

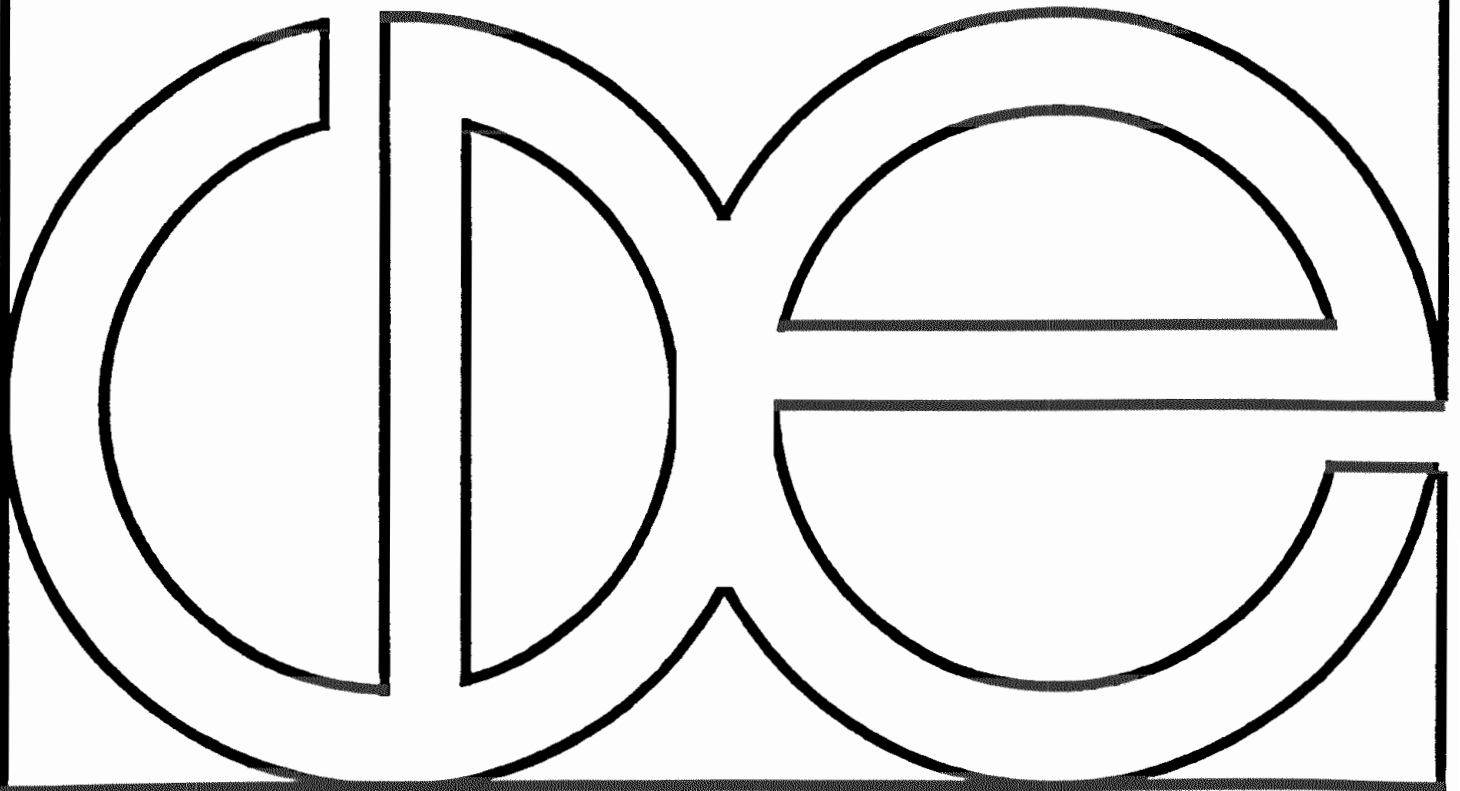
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**INTERVIEW MODE EFFECTS IN SURVEYS
OF DRUG AND ALCOHOL USE: A FIELD EXPERIMENT**

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Abstract

This research explores the impact of interview mode on respondents' willingness to reveal illicit or undesirable behavior and mechanisms by which interview mode influences response tendencies. A field experiment was designed to control mode effects due to sampling and screening methods so that hypotheses concerning the impact of response anonymity (through use of SAQs) and social distance in the interviewer-respondent relationship (telephone versus personal communication) could be tested. Interviews were completed with 2,417 adults aged 18-45 who were randomly assigned to interview mode: telephone, face-to-face, or self-administered. Admission of illicit drug use and alcohol use was most likely in the personal mode with SAQs, slightly less likely in personal mode without SAQs, and least likely in the telephone mode. The magnitude of the mode differentials was larger for blacks than for whites, and larger among respondents who are more mistrustful of others. Results support the notion that response effects due to mode of interview derive, at least in part, from interview mode differences in ability to assuage respondents' confidentiality concerns. This is consistent with communication theories which hold that the greater social distance between interviewer and respondent in the telephone interview, compared to face-to-face communication, makes it more difficult for the researcher to make convincing confidentiality guarantees. The response anonymity provided by SAQs also appears to strengthen the researcher's confidentiality claims in the face-to-face mode, especially among minorities.

This article explores the impact of interview mode on respondents' willingness to reveal sensitive or socially undesirable information about themselves and the underlying mechanisms by which interview mode might influence response tendencies. The analyses compare levels of self-reported illicit drug use and alcohol use in three interview modes (self-administered questionnaires, interviewer-administered in-person interviews, and telephone interviews), and test predictions from a theoretical model emphasizing mode differences in response anonymity provided during the interview and in the credibility of researchers' confidentiality claims.

Recent research suggests that survey estimates of drug and alcohol use in the household population vary by mode of interview (Aquilino, 1992; Aquilino & LoSciuto, 1990; Gfroerer & Hughes, 1991; Johnson, et al., 1989; Turner, et al., 1992). Face-to-face interviews have yielded higher estimates of self-reported alcohol and drug use than telephone interviews, and self-administered questionnaires have yielded higher use levels than interviewer-administered questionnaires in either the personal or telephone mode. There are, however, several shortcomings of extant research that limit the usefulness, reliability and generalizability of these findings. First, there has been little attempt to test theoretical assumptions concerning the origins of observed mode effects; thus little is known about which characteristics of the interview format bring about the response effects. Second, there has been little attention to subgroup variation in interview mode effects and the reasons for this variation. There is some evidence that mode effects vary by race, with the magnitude of mode effects larger for blacks than for whites (Aquilino & LoSciuto, 1990), but little is known about the origin of such variation. Finally, studies comparing drug use estimates in telephone versus face-to-face surveys have often lacked a true experimental design with random assignment of respondents to interview mode (see Aquilino & LoSciuto, 1990; Gfroerer & Hughes, 1991), and have confounded effects due

to sampling procedures with effects due to mode of communication.

The present study was designed to address these shortcomings of prior research on mode effects in drug surveys. Major goals were: (1) to isolate the effects due to interview mode itself (versus effects due to sampling) by conducting a field experiment in a national probability sample of adults, with random assignment of respondents to mode of interview, and in which all effects due to sampling procedures and household screening would be controlled; (2) to test theoretical assumptions about how the medium of communication, through its impact on response anonymity and the credibility of confidentiality claims, affects respondents' willingness to reveal sensitive information; and (3) to test interactions of interview mode with race/ethnicity as well as theoretical assumptions concerning how the medium of communication may differentially affect racial and ethnic subgroups.

Theoretical perspectives on mode effects

Recent conceptualizations of mode effects (Groves, 1990; Schwartz, et al., 1991) suggest that two key factors influence respondents' willingness to reveal illegal or socially undesirable behavior in an interview: 1) their belief in the confidentiality of the data they provide, and 2) the degree of anonymity of responses provided by the method of data collection. Confidentiality reflects respondents' beliefs that their responses will not be revealed to others and that they will not be identified at any time after the interview. Anonymity of responses refers to whether or not responses become known to the interviewer during the interview.

Interview modes may differ in degree of response anonymity during the interview and in the ability to alleviate respondents' confidentiality concerns. Self-administered questionnaires provide greater anonymity of response during the interview than interviewer-administered interviews in either the personal or telephone modes (Bradburn, 1983). Interview modes that provide high response anonymity should elicit a greater willingness

among respondents to reveal undesirable behavior (Schwartz et al., 1991).

Survey modes also may differ in their ability to convince respondents of the confidentiality of their responses after the interview. Groves (1990) has elucidated a theoretical perspective, based on psychological communication theory, that may account for these mode differences. Communication theorists have emphasized the absence of nonverbal cues in the telephone mode and the influence of nonverbal cues on the affective relationship between interviewer and respondent. The absence of nonverbal communication in the telephone medium results in greater social distance between interviewer and respondent than in face-to-face communication. Social distance in the interaction may be directly related to the interviewer's ability to assuage a respondent's confidentiality concerns. Groves states the argument as follows:

The reduction of influences related to social desirability must first rely on the "credibility" of the confidentiality guarantee of the researcher. That is, once the respondent believes that his answers will not be later revealed to others, those effects will be eliminated. This credibility, often a judgment with a large affective base, may be more difficult to make in a telephone interview (Groves, 1990: p.227).

If this perspective is correct, the researcher's confidentiality claims should be more persuasive in the face-to-face interview setting than in the telephone interview, because of reduced social distance between interviewer and respondent and increased ability of interviewers to establish a positive affective relationship with the respondent. Further, within the face-to-face mode, the use of SAQs for sensitive questions, because of the increased response anonymity they provide, should further strengthen the researcher's ability to convince respondents of the survey's confidentiality. Sudman & Bradburn (1974) argued that use of self-administered answer sheets in the context of an in-person interview

is one of the best ways to reduce response effects to threatening questions. To the degree that confidentiality concerns determine respondents' willingness to reveal sensitive information, then, estimates of illicit drug use and alcohol use should be greatest when SAQs are used in face-to-face interviews, lower when face-to-face interviews are entirely interviewer-administered, and lowest in telephone interviews.

This research was designed to test both the social distance and the response anonymity hypotheses in regard to interview mode effects. Potential mode effects due to sampling procedures and methods of screening and respondent selection were controlled by selecting all respondents through identical procedures. Respondents were then randomly assigned to the telephone, in-person with SAQ, or interviewer-administered in-person mode. Comparison of the telephone and interviewer-administered personal modes provides a direct test of the social distance hypothesis, since the interviews are identical save for mode of communication differences. Comparison of in-person with SAQ mode to the interviewer-administered in-person mode directly tests the response anonymity hypothesis, since the interviews are identical except for the use of self-administered answer sheets for recording sensitive items. Comparing the telephone and in-person with SAQ modes allows estimation of the combined effects of social distance in the interviewer-respondent relationship and response anonymity.

Testing the confidentiality assumption. The theoretical model outlined above posits respondents' confidentiality concerns as one of the central underlying mechanisms producing mode effects in sensitive surveys. I test this assumption explicitly in this research. In order to operationalize the confidentiality issue, I assumed that respondents differ in their readiness to believe the researcher's confidentiality guarantees; some respondents will be more suspicious than others and less willing to give the researcher the benefit of the doubt. If the credibility of confidentiality guarantees varies by interview

mode, then interview mode effects should be greatest among those respondents who are generally more suspicious of the claims of others, and least among respondents who have higher levels of trust in other people. Specifically, I expected to find a significant interview-mode-by-mistrust interaction in models predicting drug use.

Question sensitivity. Extant literature suggests that the impact of survey mode on responses varies with item sensitivity (Bradburn, 1983). Mode effects appear to be minimal in nonthreatening surveys. Mode comparisons involving topics such as general health, attitudes toward social issues, and voting behavior, have consistently shown that telephone and face-to-face surveys yield comparable results (Groves, Miller and Cannell, 1987; Herzog, et al., 1983; Herzog & Rodgers, 1988; Rogers, 1976; Siemiatycki, 1979; Wiseman, 1972). Thus, a theoretical model of mode effects based on confidentiality concerns may hold only for surveys that ask highly threatening questions concerning illicit, undesirable, or embarrassing behavior.

The dependent measures included in this research vary in sensitivity, from recency of alcohol consumption (least sensitive), to recency of marijuana and cocaine use (more sensitive), to use of crack cocaine (most sensitive). I expected therefore that the mode effects predicted by the theoretical model would be stronger for the more sensitive items, and weaker for the less sensitive items, since the impact of respondent confidentiality concerns on responses should vary with the degree of threat associated with a question.

Literature on mode effects in sensitive surveys

Comparing interviewer-administered modes: telephone vs. face-to-face surveys. A number of studies suggest that respondents are less likely to admit illegal or socially sanctioned behaviors in telephone than in interviewer-administered face-to-face surveys. Refusal rates for sensitive questions tend to be higher in telephone than in personal interviewing (Groves & Kahn, 1979). Telephone respondents were less likely to report psychia-

tric symptoms and depression than those interviewed face-to-face (Henson, Cannell & Roth, 1978), and had significantly higher social desirability scores on the Crowne-Marlowe scales. Employees surveyed by telephone were less willing than those personally interviewed to reveal sensitive information such as unlawful union campaign practices, and how they intended to vote in union elections (Herman, 1977). Kormendi (1988) reported higher nonresponse to income questions by telephone in Danish surveys, although no mode differences were found in amount of income reported. College students reported less illicit drug use when interviewed by telephone than face-to-face (Johnson, Hougland & Clayton, 1989). In a meta-analysis of mode comparisons over the last four decades, de Leeuw & van der Zouwen (1988) concluded that telephone is not as effective as personal interviewing in asking sensitive questions, and evidences higher social desirability bias.

There are a few exceptions to these trends, most notably in measurement of alcohol consumption. Mangione et al., (1982) reported significant differences between telephone and personal modes on only 1 of 14 measures of drinking. In British surveys of alcohol use (Sykes & Collins, 1988), the telephone elicited less social desirability bias for sensitive questions such as drunkenness, and the quantity of alcohol consumed was 10% higher by phone than in-person.

Self-administered vs. interviewer-administered modes. Recent studies based on the National Household Survey on Drug Abuse (NHSDA) questionnaire have consistently found sizable mode effects when comparing SAQs to interviewer-administered modes. Gfroerer & Hughes (1991) compared drug use estimates from a 1988 national telephone survey to the 1988 NHSDA. The telephone survey yielded significantly lower estimates of marijuana and cocaine use than the NHSDA, which relies on self-administered answer sheets for all alcohol and drug items. In a national probability sample age 12 and older, Turner, et al., (1992), randomly assigned respondents to either interviewer-administered or self-adminis-

tered modes for answering drug and alcohol use questions (all interviews were done in person using variants of the NHSDA questionnaire). Higher estimates of marijuana and cocaine use were obtained in the self-administered mode; no mode effects were found for alcohol. Similar results were found in the 1988 wave of the NLSY (Schober et al., 1992): respondents given self-administered answer sheets reported more marijuana and cocaine use than respondents questioned directly by the interviewer. In sum, results of mode comparisons involving highly sensitive topics such as illicit drug use are generally consistent with the theoretical model.

Racial/ethnic variation in mode effects. In one of the few studies to report subgroup variation in mode effects, Aquilino and LoSciuto (1990; Aquilino, 1992) compared drug use estimates from two surveys of the 18 to 34 year old population in the state of New Jersey: a telephone survey, and a face-to-face survey using self-administered answer sheets. The results suggested a strong race-by-mode interaction in self-reported drug use. Significant mode effects were found for blacks' self-reported alcohol, marijuana, and cocaine use, with lower estimates by telephone than in the personal mode with self-administered answer sheets. There were few significant mode effects for whites. Based on these results, I predicted that the hypothesized mode effects would be significantly larger for minorities than for whites.

One of the weaknesses of the New Jersey studies is that they provide no clue as to why mode effects might differ by race or ethnicity. The current analysis attempts to expand knowledge in this area by testing one hypothesis linking mode effects to race: consistent with the theoretical framework outlined above, I predicted that differences in mode effects by race/ethnicity are due, at least in part, to racial/ethnic differences in the magnitude of respondents' confidentiality concerns. Specifically, I hypothesized that racial/ethnic differences in the magnitude of mode effects can be accounted for by

racial/ethnic differences in respondents' beliefs concerning the trustworthiness of others.

Research design problems in comparisons involving the telephone mode

There are design problems that limit the usefulness of prior research comparing drug use estimates from telephone and face-to-face modes (see Aquilino, 1992; Aquilino & LoSciuto, 1990; Gfroerer & Hughes, 1991).¹ In studies involving telephone interviewing, respondents were not randomly assigned to interview modes. The face-to-face interviews were done with a sample drawn through multistage area probability sampling with in-person screening of households; the telephone interviews were conducted with a sample drawn through Random Digit Dialing. This methodology confounds differences due to sampling procedures with differences due to the mode of communication itself. Although sampling frame differences can be controlled by eliminating all households without telephones from the mode comparison, and controls for a number of demographic variables on which the two samples differ can be included in multivariate models of mode effects, it is not possible to rule out completely the possibility that the observed mode differences in these studies were a function of differential patterns of nonresponse to the two sampling procedures, and not to the interview mode itself. Screening nonresponse is an especially likely source of differences between the area probability and RDD samples. In the New Jersey surveys (Aquilino & LoSciuto, 1990), for example, the number of households who refused the screening interview for eligibility and respondent selection was much higher in the RDD sample (14%) than in the area probability sample (3%). One can not discount the possibility that the nonrespondents to the telephone and face-to-face surveys differed in ways that affected the mode comparisons.

To isolate effects due to survey design features such as mode of communication, mode effects due to sampling and nonresponse must be controlled. Thus, a core objective of this research was to design a field experiment in which potential effects of sampling

method and screening nonresponse would be controlled, so that effects due to mode of administration could be isolated.

Hypotheses

Based on the theoretical model and empirical literature described above, the following specific hypotheses were tested:

1. With sampling method and screening nonresponse controlled, the use of self-administered answer sheets in a face-to-face survey will yield higher estimates of drug and alcohol use than an interviewer-administered face-to-face survey. This hypothesis tests the degree to which response anonymity affects willingness to reveal sensitive information.
2. With sampling method and screening nonresponse controlled, an interviewer-administered face-to-face survey will yield higher estimates of drug and alcohol use than an interviewer-administered telephone survey. This tests the degree to which social distance in the interviewer-respondent relationship (due to mode of communication) influences response effects.
3. With sampling method and screening nonresponse controlled, the use of self-administered answer sheets in a face-to-face survey will yield higher estimates of drug and alcohol use than a telephone survey, due to the combined effects of greater response anonymity and less social distance in the interviewer-respondent relationship in the SAQ mode.
4. The hypothesized mode effects (Hyps. 1, 2 & 3) will be significantly larger for minorities than for whites.
5. The hypothesized mode effects (Hyps. 1, 2 & 3) will vary with question sensitivity, with mode effects larger for more sensitive items.
6. The magnitude of the hypothesized mode effects will vary with the degree of respondents' confidentiality concerns, i.e., the hypothesized mode effects (Hyps. 1, 2 & 3) will be larger for respondents who express higher levels of mistrust in others.

7. The differences between minorities and whites in the magnitude of mode effects will be accounted for by racial/ethnic differences in confidentiality concerns; specifically, when the impact of beliefs concerning the trustworthiness of others on mode effects are controlled, racial/ethnic differences in the magnitude of mode effects will disappear.

Methods

The sample. Interviews were completed with 2,417 adults aged 18-45 drawn through a multistage area probability sample of urban and suburban counties in the coterminous United States.² Rural counties were excluded from the sampling frame as a cost control measure. The sample was restricted to younger adults in order to maximize the chances of interviewing current and recent users of illicit drugs. Blacks and Hispanics were double-sampled, and interviews were conducted in English and Spanish. Data collection proceeded from June to December, 1991. A screening response rate of 94.3% and an interview response rate of 80.6% were achieved. Interview response rates were nearly identical in the three modes: 80.2%, 81.5%, and 80.1% respectively for the SAQ, Personal/no SAQ, and Telephone modes.

Experimental design and controls

Screening and respondent selection. All households in the sample were screened in-person for eligibility. One respondent was randomly selected if more than one adult aged 18-45 resided in the household. To determine eligibility, the screening interview asked for the ages of all males age 18-45 and all females age 18-45 living in the household. For respondent selection (if more than one eligible), each household had been randomly assigned to one of four selection criteria: youngest male, oldest male, youngest female, or oldest female. If there were no eligibles of the assigned sex, a second selection criteria had been randomly assigned (youngest or oldest of the other sex). All respondents in the study were selected using identical sampling, screening, eligibility, and respondent

selection procedures. Thus, differential screening nonresponse can be ruled out as a cause of any observed mode effects.

Assignment to mode. All housing units in the sample were randomly assigned to one of three interview modes: (1) SAQ, a face-to-face interview using self-administered answer sheets for drug and alcohol items; (2) Personal/no SAQ, a face-to-face interview in which all questions were asked and responses recorded directly by the interviewer; and (3) Telephone, the interview was conducted by telephone from the interviewer's home. Households without telephones were excluded from all analyses to preserve comparability among groups (169 of the 2,417 cases had no telephone).

Questionnaires. The questionnaires were adapted from the 1990 National Household Survey on Drug Abuse (NHSDA) questionnaire, and translation into Spanish was based on the NHSDA Spanish translation. Question wording, question order, and response categories were identical in all three modes. No show cards were used in the SAQ or Personal modes, to insure comparability to the telephone mode. Where necessary, the number of response categories was shortened, or question unfolding techniques were used (Miller, 1984) to obviate the need for show cards. Mode differences in question wording or sequencing can be ruled out as sources of mode effects.

In the SAQ mode, interviewers never saw or heard the respondent's answers. Interviewers read the instructions at the start of each drug sequence, and, if the respondent desired, read the questions aloud while the respondent completed the answer sheet. Answer sheets were sealed in an envelope in the respondent's presence upon completion of the interview. No names were recorded on the questionnaires or answer sheets.

Interviewers. The same set of interviewers conducted the interviews in all three modes. About one-third of each interviewer's assignment was done in person with SAQs, one-third was done in-person without SAQs, and one-third was done by telephone.

Because this was a national sample, it was necessary to have the interviewers conduct the telephone interviews from their homes, rather than from a centralized telephone interviewing center, so that the same interviewers could execute the data collection in all three modes. Thus, mode differences in interviewer characteristics can be ruled out as a source of mode effects in estimating drug usage.

Every attempt was made to recruit experienced interviewers for this study, interviewers who could be trusted to carry out faithfully the research design, and who were known to do high quality work in previous surveys. As a group they had over 11 years interviewing experience, on the average. Nearly all interviewers were women; their average age was 48 years, with 14.5 years of school completed (82% of the interviewers had at least some college, and about a third were college graduates). Over 85% of the interviews were conducted by someone with previous interviewing experience in drug use surveys. About 80% of the interviews were conducted by white interviewers, the remainder by black and Hispanic interviewers. About one-third of the interviews were conducted by an interviewer of a different race than the respondent; this was far more likely among black and Hispanic than among white respondents. Race of interviewer effects are reported in the results section below.

Data Analysis. Independent variables included interview mode, race/ethnicity, and respondent mistrust of others. Two dummy variables were constructed to tap mode of interview: personal (coded 1 if the interview was conducted face-to-face without SAQs) and telephone. SAQ mode was the omitted category in regression analyses. Two dummy variables were created for race: black (nonhispanic), and Hispanic (including all Hispanic groups). White/other was the omitted category. The mistrust of others measure was based on an item from the General Social Survey (Davis & Smith, 1984). As part of a larger list of attitude items, respondents were asked if they mostly agreed or mostly

disagreed with the following statement: most people can be trusted (coded 1 if disagreed, 0 if agreed). A higher score indicates more mistrust of others.

Consistent with previous research on mode effects in drug use surveys (Aquilino, 1992; Turner, et al., 1992), the dependent measures chosen for this analysis focus on three substances: marijuana, cocaine, and alcohol. Ordered categorical variables were constructed to indicate the recency of use of these substances (0 = never used, 1 = used more than a year ago, 2 = used in the past 12 months, 3 = used in the past 30 days). To tap one of the more sensitive aspects of substance use, I included in the analyses a binary variable for use of crack cocaine (coded 1 if ever used, 0 otherwise), and an ordered categorical variable for frequency of drunkenness over the past 12 months (coded 0 = never, 1 = less than once a month, 2 = one to three times a month, 3 = once a week or more). Ordered logit models (see Winship & Mare, 1984 for a description of ordered logit and ordered probit models) were fit for the ordered categorical variables, recency of marijuana, cocaine, and alcohol use, and drunkenness; binary logit models were fit for use of crack. Weighted data are used in all logit analyses. Because explicit hypotheses were tested in these models, one-tailed tests of significance were used. All models were fit with the LIMDEP software package (Greene, 1988).

Of the five dependent variables, I assume that use of crack was the most sensitive item, due to the large amount of negative publicity in recent years concerning its addictiveness and harmful effects. Use of marijuana and cocaine would also be sensitive questions, since they ask about illicit behavior, but most likely somewhat less sensitive than crack. Questions concerning alcohol use should be less sensitive than marijuana, cocaine or crack, since they do not ask about illegal behavior (at least for those age 21 and above). Frequency of drunkenness is likely a more sensitive question than recency of alcohol use, which should be the least sensitive of the five variables. The hypothesized mode effects

should be largest for crack, somewhat smaller for the marijuana, cocaine, and drunkenness indicators, and smallest for alcohol use.

Results

Respondent characteristics

Random assignment to interview mode resulted in three groups with nearly identical demographic characteristics (Table 1). The between group similarities in background variables support the assertion that mode differences in self-reported drug use cannot be attributed to differential patterns of nonresponse among eligible respondents. Because the demographic profiles of respondents are unrelated to interview mode, there was little reason to use demographic characteristics as control variables in response effects models.

Effects of interview mode on drug use estimates

Weighted estimates of drug and alcohol use for the total sample and by race are presented in Table 2. In the total sample, the predicted pattern of effects (SAQ highest estimates, lower in personal mode, least by telephone) can be seen for marijuana and cocaine use: for all three indicators of marijuana use, ever used cocaine, and ever used crack, the SAQ mode yielded the highest use estimates, the personal mode lower estimates, and telephone mode the lowest estimates. The results are not as clear for the two alcohol measures, although the SAQ mode did provide the highest estimates of alcohol use in the past month and getting drunk once a week or more. The predicted pattern was evident for blacks on all measures save recent alcohol use, but was less evident for whites and Hispanics.

Ordinal and binary logit models testing the significance of mode effects are presented in Table 3. Models were fit both without (Model I) and with (Model II) race-by-interview-mode interaction terms. Dummy variables were included for personal and telephone modes, with SAQ the omitted category. Tests for significant differences

between the personal/no SAQ and telephone modes were also computed, based on the variance-covariance matrix of the estimates.³

The models without interaction terms (Table 3) provide modest support for Hypothesis 1. The personal mode without SAQs yielded only marginally significant ($p < .10$) lower estimates of cocaine use and alcohol use than the SAQ mode, with no significant effects for marijuana, crack, or drunkenness. This suggests that, for the sample as a whole, response anonymity had only weak effects on willingness to report substance use.

Somewhat stronger support was obtained for Hypothesis 2. Estimates of crack use, the most sensitive of the five substance use measures, were significantly lower by telephone than in the personal without SAQs. Estimates of marijuana and cocaine use were also lower by telephone than in the personal/no SAQ mode, although the effects were only marginally significant ($p < .10$). There were no differences between these two modes on the alcohol measures for the total sample. The effects for the three illicit drug variables are consistent with the notion that social distance in the interviewer-respondent relationship influences willingness to reveal sensitive information.

The models in Table 3 provide the strongest support for Hypothesis 3. The telephone mode yielded significantly lower levels of self-reported marijuana, cocaine, and crack use than the SAQ mode. Also, the size of the effects in comparing the telephone and SAQ modes is much greater than in the other mode comparisons (SAQ vs. Personal/no SAQ; Telephone vs. Personal/no SAQ). No effects were found for the alcohol variables. For the sample as a whole, then, the combined effects of response anonymity (use of SAQs) and less social distance in the face-to-face mode strongly influenced estimates of illicit drug use, compared to the telephone mode.

For illicit substances only, the results of Model 1 in Table 3 are generally consistent with the theoretical model: admission of drug use was most likely in the personal mode

with SAQs, less likely in personal mode without SAQs, and was the least likely in the telephone mode.

Mode effects by race/ethnicity. The models with mode-by-race/ethnicity interaction terms (Table 3, Model II) provided partial support for Hypothesis 4, that the predicted mode effects would be stronger for minorities than for whites. Significant negative ($p < .05$) race-by-mode interaction terms were found for marijuana and drunkenness, and marginally significant negative terms for cocaine and crack ($p < .10$). All but one of the significant interaction terms are in the predicted direction, and indicate larger mode differentials for blacks and Hispanics than for whites.

To clarify the direction and magnitude of mode effect differentials by race/ethnicity, mode effects models were fit separately for blacks, whites, and Hispanics on the four dependent variables with significant interaction terms. These models (presented in Table 4) show that the hypothesized mode effects are much more likely to be found for blacks than for whites. Whether or not SAQs were used in the face-to-face mode had no impact on whites' self-reported drug use (Personal/no SAQ vs. SAQ comparison). For blacks, however, not using SAQs in the face-to-face mode had a consistently negative effect on drug use estimates, with significant effects for cocaine and crack.

The magnitude of the differences between the SAQ mode and the telephone mode was also larger for blacks than for whites; significant and large negative effects for telephone versus SAQ mode are found on all four substances in Table 4 for blacks, while on only two substances for whites (cocaine and crack). Similar results can be seen for the telephone versus personal-no SAQ comparison between blacks and whites. Overall, all 12 of the mode contrasts for blacks in Table 4 are in the predicted direction, and 8 of the 12 contrasts are significant. For whites, 7 of the 12 contrasts are in the predicted direction, and only three are significant. This is despite the fact that the power to detect mode

effects is larger for whites than for blacks due to larger sample sizes.

The results for Hispanics are not as clear as for blacks (Table 4). There are no significant mode effects for cocaine or crack use among Hispanics. However, the significant effects for marijuana and drunkenness are in the expected direction--the SAQ mode furnished higher estimates for these measures than both the personal-no SAQ mode and the telephone mode, while no mode differences were seen for whites' marijuana use or drunkenness. It is the minorities, both blacks and Hispanics, who appear especially sensitive to the response anonymity furnished by use of self-administered answer sheets versus having to answer sensitive questions directly to the interviewer. It is important to note that there were no differences for Hispanics between the two interviewer-administered modes (telephone and personal), suggesting that response anonymity (through use of SAQs) may have played more of a role in mode effects among Hispanics than did social distance in the interviewer-respondent relationship.

Testing the confidentiality hypothesis

Although the results described above are consistent with a theoretical model that emphasizes confidentiality issues as a source of mode effects, they provide no direct evidence for the contention that interview modes differ in their ability to assuage confidentiality concerns, and that such differences are related to response effects. One of the goals of this research was to operationalize this theoretical assumption and test the proposition that the observed mode effects are indeed linked to respondents' confidentiality concerns. To do this, I assumed that respondents who are in general more mistrusting of others will be more mistrustful of researchers' confidentiality claims, i.e., they will be harder to convince than respondents who are more trusting of others. Thus, to the degree that interview modes differ in their ability to alleviate confidentiality concerns, one would predict that mode effects would be larger among the more suspicious respondents, and

smaller among the more trusting ones (Hypothesis 6). Because a higher score on the mistrust variable indicates more mistrust of others, evidence for this hypothesis would be significant, negative, mode-by-mistrust interaction terms in the substance use models.

I should note that the mistrust item was also asked in three modes (SAQ, Personal-no SAQ, and Telephone), raising the possibility that this indicator is confounded with interview mode and therefore unusable as a variable explaining mode effects. The response distributions for the total sample and by race/ethnicity for this variable are given in Table 5. The percentages disagreeing that "most people can be trusted" were nearly identical in all three modes in the total sample, among whites, and among blacks. The Chi-Square tests of association between interview mode and mistrust were nonsignificant for whites and blacks. Thus, confounding of the mistrust measure with interview mode was not a problem for white and black respondents. The same was not true for Hispanics, where responses differed substantially by mode, and the Chi-Square for association was borderline significant. Due to the potential confounding, I excluded Hispanics from subsequent analyses including mistrust and mode-by-mistrust interaction terms.

Models testing the predicted mode-by-mistrust interactions are presented in Table 6. The results furnish considerable support for Hypothesis 6 (see Table 6, Model I for each drug category). In models for recency of marijuana, cocaine, and alcohol use, the predicted mode-by-mistrust interaction terms are significant in the expected direction (only the mistrust*personal term is significant in the alcohol use model; the mistrust*telephone term is in the predicted direction but nonsignificant). These interactions indicate that the predicted differentials between the telephone and SAQ modes, and between the personal and SAQ modes, are significantly larger among the more mistrustful respondents. These findings support the core theoretical assumption that respondent confidentiality concerns are one of the underlying mechanisms producing mode effects to sensitive questions, and

that survey modes differ in their ability to allay confidentiality concerns. The predicted mode-by-mistrust interaction terms were not found, however, for crack and drunkenness.

Mistrust and mode effects by race. The models in Table 6 also test the prediction that racial differences in mistrust of others account for the observed differences between blacks and whites in the magnitude of mode effects (Hypothesis 7). As can be seen in last panel of Table 5, mistrust is highly related to race. Blacks are much less likely than whites to believe that most people can be trusted. It is plausible to expect, then, that: (1) researchers will have more difficulty in alleviating the confidentiality concerns of blacks than those of whites, and (2) that racial differences in the magnitude of mode effects can be accounted for by racial differences in sensitivity to confidentiality issues. My specific prediction was that adding the mode-by-mistrust interaction terms to models containing mode-by-race interaction terms would reduce the mode-by-race interaction terms to nonsignificance. Models II and III in Table 6 provide little support for this hypothesis. The race-by-mode interaction terms are essentially unaffected by the introduction of mode-by-mistrust interaction terms into the models (comparing the interaction terms in models II and III under each substance category). This suggests that racial differences in mistrust of others do not fully explain racial differences in the magnitude of interview mode effects.

Race of interviewer effects. As noted in the methods section, blacks and Hispanics were much less likely than whites to be interviewed by someone of the same race/ethnicity. I examined the possibility that mode effects vary by race of interviewer by testing mode-by-interviewer-race interaction terms in the models for blacks and Hispanics (data not shown). Race of interviewer had no impact on mode effects among blacks. There were two significant effects for Hispanics: for recency of alcohol use and drunkenness, the difference between the in-person with SAQ and the in-person/no SAQ modes (with SAQ furnishing the higher estimates) was significantly greater when Hispanics were

interviewed by someone of the same ethnicity. Thus, there is no evidence that the mode effects found in this research resulted only from differences in race/ethnicity between respondent and interviewer.

Discussion

Summary of major findings

The predicted effects of response anonymity (Hyp. 1) were supported for minorities, but not for whites. In comparing face-to-face modes with and without the use of self-administered answer sheets, I found no effects for whites' self-reported drug use, but significant effects for blacks and Hispanics. Blacks reported significantly lower levels of cocaine and crack use, and Hispanics lower levels of marijuana use and drunkenness, when SAQs were not used in the face-to-face interview. When asking threatening questions, it appears that response anonymity during the interview has a greater potential impact on minorities than on whites.

Hypothesis 2 concerned the impact of social distance in the interviewer-respondent relationship due to mode of communication differences between the interviewer-administered telephone and personal surveys. For the sample as a whole, the telephone mode yielded lower estimates of marijuana, cocaine and crack use than the interviewer-administered personal survey (no effects were found for alcohol). The results for the illicit substances support the notion that differences between the telephone and personal modes stem in part from mode differences in ability to assuage respondent confidentiality concerns. Greater social distance between interviewer and respondent by telephone than in-person appears to result in lower respondent willingness to reveal sensitive information.

Hypothesis 3 predicted higher estimates of drug use in the face-to-face mode with SAQs than in the telephone mode, thus testing the combined effects of response anonymity and mode of communication on response effects. As expected, the largest mode

effects were seen in this comparison, with the telephone mode yielding significantly lower estimates of marijuana, cocaine, crack, and alcohol use than the SAQ mode. The effects here were especially strong for blacks on all three illicit drugs and for drunkenness, although significant effects in the predicted direction were also found for whites' reports of cocaine and crack use, and Hispanics' reports of marijuana use and drunkenness. These results suggest that, especially for blacks, and to a lesser extent for Hispanics and whites, the combined effects of response anonymity and social distance in the interviewer-respondent relationship have a substantial impact on response tendencies.

The results for Hypotheses 1, 2 and 3 fit well with prior research suggesting lower reports of illicit drug use by telephone than with SAQs (Aquilino and LoSciuto, 1990; Gfroerer and Hughes, 1991; Johnson, et al., 1989). They support the conclusion that interview mode effects are larger for blacks than for whites on measures of alcohol, marijuana and cocaine use when comparing SAQ to telephone modes (Aquilino and LoSciuto, 1990). The current findings are also consistent with the recent work of Turner, et al. (1992), which reported higher levels of self-reported marijuana and cocaine use in face-to-face interviews using SAQs than in the interviewer-administered face-to-face survey, although the present study suggests that the SAQ effects are stronger for minorities than for whites.

It is important to note that this research provides no objective standard by which to judge the relative validity of drug use estimates from the three modes. However, to the extent that respondents feel threatened by sensitive questions, it is reasonable to expect that underreporting of drug use would be the largest threat to validity (Sudman & Bradburn, 1974; Bradburn, et al., 1978). The direction of effects does provide a clue, although no proof, as to the relative validity of estimates from each mode. If underreporting is the largest threat to validity, bias is assumed to be stronger in the mode which furnishes the

lower estimate of the undesirable or illegal behavior (Biemer, 1988; Sudman et al., 1977).

Hypothesis 4, that the predicted mode effects would be larger for minorities than for whites, was strongly supported for blacks but only weakly supported for Hispanics. On hypotheses 1, 2 and 3, the results for blacks conform to the predictions of the theoretical model much more so than the results for whites. The mode contrasts for blacks are much more likely to be in the predicted direction, and to be significant, than the mode contrasts among whites. The results are not as clear, however, in comparing Hispanics to whites. The hypothesized impact of response anonymity (use of SAQs in the face-to-face mode) was more evident for Hispanics than for whites. However, there were no significant effects for Hispanics in the contrasts involving mode of communication (i.e., in comparing the interviewer-administered modes, telephone and face-to-face), while this mode contrast for crack was significant for whites. In comparing the telephone and SAQ modes (Hypothesis 3), Hispanics had significant effects in the predicted direction for marijuana and drunkenness, while whites had significant effects in the predicted direction for cocaine and crack. Thus, there is only weak evidence that mode of communication between interviewer and respondent had more of an impact on Hispanics than on whites.

As predicted (Hypothesis 5), the magnitude of the expected mode effects (as specified in hypotheses 1, 2 and 3) varied with item sensitivity. The largest mode effects were found for crack use (especially for blacks), arguably the most sensitive of the variables included in these analyses. Significant although smaller mode effects were found for marijuana use and cocaine use, and for drunkenness (blacks and Hispanics only). Recency of alcohol use, considered the least threatening question of the set, was only mildly affected by interview mode.

A good deal of support was found for Hypothesis 6, which posited that the hypothesized mode effects would vary with degree of respondents' mistrust in others

(among black and white respondents only). Mode differentials for recency of marijuana, cocaine, and alcohol use were significantly larger (in the expected direction) among the more mistrustful respondents; mode differentials for crack and drunkenness did not vary by respondent mistrust. I make the assumption that more mistrustful respondents have greater confidentiality concerns than more trusting respondents. Given this assumption, the results for marijuana, cocaine, and alcohol are consistent with the core theoretical assumption of this research, that interview mode effects on response bias in sensitive surveys are due at least in part to mode differences in ability to make convincing confidentiality guarantees to respondents. It appears to be more difficult for interviewers to allay the concerns of suspicious respondents over the telephone than in a face-to-face situation. Response anonymity offered by the SAQs also seems to strengthen the researcher's confidentiality claims.

Contrary to Hypothesis 7, I was not able to show that racial/ethnic differences in magnitude of confidentiality concerns account for racial/ethnic differences in size of the predicted mode effects. Including mode-by-mistrust interaction terms in the model had little impact on mode-by-race interaction terms. Differences between blacks and whites in magnitude of mode effects were not accounted for by introducing the effects of confidentiality concerns into the models (Hypothesis 7 could not be tested among Hispanics due to potential confounding of the mistrust measure with interview mode). Although not explicitly supported in these analyses, this hypothesis cannot be discounted. This research demonstrates that credibility of confidentiality claims plays a role in mode effects, and suggests that there may be sizable differences among racial/ethnic groups in degree of confidentiality concerns. The hypothesis placing confidentiality issues at the heart of racial/ethnic differences in mode effects needs to be tested with more accurate and detailed measurement of respondents' attitudes and beliefs concerning survey participation

and survey confidentiality.

Implications for a theory of mode effects

The results of this research support Groves' contention that telephone and face-to-face survey modes differ in the strength of their confidentiality guarantees. The greater social distance in the affective relationship between interviewer and respondent in the telephone mode, compared to face-to-face, makes it more difficult for interviewers to assuage respondents' confidentiality concerns. Thus, the telephone mode is more susceptible than face-to-face modes to underreporting of sensitive or socially undesirable behavior. Additionally, the mode differentials found in this research support the contention (Bradburn, 1983; Schwartz, et al., 1991; Sudman & Bradburn, 1974) that the response anonymity provided by use of self-administered answer sheets further increases respondents' willingness to reveal sensitive information in the face-to-face mode (at least among minorities). The largest mode differentials for use of illicit drugs were observed in comparing the telephone mode to the face-to-face mode with SAQs. The size of these differentials reflects the combined effects of credibility of confidentiality claims (due to social distance in telephone versus face-to-face communication) and response anonymity during the interview (SAQ versus interviewer-administered items).

It is likely that confidentiality issues and response anonymity are not the only mechanisms involved in interview mode effects on response tendencies. The fact that controlling for respondent mistrust did not explain the racial difference in magnitude of mode effects suggests that other factors are involved. Respondents' cognitions, both in understanding the questions, and in mechanisms of formulating a response, may also differ by mode of interview (Schwartz, et al., 1991). It is possible that respondents take more time and are more thoughtful in responding to questions on a self-administered form than when asked directly by the interviewer. The telephone interview may give respondents

the least amount of time to organize information from memory and fit this information to precoded response categories. The impact of interview mode on cognitive and memory factors may also vary by race, ethnicity, or other respondent characteristics. These are questions that need to be addressed in future research on the processes by which interview mode influences response tendencies.

Weaknesses of this research and implications for future research

Response anonymity assumption. In this research I tested the response anonymity hypothesis by comparing face-to-face modes with and without the use of SAQs, and assumed that the telephone mode provided no more response anonymity than the interviewer-administered face-to-face mode. There may be some disagreement concerning this assumption. It has been argued, for example, that the Random Digit Dial telephone survey provides greater anonymity to respondents than the in-person survey (at least if names are not taken), since neither the name or address of the respondent is known to the interviewer (Bradburn, 1983). This aspect of the RDD design was lacking in the present study because all households were visited personally for screening. The question is whether the results would have been different if the households of telephone respondents had not been visited personally for screening. Although plausible, this seems unlikely. Studies comparing drug use estimates in RDD telephone versus face-to-face modes have consistently reported lower levels of drug use by telephone than face-to-face (Aquilino, 1992; Gfroerer and Hughes, 1991). Concurrently with the field experiment reported in this paper, I also conducted an RDD survey of the counties included in the experimental design. Preliminary comparisons of these data to the three experimental modes suggest that the mode differentials for the RDD-telephone mode versus both the SAQ and personal/no SAQ modes are as large or larger than the differentials seen for the telephone mode in the field experiment.⁴

Sample size. Although the sample sizes in this research appear adequate for the more commonly used substances, such as alcohol and lifetime use of marijuana, they are too small for measuring low prevalence forms of illicit drug use with any precision, especially among population subgroups. Because cocaine use has dropped dramatically in the general household population since 1985, this sample of over 2,000 younger adults captured only a small number of current and recent cocaine users and lifetime crack users. The lower precision of measurement (for statistically "rare" behaviors) made it more difficult to detect significant mode effects, due to the large standard errors for the low prevalence estimates. In some cases, even seemingly large mode differences were only marginally significant or nonsignificant. To increase the reliability of results, research on mode effects with low prevalence behaviors needs to have considerably larger sample sizes than was possible in this study.

The relatively small sample sizes complicated the analysis for Hispanics. The results for Hispanics were not as clear as for whites and blacks, most likely because several ethnic groups are subsumed under the Hispanic classification. The impact of survey mode may well differ among Mexican-Americans, Cubans, Puerto-Ricans, and other Hispanic groups. Even with double sampling, however, the sample sizes for the several Hispanic groups were too small to permit estimation of effects for each group individually. Future research on mode effects and ethnicity would benefit from having larger samples of each of the major Hispanic groups (although the cost of developing these large over-samples would be high).

Measurement of mistrust. The measurement of mistrust in this research was too simplistic to provide a thorough and reliable test of theoretical assumptions concerning confidentiality issues (although the effects for mistrust are consistent with theory). The strength of the linkage between respondents' general mistrust of others and specific

respondent beliefs about survey confidentiality is unknown. In future research, it would be preferable to obtain more complete measures of respondent beliefs about survey confidentiality in general, and measures of trust in the particular survey they are participating in. In a mode effects study, it would also be better to obtain these measures in a standard way across experimental groups, so that measures of confidentiality beliefs are not themselves influenced by mode of interview.

Item sensitivity. There is a problem with estimating item sensitivity based on the subjective judgment of the researcher. The issues at the heart of the mode comparisons in this research, confidentiality concerns and response anonymity, are highly related to item sensitivity or threat, as perceived by the respondent. In general, research on interview mode effects, including the present effort, suffers from a lack of objective criteria by which to judge item sensitivity. There is no empirical basis on which to estimate actual distances between items in terms of level of threat to respondents. It is also problematic to assume that item sensitivity is constant across respondents and across subgroups in the population. The perceived sensitivity of a question may itself vary considerably across subgroups. Actual data on variation in respondents' perceived item sensitivity, rather than guesswork, would help to clarify the circumstances under which mode effects are most likely to be found, and would make it easier for researchers to judge the appropriateness of survey modes for various topics.

Endnotes

1. Although Johnson, et al. (1989) did attempt an experimental manipulation of interview mode (telephone vs. face-to-face), their sample of college students at a single university is unrepresentative of the adult population nationally, and in a large proportion of cases respondents were not interviewed in their assigned mode. Turner, et al., (1992) performed a nationally representative randomized experiment on mode effects in drug use studies; however, the telephone mode was not included in this research.

2. Data collection and sampling were carried out by the Institute for Survey Research at Temple University.

3. The formula for computing these t-tests was:

$$t_{\beta_3 - \beta_2} = \frac{\beta_3 - \beta_2}{SE(\beta_3 - \beta_2)}$$

Where: $SE(\beta_3 - \beta_2) = \sqrt{VAR(\beta_3) + VAR(\beta_2) - 2COV(\beta_3, \beta_2)}$

4. Results available from the author upon request. Full explication of comparisons involving the RDD sample is beyond the scope of this paper.

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Table 1: Demographic characteristics of the sample by mode of interview.

	Interview mode			Test of Significance ¹
	Personal/ with SAQ	Personal/ No SAQ	Telephone	
N of Cases	759	749	740	
Mean age (years)	32	32	32	ns
Sex: Male	43%	45%	43%	ns
Female	57	55	57	
Race: Hispanic	16%	17%	15%	ns
White	59	57	59	
Black	22	24	23	
Other	3	3	3	
Marital Status:				
Married	43%	47%	46%	ns
Sep/Div/Wid	15	15	15	
Never married	42	39	39	
Ever remarried:	11%	11%	12%	ns
Currently cohabiting:	7%	6%	6%	ns
Education status:				
Less than high school	10%	11%	12%	ns
High school graduate	28	31	29	
Some college	21	20	20	
College graduate	28	28	27	
College student	12	10	12	
Work status:				
Full-time	70%	69%	71%	ns
Part-time	11	13	13	
Unemployed	5	6	5	
Not in labor force	14	13	12	
Household income:				
under \$10,000	11%	12%	10%	ns
\$10,000-29,999	29	26	26	
\$30,000-49,000	29	28	31	
\$50,000+	32	35	33	

1 F-test was computed for age, Chi-square for all other variables.

Table 2: Weighted percentages reporting drug and alcohol use, by mode of interview and race.

	Total			Black			White			Hispanic		
	Pers. No		Tel.	Pers. No		Tel.	Pers. No		Tel.	Pers. No		Tel.
	SAQ	%		SAQ	%		SAQ	%		SAQ	%	
N of Cases (unwtd.)	759	749	740	163	177	165	444	424	434	122	123	112
<u>Marijuana</u>												
Ever used	58%	57%	56%	58%	54%	46%	63%	65%	63%	42%	30%	36%
Last 12 months	13	10	8	15	10	5	12	12	9	15	7	8
Last 30 days	6	5	4	8	4	2	6	5	4	9	5	5
<u>Cocaine</u>												
Ever used	25	22	19	23	16	12	28	25	21	17	21	20
Last 12 months	3	2	3	5	3	2	3	1	3	1	2	4
Last 30 days	1	1	1	1	2	0	1	0	1	0	2	1
Ever used crack	4	3	2	8	3	1	4	4	1	2	3	3
<u>Alcohol</u>												
Ever used	92	91	94	90	88	88	97	95	98	82	86	86
Last 12 months	81	77	79	69	69	68	87	82	86	68	70	69
Last 30 days	65	61	61	51	51	54	71	68	68	57	50	48
<u>Frequency drunk over last 12 months:</u>												
Not at all	63	63	62	74	77	79	61	56	55	60	68	72
less than 1/month	23	28	27	11	10	16	25	34	31	26	22	23
1-3 times/month	11	8	8	9	11	2	11	8	11	8	8	4
1/week or more	4	2	3	6	2	2	4	2	4	6	2	1

Table 3: Logit regression coefficients for mode effects on self-reported drug and alcohol use: models with and without mode-by-race/ethnicity interaction terms.

	Marijuana ¹		Cocaine ¹		Crack ²	
	I	II	I	II	I	II
<u>Mode (vs. SAQ):</u>						
Pers.-No SAQ	-.08 (.09)	.04 (.10)	-.15+ (.11)	-.17+ (.12)	-.21 (.28)	-.02 (.34)
Telephone	-.20* (.09)	-.10 (.10)	-.33** (.11)	-.33** (.12)	-1.00** (.36)	-.94* (.44)
(Tel. - Pers.)	-.13+ (.09)		-.18+ (.12)		-.78* (.37)	
<u>Race/ethnicity:</u>						
Black	-.31** (.11)	-.07 (.18)	-.42** (.15)	-.18 (.23)	.30 (.33)	.83* (.42)
Hispanic	-.93** (.11)	-.61** (.18)	-.28* (.14)	-.60* (.27)	-.10 (.40)	-.49 (.72)
<u>Mode x race/eth.</u>						
Black x Tel.		-.50* (.28)		-.51+ (.38)		-1.12 (1.10)
Black x Pers.		-.25 (.26)		-.31 (.34)		-1.17+ (.77)
Hisp. x Tel.		-.28 (.27)		.55+ (.37)		1.12 (1.05)
Hisp. x Pers.		-.69** (.26)		.43 (.35)		.30 (.96)
Mu(1)	2.48	2.49	2.48	2.48	--	--
Mu(2)	3.26	3.26	3.67	3.67	--	--

Table 3: Continued.

	Alcohol ¹		Drunkeness ³	
	I	II	I	II
<u>Mode (vs. SAQ):</u>				
Pers.-No SAQ	-.15+ (.09)	-.18* (.11)	-.06 (.09)	.01 (.11)
Telephone	-.13+ (.09)	-.16+ (.11)	-.01 (.09)	.13 (.10)
(Tel. - Pers.)	.02 (.09)		.05 (.10)	
<u>Race/ethnicity:</u>				
Black	-.68** (.11)	-.79** (.20)	-.77** (.13)	-.54** (.21)
Hispanic	-.72** (.11)	-.74** (.19)	-.32** (.12)	.05 (.21)
<u>Mode x race/eth.</u>				
Black x Tel.		.19 (.28)		-.54* (.32)
Black x Pers.		.14 (.27)		-.17 (.30)
Hisp. x Tel.		.00 (.27)		-.75** (.31)
Hisp. x Pers.		.08 (.26)		-.39+ (.29)
Mu(1)	1.20	1.20	1.51	1.52
Mu(2)	2.03	2.03	3.04	3.05

1 Ordinal logit models; dependent variable is coded 0=never used the drug, 1=used more than a year ago, 2=used within the past year, 3=used within the past month.

2 Binary logit model; dependent variable is 1 if ever used crack, 0 otherwise.

3 Ordinal logit model; dependent variable is coded 0=never drunk in past year, 1=drunk less than once a month, 2=drunk 1 to 3 times a month, 3=drunk once a week or more.

+ p < .10 * p < .05 ** p < .01 *** p < .001

Table 4: Logit regression coefficients for mode effects on self-reported drug and alcohol use: blacks, whites, and Hispanics fit separately.

	Marijuana ¹	Cocaine ¹	Crack ²	Drunkenness ³
<u>Blacks (vs. SAQ):</u>				
Pers.-No SAQ	-.21 (.16)	-.46* (.24)	-1.19* (.57)	-.16 (.21)
Telephone	-.59*** (.18)	-.82*** (.25)	-2.07** (.83)	-.38* (.22)
(Tel. - Pers./No SAQ)	-.38* (.18)	-.36+ (.27)	-.88 (.92)	-.14 (.13)
<u>Whites (vs. SAQ):</u>				
Pers.-No SAQ	.06 (.12)	-.17 (.14)	.04 (.37)	.07 (.13)
Telephone	-.09 (.12)	-.35** (.15)	-1.06* (.50)	.19 (.12)
(Tel. - Pers./No SAQ)	-.14 (.13)	-.18 (.15)	-1.09* (.51)	.12 (.13)
<u>Hispanics (vs. SAQ):</u>				
Pers.-No SAQ	-.58** (.22)	.26 (.29)	.29 (.82)	-.38* (.22)
Telephone	-.33+ (.23)	.22 (.31)	.17 (.87)	-.61** (.25)
(Tel. - Pers./No SAQ)	.25 (.23)	-.05 (.29)	-.11 (.81)	-.23 (.24)

1 Ordinal logit models; dependent variable is coded 0=never used the drug, 1=used more than a year ago, 2=used within the past year, 3=used within the past month.

2 Binary logit model; dependent variable is 1 if ever used crack, 0 otherwise.

3 Ordinal logit model; dependent variable is coded 0=never drunk in past year, 1=drunk less than once a month, 2=drunk 1 to 3 times a month, 3=drunk once a week or more.

+ p < .10 * p < .05 ** p < .01 *** p < .001

Table 5: Mistrust responses by interview mode and race.

	"Most people can be trusted"		Test of Association
	Mostly agree	Mostly disagree	
<u>By Interview Mode:</u>			
<u>Total:</u>			
SAQ	59.5%	40.5%	$\chi^2 = 0.32$ df = 2
Personal-No SAQ	58.1	41.9	p = .85
Telephone	59.2	40.8	
<u>Blacks:</u>			
SAQ	45.7%	54.3%	$\chi^2 = 0.76$ df = 2
Personal-No SAQ	41.6	58.4	p = .70
Telephone	43.6	56.4	
<u>Whites:</u>			
SAQ	66.6%	33.4%	$\chi^2 = 0.50$ df = 2
Personal-No SAQ	70.1	29.9	p = .82
Telephone	69.3	30.7	
<u>Hispanics:</u>			
SAQ	52.1%	47.9%	$\chi^2 = 3.73$ df = 2
Personal-No SAQ	40.5	59.5	p = .16
Telephone	42.2	57.8	
<u>By race:</u>			
Black	43.6%	56.4%	$\chi^2 = 93.97$ df = 1
White	68.6	31.4	p < .0001

Table 6: Logit regression models for mode effects by respondent mistrust.

	Marijuana ¹			Cocaine ¹			Crack ²		
	I	II	III	I	II	III	I	II	III
Pers./No SAQ	.22* (.13)	.06 (.11)	.23* (.13)	-.02 (.15)	-.14 (.13)	-.00 (.16)	.03 (.50)	.15 (.35)	.19 (.51)
Telephone	-.05 (.13)	-.11 (.11)	.00 (.13)	-.24+ (.16)	-.35* (.13)	-.21+ (.16)	-1.63* (.87)	-1.01* (.48)	-1.49* (.88)
Black	-.46* (.12)	-.21 (.19)	-.27 (.19)	-.50* (.16)	-.29 (.24)	-.35+ (.25)	-.00 (.34)	.53 (.44)	.54 (.44)
Mistrust	.58* (.14)	.27* (.09)	.55* (.14)	.47* (.16)	.21* (.11)	.45* (.17)	1.36* (.43)	1.33* (.30)	1.28* (.43)
Mistrust*Tel.	-.40* (.21)		-.35* (.21)	-.45* (.26)		-.41+ (.26)	.56 (1.00)		.69 (1.01)
Mistrust*Pers.	-.55* (.22)		-.54* (.22)	-.44* (.25)		-.42+ (.26)	-.27 (.63)		-.09 (.64)
Black*Tel.		-.53* (.29)	-.46+ (.29)		-.45 (.40)	-.36 (.40)		-.95 (1.14)	-1.04 (1.15)
Black*Pers.		-.24 (.27)	-.12 (.27)		-.30 (.35)	-.20 (.36)		-1.29* (.79)	-1.26+ (.80)
Mu(1)	2.64	2.63	2.64	2.54	2.54	2.54	--	--	--
Mu(2)	3.46	3.45	3.46	3.77	3.77	3.77	--	--	--

Table 6: Continued.

	Alcohol ¹			Drunkeness ³		
	I	II	III	I	II	III
Pers./No SAQ	-.00 (.14)	-.17+ (.12)	-.04 (.14)	.10 (.14)	.08 (.12)	.12 (.14)
Telephone	.01 (.14)	-.12 (.12)	-.03 (.14)	.15 (.13)	.19+ (.11)	.19 (.14)
Black	-.83* (.12)	-.95* (.20)	-1.00* (.21)	-.91* (.13)	-.68* (.22)	-.69* (.22)
Mistrust	.32* (.16)	.11 (.09)	.35* (.16)	.48* (.14)	.42* (.09)	.45* (.15)
Mistrust*Tel.	-.26 (.23)		-.30+ (.23)	-.04 (.21)		.02 (.21)
Mistrust*Pers.	-.39* (.23)		-.43* (.23)	-.14 (.22)		-.11 (.23)
Black*Tel.		.21 (.29)	.27 (.29)		-.50+ (.33)	-.51+ (.33)
Black*Pers.		.16 (.27)	.25 (.28)		-.20 (.31)	-.17 (.31)
Mu(1)	1.47	1.47	1.47	1.52	1.52	1.53
Mu(2)	2.36	2.36	2.36	3.10	3.10	3.10

1 Ordinal logit models; dependent variable is coded 0=never used the drug, 1=used more than a year ago, 2=used within the past year, 3=used within the past month.

2 Binary logit model; dependent variable is 1 if ever used crack, 0 otherwise.

3 Ordinal logit model; dependent variable is coded 0=never drunk in past year, 1=drunk less than once a month, 2=drunk 1 to 3 times a month, 3=drunk once a week or more.

+ p < .10 * p < .05 ** p < .01 *** p < .001

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