

UNDERREPORTING OF SUBSTANCE USE IN A NATIONAL LONGITUDINAL YOUTH COHORT INDIVIDUAL AND INTERVIEWER EFFECTS

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Abstract The quality of drug data in the 1984 wave of the National Longitudinal Survey of Youth is explored. Comparisons with other national surveys indicate that underreporting of use of illicit drugs other than marijuana appears to have taken place, and that light users of these drugs are underrepresented among the self-acknowledged users. Comparison with marijuana use reported four years earlier indicates that experimental marijuana users are much less likely than extensive users to acknowledge involvement. Even after controlling for frequency of use, underreporting is more common among terminal high school dropouts and minorities. Not only individual characteristics but field conditions also contribute to underreporting. Familiarity with the interviewer, as measured by number of prior interviewing contacts, depresses drug use reporting. We speculate that interviewer familiarity increases salience of normative standards and that participants respond not only in terms of their past familiarity but also in terms of their subjective expectations regarding the probability of a future encounter with the interviewer.

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The quality of data involving self-reports of deviant, disapproved, or illegal behaviors has been a recurrent concern of survey researchers (Hindelang, Hirschi, and Weis, 1981; Huizinga and Elliott, 1984; O'Malley, Bachman, and Johnston, 1983; Bachman and O'Malley, 1981; Bradburn et al., 1978). With the proliferation over the last fifteen years of surveys on the use of illicit drugs, this concern has focused in particular on the nature of drug use reports. The consensus among drug researchers has been that most reports, based either on self-administered questionnaires, whether numerically identifiable or anonymous, or personal interviews with or without self-administered forms, are valid and reliable (Ball, 1967; Malvin and Moskowitz, 1983; Robins, 1973; Haberman et al., 1972; Robins and Murphy, 1967; Single, Kandel, and Johnson, 1975; Rouse, Kozel, and Richards, 1985). Methods to establish validity include comparison of self-reported drug use with independent urine samples, internal construct validity, or similarity of best friends' reports. In particular, underreporting has been thought not to be a problem, although there may be telescoping of recall such that respondents tend to report proportionally more drug use within the last 30 days than they do for the prior 12 months (Bachman and O'Malley, 1981). However, this pattern is neither strongly nor consistently associated with any respondent characteristics (O'Malley, Bachman, and Johnston, 1983). In our own research, we established that adolescents were unlikely to underreport their use of marijuana and other illicit drugs and that underreporting, to the extent that it occurred, was due to the apparent forgetting of those who had experimented with the drugs only once or twice rather than to denial by heavy users (Single, Kandel, and Johnson, 1975).

Some survey researchers, however, have expressed reservations about the quality of reporting of drug use. In a national sample of 1,172 adults conducted by NORC in 1975, questions on illegal and socially undesirable behaviors, including drug use, induced respondent anxiety. Those who were particularly uneasy (over 40% for a question on lifetime prevalence of marijuana use) were less inclined to report involvement (Bradburn et al., 1978). Type of setting (private vs. not private), type of sample (addict vs. not addict), type of question (current use vs. past use), and degree of social undesirability (marijuana vs. heroin) were mentioned in a recent report by the National Institute on Drug Abuse on validity issues in self-reported drug use data as being potentially threatening to accuracy and completeness of drug reporting (Rouse, Kozel, and Richards, 1985).

We here report the results of a study based on the National Longitudinal Survey of Youth (NLSY) in which serious and somewhat unexpected underreporting of the use of certain drugs appears to have taken place. The study was executed to generate epidemiological data

on the prevalence of illicit drugs for groups in the population that had heretofore not been included in sufficiently large numbers to provide such estimates, in particular, minorities and school dropouts. Indeed, the NLS Youth Cohort is the most comprehensive extant sample of young people in the United States.

Factors, both individual and contextual, underlying the underreporting are presented. We find that the underreporting is not randomly distributed in the sample but is more prominent among certain social groups, generally those found in prior epidemiological surveys to have lower prevalence rates of self-reported use. Furthermore, it is affected by specific features of the interview situation, in particular, degree of familiarity with the interviewer. It appears that underreporting is more likely to occur when individual attributes or factors within the interview increase respondents' propensity to provide socially normative responses. The implications of the findings for survey research are discussed.

Data Source

SAMPLE AND DATA COLLECTION INSTRUMENT

In 1984, five minutes of drug-related questions were added to the interview schedule administered to participants in the sixth wave of the ongoing Youth Cohort (NLSY), a national longitudinal survey of 12,069 young adults conducted since 1979 by the Center for Human Resource Research of Ohio State University (Wolpin, 1983). The Youth Cohort sample is a multistage stratified area probability sample representative of individuals born in the years 1957-1964 in the coterminous United States. The study includes youths who are usually not well represented in national samples— not only members of minority groups but also high school dropouts and the unemployed. Blacks ($N = 2,172$), Hispanics ($N = 1,480$), and economically disadvantaged white youths ($N = 1,643$) were oversampled for a supplemental sample, and 1,280 young persons in the military (as of September 1978) were also included. Respondents have been interviewed annually through personal household interviews averaging about 1½ hours in length. The completion rate for the base year was 89.7% for the cross-sectional sample, 88.7% for the basic supplemental sample, and 71.5% for the military sample (Frankel, McWilliams, and Spencer, 1983). Reinterviewing rates have been consistently very high, with 95% of the original cohort reinterviewed for the sixth time in 1984—6,062 males and 6,009 females aged 19-27.

While the initial focus of the survey was primarily on the labor

market experience of young people, a number of lifestyle and health-related questions were added in successive waves. In 1984, a series of drug-related questions was included along with the earlier battery of questions on education, labor force participation, marriage, fertility, and alcohol usage. Respondents were asked separate questions about cigarettes and marijuana. For illicit drugs other than marijuana and nonmedical use of pills and tranquilizers, respondents were shown a card, read a list of drugs, and asked for each whether or not they had ever used it. For each drug used, further series of questions inquired about lifetime frequency of use, **recency** of use in the last year, frequency of use in the last month, and age at first use. Response categories were designed to **ensure** comparability with two national drug-related surveys described in further detail below, Monitoring the Future (Johnston, O'Malley, and Bachman, 1986) and the General Household Survey (Miller et al., 1983). Additional questions were asked about lifetime, last-year, and last-month frequency of use for each of three classes of medically prescribed psychotropics (sedatives, stimulants, and minor tranquilizers). In addition, respondents were asked to fill in a time chart indicating the months from 1979 to the present when they had used marijuana. Refusal rates were less than 1% for most drug questions, apparently indicating that respondents were comfortable answering these questions. However, those who have investigated response bias in surveys on socially undesirable or illegal activities suggest that most people want to appear cooperative, and therefore provide an answer regardless of how uneasy the questioning makes them (Bradburn et al., 1978).

As in preceding waves of data collection, respondents were assured complete confidentiality. No names appeared on the interview schedule, only an identification number. In addition, to assure the confidentiality of the drug-related reports, a grant of confidentiality was specifically obtained from the Surgeon General guaranteeing that none of the records could be subpoenaed for any legal proceedings, whether at the local, state, or federal levels.

The fieldwork was carried out by NORC of the University of Chicago. As reflected in the very high completion rates, participation in the study has been excellent. There was no reason to expect less than candid answers. Yet, comparison with data from other surveys suggests that underreporting may have occurred.

COMPARISON STUDIES

In the absence of an independent criterion that would validate the respondents' drug reports, such as biological assays, the quality of the drug self-reports was established through comparison with two other

national drug surveys. Monitoring the Future (MF) is an annual nationwide cross-sectional survey of approximately 16,000 high school seniors based on self-administered questionnaires collected in classrooms (Johnston, O'Malley, and Bachman, 1986). Although respondents were asked to give their names and addresses, the questionnaires and address pages linked by ID number were collected separately and sealed in different envelopes. Approximately 30% of each birth cohort is not represented in the sample, namely, nonparticipants among seniors enrolled in high school (18%–20% of each class) and those who have already dropped out of school (approximately 15%–17% of the age group). The General Household Survey (GHS) is a nationwide survey of the general population aged 12 and over, excluding students living in college dormitories and persons with no fixed addresses, carried out every two or three years (Miller et al., 1983). Data are collected through personal household interviews, but the drug questions are answered through a self-administered form that is sealed in a separate envelope. Although a new survey was fielded in 1985, the last survey for which data are published was completed in 1982, when approximately 1,280 young adults aged 18–25 were interviewed (Miller et al., 1983).

Members of the same birth cohorts can be identified in each study and their responses compared to those obtained in the NLSY sample.

Results

EXTENT OF UNDERREPORTING

Lifetime prevalence of the use of various licit and illicit drugs was compared across the three studies.

In order to ensure meaningful comparisons with MF, an age and education restricted group from the NLSY corresponding to the same birth cohort represented by a particular high school graduating class and limited to high school graduates was examined alongside the high school seniors who were interviewed one or more years earlier. Thus, high school seniors from 1983, aged 18 on the average, were compared with 19-year-old high school graduates from the 1984 NLSY as members of the 1964–65 birth cohorts, seniors from 1982 were compared with 20-year-old graduates from the 1984 NLSY as members of the 1963–64 birth cohorts, and so on. Assuming that most high school seniors are 17 or 18 years old, roughly the same birth cohort is examined one, two, three, and four years later in the NLSY. The expectation is that lifetime prevalence in the NLSY will be at least as great and most likely greater than in the other studies. Indeed, the sample is a

more complete representation of these birth cohorts and is older, so that the population is exposed to the risk of drug use initiation for additional time. This risk appears to terminate at about age 20 or 21 for marijuana but not until the mid-twenties for cocaine (Kandel and Logan, 1984; Raveis and Kandel, 1987; O'Malley, Bachman, and Johnston, 1984). However, because of the recent decline in the use of illicit drugs other than cocaine, for which prevalence rates are believed to be still increasing although at a much slower rate (Johnston, O'Malley, and Bachman, 1986), it is difficult to predict just how much greater the prevalence rates should be in the NLSY than in MF.

Table 1 indicates that use of the licit drugs, alcohol and cigarettes, is higher among the older respondents in the NLSY than in MF. As regards marijuana, by contrast, lifetime prevalence is somewhat lower among 19-year-olds in the 1984 NLSY than among high school seniors in 1983. The lifetime levels of use are slightly higher in the NLSY for the two older cohorts (21 and 22) but less than anticipated given that initiation of marijuana continues beyond the age of 18, albeit at a substantially reduced rate (Kandel and Logan, 1984). For simplicity, data pertaining only to 19- and 22-year-olds are presented in Table 1.

For illicit drugs other than marijuana there appears to be considerable underreporting of lifetime prevalence of use in the NLSY. Underreporting varies by substance and appears to be lowest for cocaine (44% lower than the proportion of users in the 1983 wave of MF) and highest for the inhalants (over 85% lower).

Substantial differences also appear in comparisons with the 1982 GHS. When interviewed for that survey, respondents were between the ages of 18 and 25, which would make them 20-27 in 1984, belonging for the most part to the same birth cohorts as the NLS youth sample. Lifetime use of all illicit drugs, except marijuana and stimulants, is strikingly lower in the NLSY. Approximately half as many young persons report experimentation with hallucinogens and nonprescription tranquilizers, and over a third fewer report involvement with cocaine in the NLSY than in the household survey. There are even lower reported levels of lifetime use of prescription drugs (see Table 1).

Reported current use, for both the last 30 days and the last 12 months, is also low. For example, in 1984, 40% of high school seniors reported using marijuana in the last 12 months and 25% in the last 30 days (Johnston, O'Malley, and Bachman, 1986), compared with 33% and 16% of 19-year-old high school graduates in the NLSY.

If, as it appears, drug prevalence estimates are too low in the NLSY, it is important to determine whether differential underreporting exists according to degree of involvement. Are light users more likely to forget or less inclined to admit experimentation? Or are heavy users, who are more likely to be current users and may therefore feel particu-

Table 1. Comparison of Lifetime Prevalence of Use of Various Substances and Frequency of Use Among Users in the NLSY and Other Studies for Different Survey Years and Birth Cohorts

	MF (1983)	NLSY ^a (1984)	MF (1980)	NLSY ^a (1984)	GHS (1982)	NLSY (1984)
Age at survey	17-18	19	17-18	22	18-25	19-27
Birth cohort	64-65	64	61-62	61-62	56-64	57-64
Drugs ever used						
Alcohol	93%	94%	93%	98%	95%	96%
Cigarettes	71	73	71	79	77	82
Marijuana	57	52	60	62	64	65
Hallucinogens	12	4	13	9	21	10
Cocaine	16	9	16	16	28	18
Heroin	1	1	1	0	1	1
Stimulants	35	16	26	21	18	22
Sedatives	14	4	15	8	19	10

Tranquilizers	13	3	15	7	15	8
Inhalants	14	2	12	1	—	—
Amphetamines Rx	^b		^b		4	3
Barbiturates Rx	^b		^b		10	3
Minor Tranq. Rx	^b		^b		19	9
Total N	16,300	794	15,900	1,141	1,283	12,069
% of Users Using"	40 + times		40 + times		100 + times	
Marijuana	33	26	41	38	38	28
Total N	9,289	414	9,551	702	815	7,765
Cocaine	7	25	8	18	9	13
Total N	2,267	72	2,503	182	362	2,150

NOTES: MF = Monitoring the Future (Johnston, **Bachman**, and O'Malley, 1984). NLS = National Longitudinal Survey. Secondary analysis of data. GHS = General Household Survey (Miller et al., 1983).

^a Restricted to high school graduates.

^b Not asked.

^c Different frequency categories were used in MF and GHS.

larly threatened, less willing to report drug involvement? We are assuming that frequency of use among the self-acknowledged users is reasonably accurate (Bradburn et al., 1978).

Comparisons with the two other surveys of lifetime frequency among self-identified drug users from the same birth cohorts are also provided in Table 1.

Although some aggregation was necessary in order to form comparable frequency of use categories, initial differences in scale intervals could undermine comparisons. Both Monitoring the Future and the General Household Survey are more detailed at the lower end of the scale, which may have had the effect of producing a greater number of lighter users relative to the NLSY. Greater detail at the upper end provides a distinction between moderate and heavy users although recall accuracy may be sacrificed. It is undoubtedly more difficult to remember the exact number of frequent than of rare events (O'Malley, Bachman, and Johnston, 1983).

Differences between the NLSY and other surveys vary according to drug class. Reported degree of marijuana involvement is lower in the NLSY, especially in comparison to the GHS. Among users, over **one-third** more report a lifetime frequency of at least one hundred times in the GHS than in the NLSY. However, given the age pattern of marijuana initiation, **18- to 25-year-old** users in the GHS would be more likely to be recent initiators than those aged 19-27 in the NLSY and were expected to have lower lifetime frequency of use. While the distribution for the 1980 MF is virtually analogous to that of 22-year-olds in the NLSY, the distribution for the 1983 MF is somewhat different from that of 19-year-olds. Among **19-year-olds**, heavier users are underrepresented in the NLSY. In general then, most marijuana users in the NLSY appear to be willing to admit some involvement, although they are less willing to acknowledge heavy use.

By contrast, for other illicit drugs, e.g., amphetamines, barbiturates, cocaine, and hallucinogens, lifetime frequency among self-reported users is consistently higher in the NLSY. While one-fourth of the **19-year-olds** in the NLSY, who indicate some experience with cocaine, claim to have used it at least 40 times, fewer than 10% of the cocaine users among 1983 high school seniors do so. The difference is greater than would be expected from the fact that the NLSY sample is one year older than the high school seniors. In every comparison for each illicit drug other than marijuana, lifetime prevalence among acknowledged users is higher in the NLSY than in the other two surveys. (Data are not given for drugs other than cocaine.) The higher frequency of use coupled with the underreporting of lifetime prevalence suggests that those who may have denied any experience with illicit drugs other than marijuana were less intensely involved than those who admitted use.

CONSISTENCY OF RESPONSES OVER TIME

One advantage of longitudinal surveys is that responses can be examined for consistency over time. In the second wave of the NLS youth survey in 1980, a series of 21 closed-ended questions were asked about participation in delinquent activities during the last year, including two questions about drug consumption. Respondents were instructed to fill in a form which stated:

For each activity below, please check which best describes the number of times you have done it.

1. smoked marijuana or hashish ("pot," "grass," "hash")
2. used any drugs or chemicals to get high or for kicks, except marijuana

The respondents were reminded verbally that reporting was to be confined to prior year activities. An envelope was provided for the form, which the interviewer sealed in the respondent's presence.

In the 1984 survey, respondents were questioned not only on current, past year, and lifetime experience with drugs, but also on when they had first used each drug and, specifically, in which months they had used marijuana from January 1979 to the 1984 interview. Thus, it was possible to investigate inconsistencies for reported prevalence and timing of marijuana use. Excessive noncomparability of question wording precludes consistency checking for usage of illicit drugs other than marijuana.

All those who reported last-year use in 1980 could be expected to report some lifetime use in 1984. The analysis of the incidence and characteristics of deniers, those who in 1980 said they used but claimed in 1984 never to have done so, sheds light on the pattern rather than the degree of underreporting. The number of these inconsistent reports provides only a lower bound estimate of the frequency of underreporting because prevalence figures from MF and the GHS would suggest that a certain number of respondents who claim in both surveys not to have experimented with drugs are in fact users. Furthermore, no consistency check can be made between lifetime reported use in the two periods. The retrospective reports themselves may not be completely accurate regarding timing of use.

Based on annual drug use reported in 1980 in conjunction with the retrospective information obtained in 1984 on the timing of marijuana use since 1979, the proportion of denials as well as potential recall errors were calculated. Only a small fraction of those who reported use within the last year in the 1980 survey fail to report any lifetime use in 1984, 8% among men and 12% among women. Correspondingly, 20% of men and 10% of women who reported in 1980 that they had not used marijuana within the last year reported in 1984 that they were using marijuana in 1980.

Table 2. Consistency of Marijuana Use Reporting Between 1980 and 1984

Response Pattern	1980 Survey Reported Use in Last Year	1984 Survey Reported Use in 1979-80	Time of use Reported for 1979-80 Nonuser with Lifetime Involvement	Male	Female
Consistent	No	No	—	27%	36%
	No	No	After 1979-80	6	7
	No	No	Before 1979-80	5	6
	Yes	Yes	—	37	28
Inconsistent	Yes	No	—	4	6
	Yes	No	After 1979-80	6	6
	Yes	No	Before 1979-80	5	7
	No	Yes	—	10	6
Total N				5,561	5,460

Respondents in the cohort were classified according to their consistency status (Table 2). While approximately one-fourth of the reports are inconsistent, a much greater proportion of young people misremember periods of marijuana use than claim never to have used the drug. The proportion of those who fail to report use is counterbalanced by the proportion of those who did not report use initially, but do so now. Those who reported using marijuana within the last year in 1980 but claim in 1984 that they never used constitute a small proportion of the total sample of men (4%) and women (6%).

A comparison of responses to questions on lifetime prevalence of alcohol in the 1982 and 1983 waves of the NLSY suggests that underreporting is considerably less frequent for alcohol than for marijuana, although differences between surveys in the recall interval, one year in one case but four in the other, could alone account for these differences in accuracy. Only 1.4% of youth who reported having had a drink by the 1982 interview deny ever drinking in 1983. Questions on problem drinking, a presumably more sensitive behavior, result in much greater inconsistency over time. Of those who admitted in 1982 ever having drinking-related problems in school or work, on the next interview in 1983 only about half reported a lifetime problem for school and slightly more than a third for work (Crowley, 1985).

SUBGROUP DIFFERENCE IN INCONSISTENCY

In line with results from prior investigations, we find that misreporting varies inversely with degree of drug involvement. Experimental mari-

juana users are much less likely to acknowledge subsequently any involvement than those who have used the drug more frequently. Nearly one-fifth of females and 14% of males who claimed to have used marijuana 1 to 5 times in 1980 report no lifetime use in 1984 compared to 7% and 4%, respectively, of those who reported using at least 50 times. Single, Kandel, and Johnson (1975) argue from similar findings that failure to report drug use is a consequence of faulty memory rather than deliberate misrepresentation. Because the most frequent users constitute less than 1% of the total sample, however, their denial has a negligible effect on epidemiological estimates. Still, a question emerges as to whether reporting **nonuse**, even among casual users, reflects poor recall or conscious denial. While in some social circles the taking of drugs has become acceptable, it is still an illegal, and, presumably, unforgettable act. It may be that those who are infrequent users do not want to be regarded as drug users and provide socially desirable responses.

To determine whether differential nonreporting is also present in various sociodemographic groups, the percentage of inconsistent marijuana responses was calculated separately for selected respondents' characteristics.

Inconsistent responses vary significantly by race, school dropout status, and region for both sexes, as well as marital status and **rural-urban** residence for women and age for **men**¹ (Table 3). For men and women, the most striking differential is for race. Nonreporting of drug use is twice as common among blacks and Hispanics as among whites. Nonreporting is less frequent among urban residents and those who have attended college among men and women and among the **maritally** disrupted among women. The pattern of nonreporting by region differs for the sexes. **Self-reported** marijuana users in 1980 residing in the Northeast for men and in the South for women are more likely to claim in 1984 that they never used.

These differentials may be attenuated or disappear entirely once frequency of use is controlled. If response inconsistency is primarily a function of intensity of involvement, the underreporting observed in the NLSY may be relatively benign for analyses of the causes and consequences of drug use. To investigate differential underreporting, while controlling for intensity of use, a logistic regression predicting response consistency was performed among those who reported use in

1. Since the NLSY is not a simple random sample, the reported variances may be too small, occasionally leading to the incorrect conclusion of significant differences. Design effects that give the ratio of the variances for the NLSY to the variances for a simple random sample are not available for the 1984 wave. For earlier waves they range from 1.0 (no effect) to 1.8.

Table 3. Characteristics of Inconsistent Respondents: Proportion of Those Reporting Marijuana Use in 1980 Who Claim Never to Have Used in 1984

	Male		Female	
	Percent	N	Percent	N
Total Sample of 1980 Users	9	2,872	12	2,499
Age				
19-21	11	786	13	752
22-24	8	1,151	11	1,049
25-27	7	935	14	698
Diff. among categories	**		n.s.	
Education				
Dropout-no diploma	12	528	15	343
Dropout-GED or diploma	6	300	7	216
High school graduate	10	1,016	14	998
Some college	6	950	9	874
Diff. among categories	***		***	
Marital status				
Never married	8	1,927	12	1,296
Married	9	794	14	949
Sep./div./wid.	8	150	5	253
Diff. among categories	n.s.		***	
Rural/urban				
Urban	8	2,516	11	2,181
Rural	11	314	19	281
Diff. among categories	n.s.		***	
Region				
Northeast	11	609	10	540
North-central	6	770	13	672
South	9	833	17	766
West	7	626	6	502
Diff. among categories	**		***	
Labor force				
Working	9	2,126	12	1,543
Unemployed	8	422	14	191
Keeping house	—	—	14	506
In school	6	291	11	245
Diff. among categories	n.s.		n.s.	
Race				
Hispanic	13	156	22	123
Black	14	343	22	276
White/other	7	2,373	10	2,110
Diff. among categories	***		***	
1980 reported frequency				
1-5 times	14	1,038	19	1,055
6-49	7	692	7	795
50+	4	1,143	7	649
Diff. among categories	***		***	

NOTES: F-test used to assess significance. N.s. = not significant.

** $p \leq .01$. *** $p \leq .001$.

1980 using the same set of variables that were included in the descriptive analysis shown in Table 3 (data not presented).

Frequency of use remains the best predictor in the multivariate analysis. While the odds of claiming no lifetime involvement are greatly increased if frequency of use in 1980 was low, a number of other significant variables indicate that differential misreporting according to socioeconomic characteristics is nevertheless present. Although results differ slightly for the two sexes, both among men and women, blacks and Hispanics are less likely than whites to report use, as are high school dropouts who have not returned to school compared with respondents who have attended college.

FIELD CONDITION EFFECTS ON REPORTING

In addition to individual characteristics, we investigated the potential effects of the interviewing situation itself on respondents' responses. In particular, we examined those field conditions that may increase the awareness of normative standards for respondents and make it more difficult for them to report behaviors that contravene these standards. Two such factors were examined: presence of a third party during the interview, and whether or not the respondent knew the interviewer.

Presence of others during the interview. Drug questions were asked and answered verbally in the NLSY, which could undermine reporting, especially if a parent was within hearing range. While the presence of others during the interview might be expected to influence respondents' answers (Turner and Martin, 1984), reporting of socially desired behaviors, such as voting, and threatening behaviors, such as gambling, drinking, and sexual intercourse, appear to be unaffected by third-party presence (Silver, Abramson, and Anderson, 1986; Bradburn, Sudman, and Associates, 1979). Results from studies evaluating specifically the effect of privacy on self-reported illicit drug use are contradictory. NORC found in 1975 in a national sample of adults 18 years and older that use of marijuana and nonprescription stimulants and depressants were somewhat underreported when spouses were present; marijuana and depressant use were also underreported when a child was present. By contrast, if a friend was in the room, illicit drug use was overreported. While too few cases of parental presence were observed to warrant presentation of the data, it was for these cases that the strongest response effects occurred (Bradburn, Sudman, and Associates, 1979). Reporting was affected by presence of parents in the youth sample of the 1979 and 1982 waves of the General Household Survey on Drug Abuse (Gfroerer, 1985), but not in samples of high school-aged students (Zanes and Matsoukas, 1979; Rootman and Smart, 1985).

We find that the presence of a parent at any time during the NLSY interview produces no significant reduction in levels of reported illicit drug use. Among the one-third of the sample still living with parents, lifetime involvement with marijuana is 57% for those with parents present and 61% for those alone with the interviewer (compared with 67% for those who live on their own). Not only is the difference between the first two groups **unexpectedly** small, too few respondents had parents **present** during part or all of **the** interview (3.0%) to account for the underreporting observed in the total sample. The possibility remains that parents not actually present may be close by, and therefore that mere residence in the parental household lowers reporting, a conclusion supported by results from a drug survey comparing self-reports at school and in the home (**Rootman** and Smart, 1985). Alternatively, the relationship between residence and reported drug involvement may reflect the fact that residents in parental homes may be more likely to conform and less inclined to experiment with drugs (**O'Malley, Bachman**, and Johnston, 1984).

Interviewer familiarity. The longitudinal nature of the NLSY survey could itself be responsible for the underreporting of drug use. A concerted attempt is made by NORC to retain the same interviewers from round to round of the study. In 1984, 78% of the 368 interviewers had participated in earlier waves (Campbell, 1984). The respondents could have developed a good rapport with their questioners so that, paradoxically, verbal reporting of delinquent and socially undesirable or sensitive acts may have proved difficult. 1984 was the first year respondents were asked to report on illegal activities aloud, although they had been asked about abortions in 1983 and 1982; in 1980, questions on delinquency were answered using a self-administered form.

Interviewers' prior expectations about the difficulty of asking and obtaining accurate responses to questions on socially undesirable or embarrassing behaviors have been shown to have only a moderate influence on nonresponse rates and prevalence levels (Sudman et al., 1977). To the best of our knowledge, interviewer familiarity has not previously been directly investigated since Hyman's (1954) **ground-breaking** work on the effects of interviewers' social involvement on response patterns. However, researchers have concluded that "the more personal the data gathering mode" and the more personable the interviewer, "the greater the likelihood of lower data quality" and "item nonresponse" (Frey, 1983:46-47). Just as mail surveys are less personal than face-to-face surveys, **face-to-face** surveys with an **unknown** interviewer are less personal than those with a known one.

In order to test the hypothesis that rates of drug use reported in a personal interview would be depressed by familiarity with the interviewer, we classified respondents according to the number of times

Table 4. Reported Lifetime Prevalence of Marijuana and Cocaine by Number of Times Responded to the Same Interviewer as in 1984

Number of Previous Contacts with Same Interviewer or with 1984 Interviewer	Ever Used Marijuana		Ever Used Cocaine		Total N	
	Male	Female	Male	Female	Male	Female
Never same interviewer	71%	68%	30%	19%	870	709
Never '84 interviewer	72	58	23	14	1,543	1,741
'84 interviewer once before (2 contacts altogether)	69	61	22	14	1,104	1,008
'84 interviewer twice before (3 contacts altogether)	68	60	20	14	883	873
'84 interviewer three times before (4 contacts al- together)	65	56	16	11	1,336	1,372
Differences among cate- gories	**	***	***	***		

NOTE: F-test used to assess significance.

** $p \leq .01$. *** $p \leq .001$.

they had been contacted by the same interviewer. A maximum of three prior contacts could be measured since interviewer codes were not available for the first two waves of the study. Furthermore, respondents who had never previously interacted with the 1984 interviewer were separated into those who had never had the same interviewer at least twice before and those who did, although not the person they faced in 1984. The results strongly support the hypothesis. If for the prior three waves respondents had never been interviewed by the same person, reported involvement in drugs is much higher than for any other group. Reports by those who had always been interviewed by the same interviewer are consistently the lowest (Table 4).

The more socially unacceptable the substance, the stronger the association. For example, among men reported cocaine use is 1.8 times higher but marijuana use 1.1 times higher for those who never had the same interviewer compared with those who always did. The reporting behavior of the middle three groups, and especially of the second group, is noteworthy. Respondents who had never met the 1984 interviewer previously but had been interviewed by the same person two or three times in the past (group 2) ~~are as~~ unlikely to report the use of marijuana or cocaine as those respondents who had faced the 1984 interviewer at least once in the past (group 3). This finding suggests that when faced with an interviewer, respondents respond not only in

terms of their *past* familiarity' with the person but also in terms of their subjective expectations regarding the probability of meeting this person in the *future*. The study had no measures of subjective expectations. However, we infer that those who face a stranger are less likely to report disapproved behaviors if they expect to meet that person again than if they do not expect a future encounter. This expectation appears to be based on prior personal experience in the interview situation. Support for this interpretation is strengthened by the finding that, among those who faced a stranger in 1984 but had met the same interviewer previously (group 2), the observed expectancy effect increases as a function of the number of prior contacts and is stronger for those who had seen that person three times rather than twice before. Among women, for instance, 54% versus 62% reported any lifetime marijuana use in the former compared to the latter group.

While lifetime cocaine use is a function of prior familiarity with the interviewer, intensity of use is not (data not shown), supporting the assumption that frequency of use among self-acknowledged users is accurate. Once respondents decide to report on their drug experiences at all, they do so to the best of their ability.

We explored further whether the observed interviewer familiarity effect in the reporting of deviant or sensitive behaviors could be due to the fact that the same factors related to drug use distinguish respondents who have been interviewed by the same person over time from those who have not. If those who have used illegal drugs are more deviant and more geographically mobile and therefore less likely to be assigned the same interviewer, our conclusion must be qualified. In order to test this additional hypothesis, we carried out two additional multivariate analyses.

First, we investigated the correlates of interviewer familiarity. Of the factors we examined, education (i.e., non-college educated), rural residence, region, religion, and living with parents were significant for both sexes, and being married, white, and nondelinquent were significant for men (data not shown). **Region** is clearly the variable most strongly associated with interviewer familiarity: residents in the north-central region are most likely to meet the same interviewer all four years and least likely to meet a different interviewer for each year. This region is where NORC, the organization conducting the fieldwork, is located. It is not solely individual characteristics, such as delinquency, that predict whether a respondent is likely to face the same interviewer but also, more importantly, proximity to the survey organization.

Furthermore, when the same variables that were used to predict interviewer familiarity are included in a logistic regression predicting cocaine use, the interviewer effect, although not as strong a determinant as delinquency, remains significant for the extreme category, i.e.,

those who never saw the same interviewer during the four waves of data collection (Table 5).

Interviewer characteristics. In contrast to the paucity of information on interviewer-familiarity effects, there is an extensive literature on interviewer-attributed response effects in surveys (see, for example, Sudman and Bradburn, 1974; Bradburn, 1983; Hyman et al., 1954; Bradburn, Sudman, and Associates, 1979; Turner and Martin, 1984). While the interviewer's social characteristics, personality, attitudes, and behaviors have all been mentioned as factors which potentially undermine results, it has been argued that response effects are more a function of questionnaire administration and question form, order, and length than of interviewer variables (Bradburn, 1983). The consensus is that interviewer-respondent interactions emerge as a function of demographic traits only if the question deals in some way with that particular trait. Racial, ethnic, social class, age, and sex effects occur if the question pertains to race, ethnicity, social class, age, or sex but not otherwise (Schuman and Converse, 1971; Sudman and Bradburn, 1974; Campbell, 1981; Colombotos, Elinson, and Loewenstein, 1968; Weeks and Moore, 1981). The NLSY data provide further supporting evidence for this conclusion. We found no strong interviewer-respondent interactions for sex or race with regard to reporting of drug use (data not shown). However, there was a slight trend for higher proportions of reported use of illicit drugs by all women and by Hispanic males if the interviewer was ethnically dissimilar.

Discussion and Conclusion

The lower reporting of illicit drug use in the NLSY compared to other surveys was unexpected. While lifetime marijuana use reported in the NLSY is close to that of other national surveys, reporting for other illicit drugs is considerably lower, varying somewhat by substance and by lifetime degree of involvement. Those who fail to report use of a particular drug appear to be less intensely involved in using it. Thus, two processes appear to be going on concurrently. Lower involvement in a particular behavior as well as perceived threat may lead to underreporting of certain socially disapproved behaviors. As hypothesized by Bradburn, Sudman, and Associates (1979:83), "perceived threat thus acts as a gatekeeper to prevent further questions." However, once a respondent decides to acknowledge participation, threat does not appear to affect reported frequency of participation in the behavior. This certainly appears to be the case for the report of illicit drugs other than marijuana.

Table 5. Effects of Various Respondent Characteristics on the Log Odds of Ever Using Cocaine by 1984^a (Logistic Regression)

Variable	Male (N = 4,862) B	Female (N = 5,117) B
Age (vs. 25-27)		
19-21	-.656***	-.517***
22-24	-.212*	-.094
Education (vs. 13 + years)		
Dropout, no diploma	.132	.136
Dropout, GED or diploma	.664***	.864***
High school graduate	-.115	.091
Marital status (vs. married)		
Never married	.570***	.777***
Sep./div./wid.	.417*	.525**
Residence (vs. urban)		
Rural	-.461***	-.380*
Region (vs. Northeast)		
North-central	-.680***	-.874***
South	-.369***	-.530***
West	.201	.186
Labor force status (vs. in school)		
Working	.241	.285
Unemployed	.259	.277
Keeping house	—	-.019
Race (vs. white/other)		
Black or Hispanic	-.649***	-.823***
Religion (vs. no religion)		
Catholic	-.271*	-.243
Baptist	-.602***	-.754***
Other protestant	-.213**	-.227
Jewish	.607	.601
Other	-.459	-.300
Living arrangement (vs. other)		
With parents	-.400***	-.367**
1980 delinquent acts (vs. none)		
1-2	.413***	.819***
3+	1.125***	1.362***
Interviewer familiarity (vs. '84 3 times)		
Never same interviewer	.266*	.450**
Never '84 interviewer	.104	.258
'84 interviewer once before	.046	.067
'84 interviewer twice before	.037	.226
Constant	-1.591	-2.335

^a Logit coefficients.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Reinterviewing by the same interviewer in this longitudinal survey, the very feature of the research design which NORC emphasized as contributing to the high retention rate from 1979 to 1984 (Campbell, 1984; Jones, **Burich**, and Campbell, 1986), may have contributed to the underreporting of drug use. The rapport established between respondents and interviewer may deter the reporting of illegal and deviant activities. This may be especially the case when interviewers are older than respondents and thus represent the adult population that sets and defines norms in the society at large. Perhaps the interviewer becomes somewhat of a parental figure. The majority of interviewers in the NLSY survey are women (92.8%), and their mean age is 48.6. Field conditions that increase the subjective awareness of social norms may increase reluctance to admitting to behaviors that contravene these norms.

Furthermore, after years of responding to questions focusing primarily on labor force participation and education, respondents may also be suspicious of an extensive battery of drug questions. Whether "piggy-backing" of illegal or sensitive questions in longitudinal surveys arouses more anxiety than similar questions in a standard cross-sectional survey needs to be explored more thoroughly.

Method of interview administration may be another contributing factor to underreporting. Although it is generally believed that more complete reporting of threatening behaviors occurs with self-administered rather than interviewer-read questions, this has not been definitely established (Sudman and Bradburn, 1974; Bradburn, 1983; Bradburn, Sudman, and Associates, 1979). A longitudinal survey that we conducted through face-to-face personal interviews revealed considerably higher levels of involvement with illicit drugs than did the NLSY (**Kandel and Logan, 1984**), levels that were similar to those reported by the GHS. Since its inception in 1972, the GHS has consistently used self-reported forms for the illicit drug questions. Alcohol prevalence rates increased appreciably in 1979, the first year that responses were marked on a private answer sheet form rather than spoken to the interviewer, compared to rates reported in the prior survey in 1977. However, in the following survey in 1982, rates went down, although not to levels as low as in 1977. Thus, the increase observed in 1979 may in part reflect real trends rather than differences in interview administration (Miller et al., 1983).

Groups for whom underreporting in the NLSY is most severe are often those for whom rates of use reported in the literature are comparatively low—women and blacks. The case of ethnicity is an especially important one. Every study that has reported drug use rates by ethnicity in epidemiological or school studies shows lower rates for blacks than for whites for almost all drug classes, including alcohol, marijuana,

cocaine, and nonmedical use of psychotropics, among adolescents as well as young adults (Bachman, Johnston, and O'Malley, 1981; Johnson, 1973; Miller et al., 1983; Maddahian, Newcomb, and Bentler, 1986; Bray et al., 1986; Robins, 1985; Zabin et al., in press), although not necessarily for middle aged respondents (Robins, 1985). These lower rates in general population samples contrast with the **overrepresentation** of blacks among drug users who come in contact with various institutions, those in drug treatment programs (National Institute on Drug Abuse, 1986) and general hospital admissions for a **drug-related problem** (National Institute on Drug Abuse, 1981), and of blacks and Hispanics among arrestees with a urine test positive for drugs (Eric Wish, personal communication, 1986). In our sample, minority and female underreporting cannot be attributed to greater familiarity with the interviewer, since multivariate analysis indicates that blacks and Hispanics are equally likely (females) or even more likely (males) to have had different interviewers than are whites, and women are more likely to have had different interviewers than men, although the difference is not statistically significant.

The issue of underreporting of drug use by blacks has not been treated extensively in the literature, although the authors of *Monitoring the Future* note a higher rate of missing data on questions dealing with the use of illicit drugs among black males than other students (Johnston, Bachman, and O'Malley, 1984). There may be consistently greater underreporting of deviant activities by black and Hispanic than by white respondents, and lower quality of responses to surveys more generally. In a validity study of self-reported criminal behaviors, Hindelang, Hirschi, and Weis (1981) concluded that blacks were more likely than whites to underreport their criminal offenses, a finding subsequently **confirmed** by Huizinga and Elliott (1984). From comparisons of the NLSY with data from the National Center for Health Statistics, Mott (1983) concluded that blacks were more likely than whites to underreport abortions. A consistent pattern seems to be emerging where members of **minority groups** are more inclined to provide socially desirable responses than majority members. One explanation may be that minority groups may feel more threatened or made more uneasy by such self-reports. Findings from *Monitoring the Future* tend to support this interpretation. In 1983, black non-drug users were more than twice as likely as whites to indicate that they would not have reported drug use had they been involved, 14% versus 6% for marijuana, and 19% versus 8% for heroin (Johnston, Bachman, and O'Malley, 1984: Q E13–15). The investigators attribute these racial differences to less "trust in the research process" (Johnston, Bachman, and O'Malley, 1984: 10). Not only are blacks and Hispanics more reluctant to admit to deviant behaviors, they also appear to be less likely to

provide reliable responses to less sensitive questions. A comparison of students' self-reports of family background, school performance, and coursework with parental responses and high school transcripts in the longitudinal survey *High School and Beyond* indicates that data from blacks and Hispanics are more discrepant than those from whites (Feters, Stowe, and Owings, 1984).

Since not all studies that report racial differences control for other socioeconomic variables, educational attainment rather than minority group status may determine reaction to and ability to deal with surveys. That racial differences in underreporting remain significant in our multivariate analysis after controlling for schooling suggests that minority group status is a crucial factor in the quality of survey data, over and beyond any other factor related to educational achievement and socioeconomic status.

The NLSY data tapes are public use tapes that will be used by many other investigators. The finding of differential reporting for questions on the use of illicit drugs has implications for all researchers investigating deviant or illegal activities, however, not just those analyzing data from the NLSY. It would be important to determine the extent to which minority underreporting and misreporting is a pervasive problem that is affecting most attitudinal and behavioral indicators obtained through social surveys. The results from this study have documented, however, that field conditions—in particular, interviewer familiarity—as well as individual characteristics contribute to the quality of reporting of deviant behaviors. We speculate that interviewer familiarity increases salience of normative standards and that participants respond not only in terms of their past familiarity but also in terms of their **subjective** expectations regarding the probability of a future encounter with the interviewer.

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