

Panel Attrition Impact: A Comparison of Responses to Attitudinal and Knowledge Questions about HIV Between Follow-up and Cross-Sectional Samples¹

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ABSTRACT

Background. Previous research at Knowledge Networks (KN) has showed that demographic differences between currently active and lost panel members do not substantially affect survey responses in an analysis of several hundred attitudinal, psychographic, health, behavioral, and other measures. The new research presented in this paper, by comparing the survey results between a follow-up sample and a fresh cross-sectional sample, is intended to supplement the previous research.

Methodology. In the new research, the follow-up sample consists of currently active KN panel members who participated in the Survey on Health and Aging about three years ago, during the summer of 2000. In addition, a cross-sectional general population sample from the KN web-enabled panel was also selected. In May-June 2003, the two samples were fielded simultaneously the same questionnaire regarding attitudes towards and knowledge of HIV.

Results. The follow-up sample was significantly less representative than the cross-sectional sample in terms of respondents' age and ethnicity. The follow-up sample had a lower representation of younger and non-white panelists. However, the survey responses for the two HIV stigma items available for comparison were similar between the two samples—the largest difference was 3.5 percentage points and the mean difference was 1.15 percentage points. On the five-point scale questions, the mean response difference was the same or different by 0.1 between the two samples.

Conclusion. By these measures, panel attrition did not have a substantial impact on the survey responses.

BACKGROUND AND OBJECTIVES

Previous research at Knowledge Networks in a paper by J. Michael Dennis et al.² showed that attrited KN members (i.e., those that have left the panel or have been rotated off the panel) are somewhat demographically different than the current panel members (such as on age and computer Internet access), but panel attrition had little effect on survey responses because the two groups are similar on a large number of attitudinal, health, behavioral, and other measures (as recorded in KN's internal profile database). The new research presented in this paper is intended to evaluate again the effects of panel attrition on survey responses. The new research is distinguished from the previous research by comparing the results of a follow-up survey, which are subject to nonresponse bias as a result of panel attrition occurring since the baseline survey, to the results obtained from a fresh cross-sectional sample, which by definition are not affected by attrition occurring between waves of data collection.

METHODOLOGY

In 2000, RTI International commissioned KN to conduct a study on stigmatizing attitudes towards HIV. A follow-up study was conducted during May and June 2003 on the same subject using the active panel members that took the study in 2000. KN also fielded the study to a fresh cross-sectional adult sample. The results of the two surveys are compared.

The hypothesis is that if panel attrition were to have a significant effect on survey results, the results from the two surveys will differ significantly. The null hypothesis is that the two studies will produce similar results. One can imagine that persons that have left the panel would have significantly different attitudes or knowledge about HIV, which would be observed in how the two samples answer the questions.

Two questions in the study were eligible for comparison across the sample groups:

1. Please indicate how much you agree or disagree. People who got AIDS through sex or drug use have gotten what they deserve.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

2. How likely is it that a person could become infected with HIV (the virus that causes AIDS) by being coughed or sneezed upon?
 - a. Very likely
 - b. Somewhat likely
 - c. Somewhat unlikely
 - d. Very unlikely or impossible

In August 2000, the first wave of the Survey on Health and Aging was fielded, and 7,493 panel members were sampled and sent the survey online for self-administration. Of those fielded, 5,868 respondents took the survey for a survey completion rate of 78.3%. In May 2003, a second wave of the Survey on Health and Aging was fielded. A total of 2,461 panel

² See Dennis, J.M., LI, R. "Effects of Panel Attrition on Survey Estimates" (2002). Paper available for download at <http://www.knowledgenetworks.com/ganp/aapor2003.pdf>.

members who participated in the year 2000 study were still active on the KN panel and were fielded the Survey on Health and Aging (SHA) Follow-up Survey. Just under three fifths, 58.1%, of the panel members surveyed in wave 1 left the panel before wave 2 was fielded. 1,525 of them answered the first question and 1,546 answered the second question in the follow-up survey. In addition to the follow-up sample, a fresh cross-sectional sample of adults from the KN panel group was sampled and fielded the SHA Follow-up Survey at the same time. In total, this sample consisted of 1,000 adults, and 791 completed the survey (79.1% completion rate). Out of the 791, 785 panel members answered question 1 and 787 answered question 2. The demographic comparison of the two sample groups is demonstrated in Tables 1 and 2 below.

SAMPLE QUALITY COMPARISON

Table 1 displays the unweighted demographic makeup of the two samples. The absolute value of the demographic differences between the SHA Follow-up and Cross-Sectional samples can be found in the fourth column of the table. The asterisks signify statistically significant differences ($p < 0.05$): age 18 – 29, 30 – 44, 60+ on age, and white and black on ethnicity. The greatest differences occur in the age category, where the SHA Follow-up has significantly fewer 18 to 29 and 30 to 44 year olds and a significantly greater percentage of respondents over age 60. The smallest differences between the two samples occur in the gender category where the differences are less than a percentage point, 0.6, for both male and female. The mean difference between the two sample groups for the unweighted demographic comparison is 4.3 percentage points. The final column of the table demonstrates the Current Population Survey estimates from the 2000 Census. As shown in the Table 1, the cross-sectional sample was demographically more representative than the SHA follow-up sample.

Table 1: Unweighted Demographic Comparison of Sample Groups in the 2003 Survey

Unweighted		SHA Follow-Up Sample n = 1,927	Cross-Sectional Sample n = 791	ABS Diff. Between SHA Follow-Up and Cross-Sectional	CPS
Age	18 – 29	5.5%	16.3%	10.8*	21.7%
	30 – 44	21.9%	27.8%	5.9*	31.1%
	45 – 59	33.2%	29.7%	3.5	25.8%
	60 +	39.4%	26.2%	13.2*	21.4%
Education	Less than high school	8.8%	10.5%	1.7	16.7%
	High school	35.3%	35.5%	0.2	32.3%
	Some college	34.1%	32.5%	1.6	27.1%
	Bachelor's degree or higher	21.8%	21.5%	0.3	24.0%
Ethnicity	White, Non-Hispanic	81.6%	72.4%	9.2*	72.7%
	Black, Non-Hispanic	8.0%	13.0%	5.0*	11.6%
	Other, Non-Hispanic	4.1%	5.3%	1.2	4.7%
	Hispanic	6.3%	9.2%	3.0	10.9%
Gender	Male	47.6%	48.2%	0.6	48.0%
	Female	52.4%	51.8%	0.6	52.0%

* Significant at $p < .05$

As seen in Table 2, after poststratification weights are applied,³ there are no significant differences at the .05 significance level in the demographic composition of the two groups. When looking at the weighted demographic comparison, the greatest differences between the two samples is one half of a percentage point, and the difference occurs in the less than high school and high school education groups and the 45 – 59 age group. There are not any differences between the sample groups for the ‘Other, Non-Hispanic’ category of ethnicity, and there are differences of less than one half of a percentage point for all other categories of ethnicity. The mean difference for the weighted demographic characteristics is 0.3 percentage points.

Table 2: Weighted Demographic Comparison of Sample Groups

	Weighted	SHA Follow-up n = 1,556	Cross-Sectional n = 791	ABS Diff. Between SHA Follow-Up and Cross-Sectional *	CPS
Age	18 – 29	21.4%	21.7%	0.4	21.7%
	30 – 44	30.6%	30.7%	0.1	31.1%
	45 – 59	31.9%	31.4%	0.5	25.8%
	60 +	16.1%	16.2%	0.1	21.4%
Education	Less than high school	16.0%	15.4%	0.5	16.7%
	High school	32.2%	32.7%	0.5	32.3%
	Some college	27.5%	27.8%	0.3	27.1%
	Bachelor's degree or higher	24.3%	24.1%	0.2	24.0%
Ethnicity	White, Non-Hispanic	72.5%	72.7%	0.2	72.7%
	Black, Non-Hispanic	11.6%	11.7%	0.1	11.6%
	Other, Non-Hispanic	4.8%	4.8%	0.0	4.7%
	Hispanic	11.2%	10.9%	0.3	10.9%
Gender	Male	47.8%	48.2%	0.4	48.0%
	Female	52.2%	51.8%	0.4	52.0%

* All absolute differences are insignificant at $p < .05$

RESULTS

Table 3 shows the unweighted response comparisons for the two questions between the two sample groups. None of the absolute differences between the two groups are significant at the .05 alpha level. The greatest differences occurring between the Cross-sectional and SHA Follow-up surveys are seen in Question 1 between the responses ‘disagree’ and ‘strongly disagree’. For the first question regarding whether people are deserving of HIV, the chi-square statistic for the unweighted comparison is 4.57 ($p = 0.21$, two-sided). For the second question (about how likely it is that person could be infected with HIV by sneezing or being coughed upon), the chi-square statistic is 0.880 ($p = 0.83$, two-sided).

³ Statistical weights are the inverse of the selection probabilities and adjusted to compensate for nonresponse and noncoverage using these raking variables: age (18-29, 30-44, 45-59, 60 and over), gender (male, female), race/ethnicity (white, black, non-Hispanic other, Hispanic), Census region (northeast, midwest, south, west), and educational attainment (less than high school, high school, some college, college degree or more).

Table 3: Unweighted Response Comparison of Sample Groups

Unweighted		SHA Follow-up	Cross-Sectional	ABS Diff. Between SHA Follow-Up and Cross-Sectional *
Q1: People are Deserving of HIV	Base	1,525	787	
	Strongly agree	5.0%	4.3%	0.7
	Agree	18.3%	16.5%	1.8
	Disagree	48.2%	52.8%	4.6
	Strongly disagree	28.6%	26.4%	2.2
Q2: How likely is a person to be infected with HIV	Base	1,546	785	
	Very likely	2.0%	1.8%	0.2
	Somewhat likely	8.0%	7.7%	0.3
	Somewhat unlikely	25.1%	26.8%	1.7
	Very unlikely or impossible	64.8%	63.7%	1.1

* All absolute differences are insignificant at $p < .05$

Table 4 displays the weighted responses for the two samples. The results are similar to the unweighted responses shown in Table 3. Again, none of the responses are significantly different between the two sample groups, and the greatest difference between the two groups is seen on Question 1 for the response option “disagree.” All absolute differences were tested for significance at the $p = .05$ alpha level, and none was found to be significant. The average response difference is 1.15 percentage points.

Table 4: Weighted Response Comparison of Sample Groups

Unweighted		SHA Follow-up	Cross-Sectional	ABS Diff. Between SHA Follow-Up and Cross-Sectional *
Q1: People are Deserving of HIV	Base	1,528	789	
	Strongly agree	5.1%	3.1%	2.0
	Agree	16.5%	14.8%	1.7
	Disagree	48.4%	51.9%	3.5
	Strongly disagree	29.9%	30.2%	0.3
Q2: How likely is a person to be infected with HIV	Base	1,550	783	
	Very likely	2.4%	1.7%	0.7
	Somewhat likely	7.9%	8.1%	0.2
	Somewhat unlikely	24.4%	24.3%	0.1
	Very unlikely or impossible	65.2%	65.9%	0.7

* All absolute differences are insignificant at $p < .05$

Table 5 displays the mean response for the five-point scale questions. The only difference in the responses for the two questions occurs after the post-stratification weights are applied. For the weighted samples, in question 1 regarding the respondents' agreement to a statement about whether people are deserving of HIV, the mean response for the cross-sectional sample is only slightly higher at 3.1 than the mean response for the SHA Follow-up sample at 3.0.

Table 5: Weighted Mean Answer Response Across Sample groups

	Mean Response	SHA Follow-Up	Cross-Sectional
Strongly agree	Q1: People are Deserving of HIV	3.0	3.0
Agree	Q2: How likely is a person to be infected with HIV	3.5	3.5
Disagree	Q1: People are Deserving of HIV	3.0	3.1
Strongly disagree	Q2: How likely is a person to be infected with HIV	3.5	3.5

CONCLUSIONS

The new research shows that attrition on KN's panel from year 2000 to 2003 had a significant impact on the representativeness of the follow-up sample, specifically regarding respondents' age and ethnicity. However, the application of poststratification weights reduced the error to a mean of 0.3 percentage points across the several demographic characteristics.

Our analyses also showed that despite the demographic differences, the survey results across the two samples are similar. Panel attrition did not appear to have an impact on the survey responses using these measures. The analysis supports the conclusions from the previous research. It is important, though, to conduct similar research in the future that allows for a larger number of survey questions to be analyzed.

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