

ASSESSING A NEW DATA COLLECTION METHODOLOGY FOR OBTAINING SENSITIVE DATA USING AN RDD TELEPHONE SURVEY

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Abstract

Data on HIV/STD risk behavior in the general population are necessary to guide the development of effective prevention programs. Little such data has been collected, in part because of barriers including the sensitivity of the topic and respondent concerns about confidentiality. This paper will examine the efficacy of asking sensitive, HIV/STD-related questions in a general population, random-digit-dial survey. In addition, it will analyze the use of an alternative data collection technology that allows survey respondents to type answers into their telephone, using their touch-tone keypad, so that they do not have to answer sensitive questions aloud. Overall and item response rates are examined to evaluate topical effects, and an assessment is made about the feasibility of collecting sensitive data via telephone surveys, particularly using the alternative data collection technology.

Introduction

Data on HIV/STD risk behavior in the general population are necessary to guide the development of effective prevention programs, but little such data has been collected, in part because of barriers including the sensitivity of the topic and respondent concerns about confidentiality. However, an examination of existing survey response rates, item response rates, and related focus group research indicates that respondents may be willing to answer sensitive questions in a telephone survey. This paper will examine the efficacy of asking sensitive, HIV/STD-related questions in a general population, random-digit-dial (RDD) survey, and will assess the use of an alternative methodology for gathering such data.

Previous Research

It is vital to collect general population behavioral data to effectively direct HIV prevention efforts. A variety of methods, including telephone surveys, have been used to collect such data, but response rates for many of these surveys have been low. An examination of recent general population telephone studies showed response rates ranging from 47-70% (Catania et al., 1992; Erickson et al., 1995). At the same time, item nonresponse rates for such surveys have not been problematic: a number of studies report nonresponse rates between 1% and 9% for

detailed sexual history questions (Catania and Coates, 1989; Montgomery, Lewis, & Kirchgraber, 1991).

Researchers at the National Center for Health Statistics (NCHS) convened a series of focus groups to further examine the possibility that people might not answer sensitive questions over the telephone. A majority of focus group participants believed that people would "probably" be willing to answer sensitive questions, although they were less sure that people would be honest in their answers. The most common concern that was expressed regarding the degree of willingness and honesty was the extent to which responses would be confidential and private (Blumberg & Cynamon, 2000).

Various data collection methodologies have been developed with an eye toward increasing respondent privacy and confidentiality. Computer Assisted Self-Interviewing (CASI), Interactive Voice Response (IVR) and Web-based surveys are examples of such methodologies. However, these methods do not provide an opportunity for interaction between an interviewer and respondent, and may be seen as impersonal. In addition, because of problems with instrument self-administration, these methodologies increase the likelihood of inaccurate data and lower response rates. These factors have led to an examination of other data collection methods that increase privacy, but also allow researchers to have more control over the interview situation.

The reliability of one such technique has recently been tested in a study of the sexual behaviors of District of Columbia adolescents aged 12-15 in the District of Columbia (Boekeloo, Schamus, Simmens, & Cheng, 1998). In that study, interviewers read sensitive questions over the telephone, and participants responded by typing their answers using their telephone keypad (rather than having to answer aloud). Interviewers were able to view respondent answers by using a Digit Grabber[®] Dialed Digit Meter (model TPM-32, Metro Tel Corporation, Jericho, NY) connected to their telephone. The Digit Grabber[®] is able to translate tones emitted from touch-tone telephones into an alphanumeric display. The telephone interviewer transferred the displayed digit to a hard copy answer form. The interview completion rate for the study was 85%. Data collected were similar to that of a comparable group in the 1995 Youth Risk Behavior Survey (YRBS), which suggests that the Digit Grabber[®] is a reliable data collection method. The reli-

ability of the Digit Grabber® in this study and its success in collecting sexual history data suggested that a more widespread test of its efficacy in the general population would be useful.

Data

The present study was a module of the State and Local Area Integrated Telephone Survey (SLAITS), a program of research conducted in conjunction with the CDC's National Immunization Survey (NIS). The sample for this module was derived from extra replicates created for, but not used in, NIS administration.

A total of 405 interviews were conducted with New Jersey residents aged 18-49. Survey topics included health care utilization, health insurance coverage, demographic information, knowledge of Hepatitis C, HIV testing, and sexual history. The questionnaire was designed so that a series of less sensitive questions would precede the questions on HIV testing and sexual history. The HIV testing and sexual history questions were drawn from a core set of standardized questions on HIV and sexually transmitted diseases, which were developed by a working group at the Centers for Disease Control and Prevention.

Respondents were randomly assigned, by sample replicate, to one of two groups — those who would be asked to answer all questions by voice, and those whose interviews would be done using a Digit Grabber® to collect the sexual history data. Of the 405 interviews, 47% were conducted with respondents answering questions by voice; the remaining 53% were done using the Digit Grabber®, although Digit Grabber® respondents could choose to answer the sexual history questions without using the Digit Grabber®, if they preferred (the option for these respondents to switch to voice and then resume answering using the Digit Grabber® was also available). Two respondents in Digit Grabber® replicates who had rotary telephones were reassigned to the non-Digit Grabber® condition.

Upon completion of each interview, the interviewer answered a series of debriefing questions developed to assess the respondent's comfort with the subject matter and the presumed honesty of his or her answers. When applicable, the respondent's ease and interest in using the Digit Grabber® to answer questions were also documented.

Analysis

Overall Response Rates. Overall response rates for the project were low. The interview completion rate, a measure of completed interviews among eligible respondents, was 64.4%. There were 224 households where an eligible respondent was identified, but an interview

was not completed. Of these breakoffs, 79% occurred before beginning the actual survey — only four respondents broke off the interview during or after the section on sexual history.

The study's screening completion rate, which measures the number of known households identified as having an eligible respondent, was 78.3%. The resolution rate, indicating the proportion of telephone numbers that could be identified as belonging to a household, was 68.5%. A sizeable portion of the sample (8.7%) hung up during the introduction, making it impossible to resolve the number as residential, though it is likely that a majority of these were household contacts. The study's overall response rate, a product of the interview completion, screening, and resolution rates, was 34.5% (American Association of Public Opinion Research, 1998). Possible explanations for the low response rates include geographical effects, wording of the advance letter mailed to respondents, and the sensitive nature of the questions.

To examine the impact of geographical effects on the response rates, a comparison was performed between this survey and the New Jersey-specific rates for the Behavioral Risk Factor Surveillance System (BRFSS), a general population health survey (Table 1). In 1998, the last year for which data are available, the BRFSS CASRO response rate for New Jersey was 50.7%, and their Upper Bound Response Rate (analogous to the interview completion rate for this study) was 61.9% (Centers for Disease Control and Prevention, 1998). The comparable interview completion rates and the disparate CASRO rates indicate that while this study's experience completing interviews with eligible respondents is similar, the rates at which households were identified and screened were lower. This comparison suggests that something other than the study location had an impact on our screening and resolution rates.

Another factor contributing to the study's low rates, particularly the screening and resolution rates, could be the wording of the advance letter mailed to respondents. Approximately 60% of the sample was matched with an address for letter mailing, though not all of the addresses were necessarily for households. The advance letter alerted potential respondents that the survey would contain questions about health risk behaviors and sexual activity, via the following phrases:

"..... adults in New Jersey are being interviewed over the telephone about general health issues such as the use of health care services, health insurance, health risk behaviors, and sexual activity."

"You may consider some of the questions in this

survey to be sensitive, such as questions on HIV testing or sexual activity."

In debriefing sessions, interviewers reported that a number of respondents mentioned having seen the letter and that they had been expecting the call. If the letter was mentioned, it was typically used to support a decision to participate or not participate in the study. While the advance letter accorded the survey legitimacy, and thus encouraged respondents to participate, the mention of questions regarding sexual activity and HIV testing may have had a contravening effect.

Response rates between letter and non-letter conditions were compared (Table 2). Eligible respondents who had and had not been mailed a letter were equally likely to complete the interview. Screening completion rates and resolution rates were also comparable between the two groups. In other studies, rates for respondents who receive an advance letter are typically higher than for those who do not receive a letter. (Camburn, Lavrakis, Battaglia, Massey and Wright, 1995).

Given that respondents who did mention the letter often used it to support their decision not to participate, that letters were mailed to more than half of the sample, and that the overall screening and resolution rates were still low, one could conjecture that the advance letter had a negative impact on response rates. At the very least, the similarity in response rates between the groups who did and did not receive letters clearly indicates that the letter did not have a positive impact.

Item Response Rates. During the detailed sexual history section, respondents had the option of refusing any single question; or they could refuse to answer the entire section. (They also had the option of refusing any single question throughout the survey.) Twenty-one respondents (5.2%) exercised the option to skip all or a specific portion of the questionnaire's sexual history section altogether. Another 56 respondents (13.8%) refused to answer individual questions throughout the survey. Interestingly, two of the items with the highest overall nonresponse rates were income (21.0% nonresponse) and race (4.0% nonresponse), whereas in contrast, sexual history items had nonresponse rates ranging from 1.2 to 4.3%. It is important to note that since some respondents refused the entire sexual history section or other multiple items, missing data are clustered among a small number of respondents rather than spread across the study. A listing of sensitive items with accompanying nonresponse rates for each item appears in Table 3.

Given that income and race are considered to be sensitive survey items, response rates for these items are compared with those in the sexual history section (Table

4). Considering only income/race and sexual history questions, 71.0% of respondents answered all items. An additional 19.3% answered all sexual history questions, but had nonresponse for income and/or race. Respondents with missing data for both income and/or race and sexual history items comprise 5.2%, while only 5.4% had nonresponse on sexual history questions alone. These results suggest that questions regarding sexual behavior are no more sensitive for respondents than income or race, so it may be possible to obtain such information in a general population survey if concerns about overall response rates are addressed.

Interviewers' Perceptions of Respondent Reaction to Survey Topic. In the debriefing section that followed each completed interview, interviewers indicated that they believed 82.4% of respondents were answering questions very honestly. Only 3.5% were judged to have answered somewhat or very dishonestly. Interviewers indicated that 17.1% of respondents voiced objections to survey content, while 19.2% appeared to be embarrassed by a question. Interviewers had to avert a break-off in 19.7% of cases, though more than one-third of these attempted break-offs were because of concerns about survey length.

Digit Grabber® and Item Nonresponse. Of the 213 respondents in the Digit Grabber® group, 10 (4.7%) opted to skip some or all of the sexual history section. (Seven of these 10 exercised this option just after the section introduction, when asked if their telephone push buttons were on their handset; thus it may be that some of these participants preferred to skip the section rather than answer questions via their telephone keypad, not realizing that they could choose to answer without the Digit Grabber®.) Of the 192 respondents in the non-Digit Grabber® group, 11 (5.7%) chose to skip some or all of the sexual history section.

Among Digit Grabber® respondents as a whole, sexual history item nonresponse ranged from 0.3 to 4.3%. Sexual history item nonresponse rates for the non-Digit Grabber® group ranged from 0.3-1.7%. Comparison of rates across the experimental groups indicates that use of the Digit Grabber® to increase confidentiality did not decrease sexual history item nonresponse (Table 5).

Interviewers' Perceptions of Respondent Reaction to Digit Grabber®. Interviewers indicated that 12.1% of respondents had comments or questions about the Digit Grabber® itself, mostly dealing with the correct way to use it. Twenty-seven respondents preferred to stop using the Digit Grabber® or not to use it at all, usually citing the fact that it took longer than just answering by voice. Incorrect or out-of-range values were entered by 9.8% of respondents, with the majority of these (64.7%) making one error; 17.7% entered four or more

out-of-range values.

Conclusion

Among those who responded to the survey, the cooperation rate for obtaining data regarding Hepatitis C knowledge, HIV testing, and sexual behavior was quite high. Over 75% of respondents answered without refusing any questionnaire items, those considered sensitive or otherwise. When comparing sexual history item non-response rates with income and race — questions also typically considered sensitive — the level of respondent cooperation on questions regarding sexual behavior is even more striking. Sexual history item response rates were high, well within the 91% to 99% range found in previous studies.

Response rates for this study were low. There are a number of factors that may have played a part in these rates, including the wording of the advance letter. Although a higher response rate would have been expected among respondents who received an advance letter, there was no difference between those who were and were not mailed letters, and anecdotal evidence suggests that among those who did receive a letter, it appeared to solidify their intention to participate, or not to, prior to the first contact. These results generally suggest that a carefully crafted and tested advance letter could help to raise rates to a more acceptable level. This, along with the fact that items generating the highest non-response rates were not the sexual history items, supports the idea that it may be possible to collect such data in general population telephone surveys. More research regarding advance letter content and its effect on overall and item nonresponse is necessary.

Use of the Digit Grabber® appeared to have little effect on item nonresponse in the sexual history section. Item and section refusal were comparable in the Digit Grabber® and non-Digit Grabber® groups.

A significant number of respondents preferred not to use the Digit Grabber® when offered, and almost one-fifth of Digit Grabber® respondents made a number of detectable errors while entering their answers. This raises the possibility that other entry errors were made but not detected. Any positive effect that the Digit Grabber® may have in making people feel more comfortable in answering sensitive questions could be offset by concerns about data quality.

While the Digit Grabber did not appear to have an effect on item nonresponse in the way that it was implemented for our study, it may be that it would have a positive effect with a different study design. In our study, respondents were not able to use the Digit Grabber® except during the sexual history questions, and they were not told of its existence until they actually reached that

section of the questionnaire. Notifying respondents prior to the interview that such technology was available, and offering it throughout the interview, could have an effect on overall and item nonresponse that was not shown in this study. Further research is recommended to test the use of the Digit Grabber® within various experimental designs.

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Table 1. Comparison of New Jersey-Specific Response Rates by Survey

	BRFSS CASRO Rate	Interview Completion Rate
HIV Testing & STD Risk Behaviors Module	27.3%*	64.4%
Behavioral Risk Factor Surveillance System	50.7%	61.9%

*For comparison purposes, the CASRO rate for this study was recalculated using the same specifications as the BRFSS.

Table 2. Comparison of Response Rates by Advance Letter Mailing

	Advance Letter Mailed	Advance Letter Not Mailed
CASRO Rate	32.3%	31.7%
Interview Completion Rate	64.1%	64.8%
 Screener Completion Rate	78.9%	74.5%
Resolution Rate	63.9%	65.6%

Table 3. Item Response Rates

Items Asked of All Respondents	Item Response Rate	% Refused	% Don't Know	Sample Size
Entire sexual history section	92.6%	7.4%	0.0%	404
Household Income	79.0%	7.4%	13.6%	404
Race	96.0%	2.2%	1.7%	404
Ever been tested for HIV	97.3%	0.5%	2.2%	404
Chances of getting HIV	97.8%	1.2%	1.0%	404
Donated blood since 1985	98.8%	0.0%	1.2%	404
Had an STD in the past 5 years	98.8%	1.0%	0.3%	404
Of Spanish, Hispanic or Latino descent	99.8%	0.3%	0.0%	404
Marital status	99.8%	0.3%	0.0%	404
Expect to have HIV test in next 12 months	94.5%	0.5%	5.0%	401
Worried about contracting HIV in past 12 months	99.5%	0.5%	0.0%	396
Report at least one of 5 risk factors	99.2%	0.8%	0.0%	390
Had sex during the past 10 years	98.7%	1.3%	0.0%	389

Table 3 (Cont.)	Item Response Rate	% Refused	% Don't Know	Sample Size
Items Asked of a Subset of Respondents				
Number of Sexual partners in past 10 years	96.9%	2.6%	0.6%	35
Report at least one of 5 additional risk factors	98.8%	0.3%	0.9%	328
Month/year of last test for HIV	71.7%	0.5%	27.8%	198
Had to give first & last names when last tested	92.4%	0.0%	7.6%	197
Number of sexual partners in past 12 months	96.8%	3.2%	0.0%	158
Ever used condom during sex	97.1%	2.9%	0.0%	69
Had oral sex during last encounter with main partner	96.5%	3.5%	0.0%	57
Had anal sex during last encounter with main partner	98.3%	1.8%	0.0%	57
Had vaginal sex during last encounter with main partner	98.1%	1.9%	0.0%	52
Used condom during last encounter with main partner	95.7%	4.3%	0.0%	47
Gender of sexual partners in past 12 months	97.8%	2.2%	0.0%	46
Gender of last non-main sexual partner	97.3%	2.7%	0.0%	37

Table 4. Response by Income/Race and Sexual History Items

	% of Total
Answered Income/Race and All Sexual History Items	70.1%
Income/Race Nonresponse Only	19.3%
Sexual History Nonresponse Only	5.4%
Income/Race and Sexual History Nonresponse	5.2%

Table 5. Item Nonresponse by Digit Grabber®

	Digit Grabber®	Non-Digit Grabber®
Sexual History Section Nonresponse	4.7%	5.7%
Sexual History Item Nonresponse:		
Minimum	0.3%	0.3%
Maximum	4.3%	1.7%