRIVE diverged in important and significant ways from accounts of ongoing behavior. The present analyses show that many of the same issues related to self-disclosure

of sensitive behavior relevant to responses in more structured surveys such as the National Longitudinal Survey of Youth (Fendrich and Mackesy-Amiti 1995; Fendrich and Vaughn 1994) are also relevant to responses in ethnographic research. The qualitative nature of ethnographic narrative accounts often prevents the quantitative examination of reliability issues. The authors were fortunate to have access to an ethnographic data set that facilitated the codification of qualitative responses about behavior; the data contained comparable quantitative information about drug use behavior over a clearly defined followup period. The inconsistencies that were uncovered in this process suggest that an informal and anecdotal assessment of reliability is insufficient in ethnographic research. Any organized effort to collect behavioral information about drug involvement will result in less than perfect reliability. Researchers need to systematically assess the scope and impact of reporting inconsistency as a prerequisite to further substantive analytic work.

NOTES

1. These measures were created specifically for this report. The authors returned to the original data files and coded interview responses for this information.
2. The categories for the most recent frequency variable followed those originally created by the researchers who first coded the interview data; because this was a secondary data analytic project, the authors followed the coding scheme suggested by the original investigators.
3. The coding was constructed so as to create categories that were roughly equivalent to life history codes. Those with a ratio value of less than 0.5 were coded as infrequent users. Those with a ratio value of at least 0.5 but less than 2.5 were classified into the moderate use category. Those with a ratio value of at least 2.5 but less than 5.5 were considered to be regular users. Finally, those with a ratio of 5.5 or greater were considered to be daily users. For purposes of data analysis, the frequency categories derived from both the life history and the weekly reports were ordered from 1 to 4, with higher scores indicating higher levels of use.
4. Sample sizes vary due to missing values on the "age of last drug deal" question on the life history interview. McNemar chi-square tests reflecting shifts in reporting across interviews are not shown

but were all highly significant. For both lifetime dealing measures, significant coefficients reflected the shift to less drug dealing during weekly interviews; for recent dealing measures, significant coefficients reflected the shift to more drug dealing during weekly interviews.

5. According to Fleiss (1981), Kappa values of less than 0.40 reflect "poor" agreement, values of between 0.40 and 0.74 reflect "fair to good" agreement, and values of greater than 0.75 reflect "excellent" agreement. The authors are not aware of standards specific to conditional Kappa statistics; these descriptive standards are applied to both types of Kappa coefficients.
6. A respondent was counted as a current user in the life history report if one of three conditions was met: the respondent described use of the substance during the same calendar year as the interview; the age of last use reported by the respondent corresponded to the respondent's current age; or the respondent explicitly stated that he or she was "now" using during the life history interview.
7. The authors realize that the use of the word "underreporting" assumes that behavior that was actually occurring was not being reported. Of course, differences in reports can reflect actual behavior changes and problems with coding and classification; these possibilities are discussed below.
8. The life history cost-per-day measures and weekly interview volume measures are considered comparable volume indices; both gauge the amount of use per substance use occasion. In tables 4 and 5, both measures are considered volume indicators and are labeled as such. Comparisons in this section were limited to those disclosing current use in the life history reports and were based on an assessment of the most recent use pattern expressed in the life history.
9. The authors investigated differences on other available indicators of drug involvement for those with missing values on heroin and cocaine life history volume and frequency indices. Bivariate comparisons (not shown here) suggested that those who were missing on volume indices tended to report lower life history use frequency levels; this suggests that light users are probably underrepresented in the analyses performed in this section.

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AUTHORS

Michael Fendrich, Ph.D.
Assistant Professor of Psychology in Psychiatry

Mary Ellen Mackesy-Amiti, Ph.D.
Research Specialist

Joseph S. Wislar
Research Scientist

Institute for Juvenile Research
Department of Psychiatry
University of Illinois at Chicago
Mail Code 747
907 South Wolcott Avenue
Chicago, IL 60612

Paul J. Goldstein, Ph.D.
Associate Professor
Department of Epidemiology and Biostatistics
School of Public Health
University of Illinois at Chicago
Mail Code 922
907 South Wolcott Avenue
Chicago, IL 60612

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