

Response rates and characteristics of adolescents in the
1989 Teenage Attitudes and Practices Survey

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Introduction

One consequence of the growing concern over serious health risk behaviors among teenagers, such as illicit drug use, cigarette smoking, and alcohol use, is the need for accurate measurement of such behaviors. However, accurate assessment of any survey population depends on obtaining high response rates, since many studies have shown that non-responders often differ from responders in characteristics thought to be strongly associated with the health characteristics being studied. The published literature generally has addressed non-response in adult populations. Very little methodological research has examined characteristics of non-response in teenage populations. A better understanding of the characteristics of non-response in this age group may aid in the interpretation of findings from surveys and may help identify ways of improving response rates in surveys of adolescents.

This paper describes the characteristics of respondents and nonrespondents to the 1989 Teenage Attitudes and Practices Survey (TAPS), a nationally representative sample survey of tobacco use among adolescents, and discusses the implications of these findings on reducing nonresponse in future studies of adolescents. In this survey the demographic and socioeconomic characteristics of the non-responders can be described because this sample was derived from households which participated in the

National Health Interview Survey (NHIS).

Methodology:

The Teenage Attitude and Practices Survey was designed to provide information on the prevalence, beliefs, and predictors of cigarette smoking among teenagers. The TAPS utilized the National Health Interview Survey, an annual household interview survey which uses the civilian, non-institutionalized population of the U.S. as the sampling frame. In the last two quarters of 1988 and the first two quarters of 1989 there were approximately 49,059 households eligible for the NHIS of which 46,557, or 94.9%, were interviewed. The sample for the TAPS included the 12,173 teenagers, aged 12 - 18, who were living in NHIS households interviewed in the last two quarters of the 1988 NHIS and the first two quarters of the 1989 NHIS. By the time of the TAPS interview in the fall of 1989, 76 teenagers had entered the military, died, or were found to have not been 12-18 at the time of the 1988/89 NHIS interview, leaving 12,097 teens in the sample eligible for a TAPS questionnaire.

The TAPS used Computer Assisted Telephone Interviewing (CATI), whereby interviewers conduct a telephone interview by reading questions from a computer screen and recording responses electronically. Seven percent of the TAPS households containing 12-18 year olds did not provide a telephone number at the

time of the NHIS household interview in 1988-89. However, three of the seven percent had provided a telephone number for the NHIS contact person. The contact person is someone identified by the NHIS respondent who would be most likely to know the whereabouts of family members if they were to move or be hard to contact for other reasons. This information is used primarily for follow-up surveys, to obtain missing information, and for reinterview surveys. Those teenagers in households with telephones or those who had a contact phone available were targeted for initial contact by CATI. The remaining four percent, or 489, of teenagers in households with no telephone were contacted by mail. The mail questionnaire contained a subset of questions from the CATI questionnaire, including key measures for prevalence and classification of smoking status. CATI cases which were unreachable by telephone before the close of CATI interviewing were also followed up by mail after the CATI interviewing ended. We will refer to this group as the follow up mail group. Teenagers in both the non-telephone mail group and the telephone follow up mail group were sent a second mailing of the questionnaire if they did not respond to the first mailing.

Regardless of whether the teenager was targeted for a telephone or a mail questionnaire, an advance letter was mailed to each teenager in the sample and to their parents or guardian. This letter described the purpose of the TAPS, the assurance of confidentiality, and the importance of the teenager's participation. If no response from a parent or guardian was received indicating they did not want their teenager to participate, it was assumed that parental permission was given.

In computing the response rate, the numerator is the number of questionnaires (CATI or mail)

returned that were either complete or contained sufficient data to obtain basic prevalence estimates of smoking. The denominator is the total number of eligible cases in the TAPS sample defined by a specific sociodemographic characteristic. For example, the response rate for males equals the number of males who provided sufficient data by mail or telephone divided by the total number of eligible males in the sample. It is also important to note that the response rates for the TAPS reported here do not take into account the 5% nonresponse associated with the NHIS, from which the TAPS sample was drawn. The sampling scheme and availability of telephone numbers in the TAPS are summarized in Figure 1.

Results

Of the 12,097 teens eligible for TAPS, questionnaires were received by telephone or mail from 9,965, yielding an overall response rate of 82.4% (9135 + 2117 + 129/12097). The 17.6% nonresponse to CATI consisted of 2% where the parent refused to permit an interview with the teen, 1% where the teen refused or broke off the interview before enough information was obtained to classify it as a sufficient partial interview, and the remaining 14.6% were cases that were unreachable by telephone before the close of CATI interviewing or did not reply by mail before the end of the survey data collection period.

Table 1 shows how response rates varied among sociodemographic subgroups. Response rates were higher among Whites than among Blacks and Non-Hispanics were more likely than Hispanics to respond. Response rates rose over 19 percentage points with increasing family income category, from 72.9% for less than \$20,000; to 85.5% for \$20,000 to \$34,999; to 92.0% for the families with incomes of \$35,000 or more.

Table 2 describes the demographic

characteristics of teens who had the potential to be reached by telephone, either through a phone in the household or through a contact's telephone, and families without telephones. Those without telephones were more likely to be Black, Hispanic and poor than those with phones available.

Table 3 shows that the response rates were much higher in the families who were contacted by telephone and then followed up by mail if unreachable by phone, compared with those without a number, who only received a mailed questionnaire; of the 11,608 in the former group, the response rate was 84.7% in contrast to 26.4 % among the 489 in the latter group. The patterns of non-response in the sample without a telephone showed that response rates did not differ by demographic subgroup except that response rates were poorer among the older teens and the few teens who were neither white nor black; the racial and ethnic differences apparent in the telephone sample were not evident in the group without telephones.

Table 4 shows the characteristics of teens who responded to the telephone call versus those who had to be contacted by mail after telephone attempts did not lead to an interview. Those who were difficult to reach by telephone were more likely to be black or Hispanic, come from low income families and live in homes with only one or no parents present. They were also more likely to live in households where the education of the responsible adult (in most cases this is a parent) was less than 12 years.

Table 5 shows the response rates for those who had a telephone, but were contacted by mail after failure to reach them by telephone by selected characteristics. Response rates for teens in the mail follow up group were lower for blacks and hispanics, for teens in low income and single or

no parent households and for teens living with a responsible adult with less than 12 years of education.

Table 6 shows by how many percentage points the response rate for the telephone sample was improved by the follow up mailing. The greatest improvements occurred for blacks (10% increase in response versus 5% for whites) and within the lowest income category (10.5% for income less than \$20,000 versus 5.3% for \$20,000 - \$34,999 and 3.2% for \$35,000 or more). The increase in overall telephone sample response for teens in single or no parent households was also larger than for teens in households with both parents present: 9.6% compared to 4.7% respectively. The smallest difference in improved response is shown between Hispanics, 7.9% and Non-hispanic, 5.9%.

Discussion

In the TAPS, response rates varied by sociodemographic characteristics. For the total TAPS sample, response rates were higher for whites compared to blacks, non-hispanics compared to Hispanics, and those with incomes of more than \$20,000 compared to those with less income. In the TAPS telephone sample response rates were also higher for adolescents living with both parents compared to those living with one or no parents, and for those living with an adult with more than 12 years education compared to those living with an adult with less education. These findings are similar to studies done on surveys of adults which found that response rates are lower among nonwhites and those with little education and low incomes. 1-3/

In this survey, mail questionnaires were used to reach two groups: those with no telephones and those who were nonrespondents to the telephone. These groups receiving a mail questionnaire had overall lower response rates than the telephone group. Furthermore, their response

rates did not vary as much by sociodemographic characteristics as those that responded by telephone. Both the "no telephone" and the "mail follow up" groups included a higher proportion of low income families (under \$20,000) than the telephone group. It may be assumed, therefore, that the lower response rates of these two groups may be a function of factors associated with low income, such as difficulty reading questionnaires or language problems. Low income families also tend to be more mobile and difficult to locate.

The TAPS final response rate is 82.4%, which is considered well within, if not above, the acceptable range for large surveys. Black, Hispanic and low income adolescents had final response rates of 72-73 percent. Although these response rates are acceptable, we need to consider methodologies to reach nonrespondents in future surveys.

Researchers planning future surveys to adolescents may want to explore new techniques for targeting adolescent nonrespondents. Surveys with mail follow up may want to experiment with certified mail. Monetary incentives could be considered. Gelb found that lower socioeconomic groups were more responsive to monetary incentives than middle class groups. _4/

Refusals were not a major problem in this survey and accounted for only 3% of the nonresponse. One contributor to this low rate of refusal may be that our sample consists of families who had previously participated in the NHIS. The majority of the refusals were due to the parents refusing permission to speak with the

child. Another factor that may have contributed to the small number of refusals was the use of advance letters to notify both parents and teenagers about the survey.

The bulk of the non-response are no-answer/untraceable, which are always problems in samples from a list frame. Directory assistance was used by the interviewers to track teenagers and contact persons whose telephone numbers were invalid. It is likely that teens who are hard to locate may come from families that are very mobile or can not afford telephones. We found this group more likely to be black or low income. Since minority adolescents from low income families tend to be at higher risk for behaviors such as cigarette smoking and alcohol and drug use, it is important that survey researchers find effective ways of better tracing these teens. If surveys can reach the high risk populations better estimates of prevalence of health risk behaviors among adolescents can be obtained.

References

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Table 1. Response rates by sociodemographic characteristics; TAPS, 1989

	Total	Percentage responding
Total	12,097	82.4
Sex		
Male	6,201	82.4
Female	5,896	82.3
Age		
12-13 years	3,408	82.2
14-15 years	3,368	83.8
16-18 years	5,321	81.5
Race		
White	9,424	84.6
Black	2,228	73.1
Other	445	82.5
Hispanic Origin		
Hispanic	1,298	72.3
Non-hispanic	10,799	83.8
Total	10,318	
Family Income		
Under \$20,000	3,379	72.9
\$20,000-\$34,999	2,783	85.5
\$35,000 or more	4,156	92.0

Table 2. Characteristics of teenagers with and without a telephone number; TAPS, 1989

	Telephone number available		No telephone number available	
	Number	Percent	Number	Percent
Total	11,608	2.3	489	
Sex				
Male	5,958	51.3	243	49.7
Female	5,650	48.7	246	50.3
Age				
12-13 years	3,253	28.0	155	31.7
14-15 years	3,242	27.9	126	25.8
16-18 years	5,113	44.0	208	42.5
Race				
White	9,095	78.3	329	67.3
Black	2,086	18.0	142	29.0
Other	427	3.7	18	3.7
Hispanic Origin				
Hispanic	1,200	10.3	98	20.0
Non-hispanic	10,408	89.7	391	80.0
Family Income				
Under \$20,000	3,171	31.7	208	65.0
\$20,000-\$34,000	2,718	27.2	65	20.3
More than \$35,000	4,109	41.1	47	4.7

Table 3. Response rates for teenagers in households with and without telephones; TAPS, 1989

	Households with telephone number		Households with no telephone number			
	Total	Number	Percent	Total	Number	Percent
Total	11,608		84.7	489		26.4
Sex						
Male	5,958	5,050	84.7	243	61	25.1
Female	5,650	4,786	84.7	246	68	27.6
Age						
12-13 years	3,253	2,755	84.7	155	47	30.3
14-15 years	3,242	2,788	86.0	126	36	28.6
16-18 years	5,113	4,293	84.0	208	46	22.1
Race						
White	9,095	7,882	86.7	329	87	26.4
Black	2,086	1,595	76.5	142	34	23.9
Other	2,427	359	84.1	18	8	44.4
Hispanic Origin						
Hispanic	1,200	915	76.3	98	24	24.5
Non-hispanic	10,408	8,921	85.7	391	105	27.5
Total	9,998			320		
Family Income						
Under \$20,000	3,171	2,409	76.0	208	55.0	26.4
\$20,000-\$34,000	2,718	2,355	86.6	65	25	38.5
More than \$35,000	4,109	381	92.8	47	11	23.4

Table 4. Characteristics of teenagers with telephones by response type; TAPS 1989

	Responded by telephone		Contacted by mail after telephone nonresponse	
	Number	Percent	Number	Percent
Total	9,135		2,117	
Sex				
Male	4,719	51.6	1,053	49.7
Female	4,416	48.4	1,064	50.3
Age				
12-13 years	2,536	27.8	611	28.9
14-15 years	2,595	28.4	546	25.8
16-18 years	4,004	43.8	960	45.3
Race				
White	7,430	81.3	1,362	64.3
Black	1,387	15.2	655	31.0
Other	318	3.5	100	4.7
Hispanic Origin				
Hispanic	825	9.1	341	16.1
Non-hispanic	8,310	90.9	1,776	83.9
Total	7,967		1,742	
Family Income				
Under \$20,000	2,076	26.1	1,024	58.8
\$20,000-\$34,000	2,210	27.7	413	23.7
More than \$35,000	3,681	46.2	305	17.5
Total	9,062		2,046	
Family Composition				
Both parents in HH	6,949	76.7	1,095	53.5
One or no parent in HH	2,113	23.3	951	46.5
Total	9,108		2,101	
Education of responsible adult				
Less than 12 years	1,081	11.9	653	31.1
12 years	3,435	37.7	833	39.6
More than 12 year	4,592	50.4	615	29.3

Table 5. Response rates for teenagers with telephones who were contacted by mail by selected characteristics; TAPS, 1989

	Total	Percentage responding
Total	2,117	33.1
Sex		
Male	1,053	31.4
Female	1,064	34.8
Age		
12-13 years	611	35.8
14-15 years	546	35.3
16-18 years	960	30.1
Race		
White	1,362	33.2
Black	655	31.8
Other	100	41.0
Hispanic Origin		
Hispanic	341	25.4
Non-hispanic	1,776	34.4
Total	1,742	
Family Income		
Under \$20,000	1,024	32.5
\$20,000-\$34,999	413	35.1
\$35,000 or more	305	42.5
Total	2,051	
Family Composition		
Both parents in HH	1,095	35.6
One/no parents in HH	951	31.8
Total	2,101	
Education of responsible adult		
Less than 12 years	653	29.2
12 years	833	34.8
More than 12 years	615	35.1

Table 6. Percent improvement in telephone sample response with mail follow up by selected characteristics; TAPS, 1989

	Response by telephone	Added response from mail follow up	Total telephone sample response
Total	78.7	6.0	84.7
Sex			
Male	79.2	5.6	84.7
Female	78.2	6.5	84.7
Age			
12-13 years	78.0	6.7	84.7
14-15 years	80.0	6.0	86.0
16-18 years	78.3	5.7	84.0
Race			
White	81.7	5.0	86.7
Black	66.5	10.0	76.5
Other	74.5	9.6	84.1
Hispanic Origin			
Hispanic	68.8	7.5	76.3
Non-hispanic	79.8	5.9	85.7
Family Income			
Under \$20,000	65.5	10.5	76.0
\$20,000-\$34,999	81.3	5.3	86.6
\$35,000 or more	89.6	3.2	92.3

Figure 1. TAPS sampling scheme *

