

The Effect of Longitudinal Burden on Survey Participation

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Abstract

The impact of respondent burden on survey participation is an important concern in survey design. Typically, interview length is taken as the primary indicator of respondent burden. For longitudinal surveys that require multiple interviews over an extended period, burden can be viewed as having two components: (1) *immediate* burden—the length of the initial interview; and (2) *longitudinal* burden—the perceived burden of future interviews. It is commonly assumed that longitudinal burden carries a high initial response rate penalty; however, opportunities to study this type of burden have been limited. This paper investigates the effect of longitudinal burden on survey participation, using multiple year data from the Medicare Current Beneficiary Survey (MCBS), a national longitudinal study of a representative sample of the Medicare population.

Background

Concerns about raising and maintaining response rates are prevalent throughout the literature on survey methodology. The task of maintaining a representative sample can be even more problematic for longitudinal surveys (Kalton, 1992; Capaldi and Patterson, 1987). Steeh (1981) noted substantial increases in the nonresponse rates of two long-term studies since the 50s. This increase was mainly attributed to an increase in refusal rates.

There are various reasons why respondents refuse (DeMaio, 1980). A suspected reason for the unwillingness to participate is the respondents' reluctance to give up their personal or private time, a precious commodity in today's society (Sharp, 1984). The time burden placed on respondents is one of the factors affecting survey participation (Schwartz, et al., 1995). The individuals approached weigh the rewards of helping against the possible costs; they weigh what they perceive as the positive and negative results of agreeing to help. The time a survey will take to complete is perceived as a cost of participation (Morton-Williams, 1993).

The length of the interview is the primary indicator of respondent burden. The more time required for participation in the interview, the less likely that respondents will participate (Sharp and Frankel, 1983;

Groves, Cialdini, and Couper, 1992; Morton-Williams, 1993). Most researchers design surveys to minimize burden and use strategies, including incentive systems, to compensate for burden that is unavoidable (Capaldi and Patterson, 1987).

In longitudinal surveys, respondent burden has two components. The first is the immediate burden experienced by the length of the interview or the difficulty of the task to be performed. The second is the addition of longitudinal burden or the burden of future interviews—the impact of the perceived cost of continued participation.

It is assumed that longitudinal burden causes higher refusal rates, but there have only been limited studies in this area. Researchers have examined the effect of nonresponse on cumulative response rates (Freedman, et al., 1980; Kalton, 1992; Groves, 1989), but not many studies have been conducted on the effect of the longitudinal burden on the initial response rate. When measuring instrument length, the effort needed to answer questions, and time needed to complete a second interview after 1 year, Sharp and Frankel (1983) found that the impact of the length of the interview was the only correlate of respondent burden found to make a significant difference.

Respondents perceive the burden of participation in the initial contact (Couper, 1977). Couper and Groves (1995) documented the impact of statements to the respondent during introductory conversations. They found that respondents convey in the initial contact their likelihood of cooperating and that approaches at the door can have an effect on response rates. How the longitudinal burden is introduced to the respondent in the introductory conversation may have an effect on the respondent participation. Respondents weigh the cost of the perceived longitudinal burden in their decision to participate (Klerman, 1992).

There has been little opportunity, however, to investigate the actual response rate penalties associated with longitudinal burden and the impact of introductory statements on the associated response rates. Changes to the scope of MCBS presented us with an opportunity to add to the discussion of respondent participation by allowing us to isolate and examine several aspects of longitudinal burden. In this paper we discuss the differences in response rates achieved by two samples, each carrying different burden levels, we examine the

"at the door" protocols used for each of the samples in order to gain insight into the impact of introductory statements made during the initial survey contact, and we consider strategies to mitigate the response rate penalty associated with longitudinal burden.

Background of the Medicare Current Beneficiary Survey

MCBS is a continuous national survey of 16,000 Medicare beneficiaries, which began in 1991 under the sponsorship of the Health Care Financing Administration (HCFA). This nationally representative sample of the Medicare population consists of individuals residing in both community and long-term care settings. Beneficiaries in the survey are participating in the full range of health insurance options available to the Medicare population; this may include participation in Managed Care or Health Maintenance Organizations (HMOs) or in a wide variety of non-HMO arrangements.

MCBS is a longitudinal survey designed to deliver full-year data on the health care utilization, health care costs, and sources of payment of health care services for 12,000 sampled beneficiaries. Additional information about beneficiary demographic and health status is collected on an ongoing basis. Data about topics of special interest are collected using an interview supplement. The data collection approach is to conduct an initial baseline interview to introduce the survey to the beneficiary. Subsequent core interviews are conducted three times a year for 4 years. In the subsequent interviews, information about medical events is collected using a calendar as a recall tool.

MCBS has a rotating panel design in which one-third of the sample is retired each year. A longitudinal supplement of approximately 6,000 beneficiaries is added each year to replace the retiring panel and to compensate for sample attrition in the remaining sample.

Background of Managed Care Oversample

In 1996, because of the interest in managed care, the Office of Research and Development within HCFA added a managed care oversample to MCBS. The 1996 managed care sample consisted of 3,000 beneficiaries located in the same areas as the ongoing MCBS sample. The majority of the managed care oversample was allocated to two specific market areas: Southern California and Southern Florida, where approximately 1,000 people were added in each of the market areas. The remaining managed care sample was distributed nationally, and reflected HMO market penetration rates across the country. In order to make appropriate comparisons between

managed care and fee-for-service Medicare participants, the managed care market area sample consisted of both HMO and non-HMO participants. The national sample consisted only of HMO participants. The managed care oversample was repeated in 1997 following the same basic design as in 1996. Two new market areas—Philadelphia and Phoenix—replaced the 1996 market areas. The managed care oversample is added to MCBS at the same time in the interviewing cycles as the longitudinal sample; however, only one interview is conducted with the managed care oversample and will be referred to as the one-time supplement. Because the two samples are treated identically except for the survey introduction and burden statement, a unique opportunity was created to measure the impact of longitudinal burden on initial response rates.

Comparison of Interviewing Protocols

The two supplements are treated virtually identically in every respect. The same questionnaire is administered to both supplements. The same contacting materials and procedures are used for both supplements. Training sessions for interviewers conducting both types of supplement are identical, with the exception of burden-level references. Interviews in the national supplements are conducted by the same interviewer pool; that is, the same interviewer will conduct interviews for both the one-time supplement and for the longitudinal supplement.

The only difference in protocol for the two supplements is the statement of burden in the introductory procedures. The burden statement for the longitudinal supplement states that participation is for multiple interviews; the burden statement for the one-time supplement states that participation is for a single interview.

Initial contact with both supplements is made with an advance letter from the HCFA's Office of the Administrator. Included with the advance letter is a brochure describing the survey. The brochures are identical except for the following two brief longitudinal references that are included for the longitudinal supplement, and deleted from the materials for the one-time supplement:

The MCBS collects information three times a year. Your interviewer may be contacting you in the future for additional information.

During future interviews, we will ask a number of questions about the types of health care that you use and the costs of these services. Your interviewer will give you a calendar that should help you in responding to questions....

Once advance letters have been mailed to the beneficiaries, the interviewer makes the initial contact in person. Both supplements use an identical in-person contacting protocol. The contacting protocol includes a mandatory "At-the-Door Sheet" that is handed to the respondent. The interviewer is instructed to review the following points on the information sheet with the beneficiary:

- The voluntary nature of the study (benefits are not affected by their decision to participate);
- The confidentiality of the information;
- The 1-hour burden for the initial interview; and
- The longitudinal burden statement:

The MCBS is planned to continue over the next several years. We will talk to people who are part of MCBS a few times each year.

The same At-the-Door Sheet was used for both supplements; however, interviewers conducting the one-time supplement were trained to instruct the beneficiaries that the longitudinal burden statement did not apply to them.

Overall, the only difference in the contacting protocol for the two supplements was the longitudinal burden statement that was read at the door. This created a natural experiment for us to look at the difference in participation rates for these two supplements; each was associated with a different longitudinal burden level.

Results

Table 1 displays the overall response rates for 1996 and 1997. 1997 shows a consistently higher response rate difference between the two supplements in both the market area samples and the national samples. With the exception of Market Area 3, the one-time supplements had a dramatically higher response rate than the longitudinal supplements. The difference ranges from 6.4 percent to 11.7 percent higher response rates. The national samples showed a fairly consistent difference in both years—6.4 percent in 1996 and 7.4 percent in 1997.

When we examined the data further, we found differences based on a factor we had not previously considered: HMO enrollment. Both supplements contain beneficiaries enrolled in HMOs. We found that, regardless of the supplement type, there appears to be a difference in response rates related to HMO participation across all of the comparison cells.

Table 2 shows the response rates by HMO participation for 1996 and 1997. During both years the response rates for HMO participants is higher than the response rate for nonparticipants. This difference is observed in all of the market areas and in the national sample. While the difference in response rates by HMO participation indicates a need to carry this analysis further, the sample sizes associated with some of the cells did not allow us to look into this phenomenon at this time. This analysis will be the subject of future work when we are able to get larger sample sizes for some of the cells we are interested in observing.

Table 1: Supplemental Response Rates for 1996 and 1997

1996			
	Market Area 1	Market Area 2	National
Longitudinal supplement	73.9	73.5	84.2
One-time supplement	85.6	79.4	90.6
1997			
	Market Area 3	Market Area 4	National
Longitudinal supplement	86.2	83.9	83.6
One-time supplement	87.3	92.1	91.0

Table 2: Response Rates by HMO Participation

1996						
	Longitudinal Supplement			One-Time Supplement		
	Area 1	Area 2	National	Area 1	Area 2	National
HMO	81.1	76.3	85.3	87.1	83.2	90.6
Non-HMO	70.3	72.4	84.1	80.0	74.0	NA
1997						
	Longitudinal Supplement			One-Time Supplement		
	Area 3	Area 4	National	Area 3	Area 4	National
HMO	90.5	84.8	86.1	90.0	94.3	91.0
Non-HMO	84.1	83.5	83.3	84.3	88.6	NA

For this analysis, we will focus on the national sample of HMO participants. Table 3 compares the response rates for the national longitudinal supplement and the national one-time supplement. In 1996 the longitudinal supplement response rate was 85.3 percent and the managed care response rate was 90.6 percent, with a difference of 5.3 percent. In 1997 the supplemental response rate was 86.1 percent and the managed care response rate was 91.0 percent, for a difference of 4.9 percent. Both of the differences were significant, with a T statistic of 3.2 for 1996 and 2.4 for 1997.

Having found a significant difference in participation rates between the two supplements, we looked at the components of nonresponse to identify the reasons for the nonresponse. We found that the refusal rate accounted for the difference we were seeing in the participation rates. Table 4 compares the refusal rates for the national longitudinal supplement and the national one-time supplement. The longitudinal rate was 4.4 percent higher than the one-time supplement in 1997 and 4.7 percent higher in 1998; the associated T-statistics were 5.6 and 2.6. Other nonresponse components (out-of-area beneficiaries and unlocatable beneficiaries) were equal to approximately 1 percent and were not significant. It is clear that the refusal rate is the most significant factor influencing the participation rates.

Conclusions

On the basis of our analysis, we concluded that the effect of the perceived longitudinal burden on the survey participation resulted in a 5 percent decrease in the response rate. In the case of MCBS, this resulted in a decrease in the response rate from 90 percent to 85 percent. This decrease stemmed from what we considered a minor

change in the at-the-door protocol: informing the one-time supplements that the survey was not longitudinal.

After looking at the procedures, we concluded that perceived burden did not necessarily equal the actual burden. What we said to the longitudinal supplement beneficiaries was, "There will be a 1-hour interview now and more in the future," NOT, "There will be 12 hours of interviews." We believe that the beneficiaries make participation decisions along a continuum of perceived longitudinal burden. They may make their decisions immediately upon hearing "more," or they may prod the interviewer for additional information until they arrive at their own perception of longitudinal burden. Their perception of longitudinal burden will fall somewhere between the immediate burden of 1 hour to the full longitudinal burden of 12 hours. At some undefined threshold level, a decision is reached that the longitudinal burden is too heavy. We suspect that a more concerted effort to consistently inform the beneficiaries would lead to different response rate penalties, either larger or smaller.

Implications

The procedures for informing the respondents of interview burden need to be carefully weighed. Additional levels of detail may lead to different perception levels, which may significantly affect the response rate.

Given the measured response rate penalty, survey researchers need to consider a full range of options to offset the effects of longitudinal burden. We need to reach out and use all the resources available to the survey (such as more appealing advance material, more interviewer training on refusal aversion, cash incentives, and nonmonetary incentives) to keep response rates at an acceptable level.

Table 3: Response Rate Comparison for National HMO Participants

	1996	<i>N</i>	1997	<i>N</i>
Longitudinal supplement	85.3%	(319)	86.1%	555
One-time supplement	90.6%	(1243)	91.0%	413
<i>Difference</i>	5.3%		4.9%	
<i>Significance*</i>	P<.01		P<.05	

Table 4: Refusal Rates for National HMO Participants

1996 Refusals		1997 Refusals	
Longitudinal Supplement	11.0%	Longitudinal Supplement	11.2%
One-Time Supplement	6.6%	One-Time Supplement	6.5%
<i>Difference</i>	4.4%	<i>Difference</i>	4.7%
<i>Significance*</i>	P<.001	<i>Significance</i>	P<.01

* The t-values and p-values are for a simple random sample and do not reflect stratification; however, we expect that the results would be similar if stratification were taken into account.

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