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Introduction. Refusal conversion in telephone surveys is a standard practice at most survey organizations, and accounts for a significant percentage of the final sample. The rationale for refusal conversion is to increase response rate and hence reliability. But, in achieving this goal, we must also be alert to potential unintended effects on data quality.

There have been analyses of how reluctant responders differ from others on the distribution of their answers to substantive questions, as well as how these two types of respondents compare demographically (see Lavrakas et al. 1992 for a review of these results). An analysis of differences between responder groups in a large study reported by Lavrakas et al. (1992) found some demographic differences. However, these lines of research do not address the question of whether reluctant respondents may have other response behaviors that bear on the quality of the data obtained from them.

Over 30 years ago, Cannell and Fowler (1963) found that reluctant respondents provided less accurate data. They attributed this effect mainly to lower respondent motivation. Citing this result some years later, Bradburn (1984) stated the issue more generally, suggesting a possible effect of interviewer persistence on response behaviors. He asserted "There are... a number of people who end up responding because they have given up trying to fend off the interviewer...[and]..go through the interview quickly-- in other words do it but don't work hard." Of course, it may also be that respondents who are reluctant to participate also simply have less interest in the survey topic. While it would be difficult to disentangle these possible effects, both are likely to be in the direction of decreasing the effort respondents give to answering the questions.

The amount of cognitive effort required may be affected by the type of question, for example, a simple yes-no item versus an open-ended question. Effort may also vary by recall task, such as a question that asks about a simple attribute such as the respondent's age versus asking for the respondent's detailed medical history. In addition to these factors, effort may be affected simply by how motivated the respondent is to provide an answer.

This reduced effort may be stated in terms of cognitive strategies respondents use. One result of low motivation for example, may be to provide the minimum response that will satisfy the interviewer and allow the interview to proceed, with the hope of ending it as quickly as possible. Krosnick and Alwin (1987) have termed this general behavior for minimizing cognitive effort

"satisficing." In a survey interview, this could result in such respondent behaviors as increased item refusals, or "don't know" responses, more primacy and recency effects in selecting from a list of response categories, and reduced completeness of answers to open-end questions.

While many respondents may satisfice, it seems reasonable to expect a higher likelihood of satisficing by respondents who were reluctant to participate in the survey. This brings us back to the issue of refusal conversion. In an analysis of three general population omnibus RDD surveys, Blair and Chun (1992) found support for the hypotheses that converted refusers were more likely than initial cooperators to refuse to answer items or to answer "don't know." Additionally, converted refusers interviews were, as would be expected, of significantly shorter duration. The hypothesis that converted refusers would also have higher rates of primacy and recency response behaviors was not supported.

In the Blair and Chun study, there did not seem to be evidence for a competing explanatory hypothesis that reluctant respondents might simply have less knowledge or fewer opinions about the survey topics. The differences between reluctant and other respondents were consistent across the three surveys, despite widely varying subject matter. Still, on the basis of this study, that competing hypothesis could not be rejected.

We hypothesize that more satisficing behaviors will be evident among converted-refusal cases than in the sample generally. We also suggest that satisficing behavior may inadvertently be encouraged among reluctant respondents by interviewer behavior. Interviewers are aware when the respondent has previously refused. In fact, it is common to assign initial refusals to interviewers who specialize in conversion. Knowing that the respondent may either refuse a second time or break off the interview, interviewers may be more willing than they otherwise would to accept satisficing behaviors. For example, interviewers may probe less often or intensely for fuller responses to open-end questions, be more willing to accept a "don't know" response or a refusal to answer particular questions. If interviewers did behave in this fashion, the respondent would quickly see that satisficing behaviors are acceptable and continue to use them. As the interview progresses, it would become even less likely that the interviewer would try to change the response behaviors. So behavior reinforcement could easily and quickly develop, with obvious consequences for data quality.

In general, proxy reporting is cognitively more difficult than reporting about oneself (Blair, Menon, & Bickart, 1991). We hypothesize that higher levels of satisficing behavior would be seen among proxy reporters generally than among non-proxy reporters. The largest differences should be between proxy initial refusers and non-proxy initial cooperators. On the basis of the literature, we summarize our expectations in five hypotheses in Table 1.

Time Diary Study

The time diary is a technique for collecting self-reports of an individual's daily behavior in an open-ended fashion on an activity-by-activity basis. In a time-diary survey conducted for the EPA, the Survey Research Center completed approximately 10,000 telephone interviews in 1993-1994. The Center used a nationwide random digit dial telephone sample and interviewed a randomly selected adult or child in each household. For this research child interviews are excluded. The total sample size of completed adult interviews is 8,549.

There are three main reasons for choosing the time diary study for comparing initial cooperators with initial refusers. The first reason is the large number of converted refusals. The data set includes 1,112 adult respondents who reside in households where the interview was initially refused. These 1,112 respondents include two groups, converted respondent refusals, (cases in which the selected respondent initially refused) and converted informant refusals (cases in which it is likely that someone other than the respondent initially refused). There were 700 converted respondent refusals, 412 converted informant refusals and 7,437 respondents who completed the interview without ever refusing. The second reason for choosing the time diary survey is that the interview required respondents to complete a difficult cognitive task. The respondent was asked to recall in chronological order all of their activities on the day prior to the interview. They also had to report where each activity occurred, and at what time it was completed.

The third advantage in using the time diary study is that there were 1,035 proxy interviews. These proxy interviews were conducted with adults who were asked to report on the activities of a child under the age of ten living in their household. So we are also able to investigate whether proxy reporting behavior differs between initial cooperators and initial refusals.

In addition to reporting diary activities, respondents also answered 38 pre- and post-diary questions in this study. As mentioned earlier, because of low motivation to participate in this study, reluctant respondents might expend less effort to answer questions. Therefore, it is reasonable for us to expect more instances of item non-response from converted refuser respondents among the 38 pre- and post-diary questions.

Table 1

HYPOTHESES	
◆	Higher proportion of item non-response as measured by "Don't Know" answers and Refusals
◆	Reporting fewer diary activities
◆	Less detailed activity information
◆	Proxy respondents will have higher total mean levels of satisficing behaviors than non-proxy respondents
◆	Proxy converted respondent refusers will have the highest levels of satisficing behaviors; non-proxy initial cooperators will have the lowest levels of satisficing behaviors

Results Item Non-response

Based on our findings, converted refusers (respondent refusers and informant refusers) had higher mean items of non-response. For the total sample (proxy and self interviews), the mean of non-response item from converted respondent refusals (1.47) is much higher than those reported by initial cooperators (0.25) and converted informant refusals (0.32). The same result was also found in the adult sample. The mean of item non-response for converted respondent refusals (1.58) is also higher than that reported by initial cooperators (0.26) and 5 times that of converted informant refusals (0.32). (These results were statistically significant at the .01 level.) For the total and self samples, both the difference between means of initial cooperators and converted respondent refusals are statistically significant at .01 level. For the proxy sample, the differences among these three were not as clear as those reported in total and self samples. Nevertheless, the mean of non-response item from converted respondent refusals (0.57) is still higher than those from initial cooperators (0.27) and converted informant refusals (0.18). The difference between means of initial cooperators and converted respondent refusals is statistically significant at the .05 level.

Total Number of Activities

Respondents were asked to recall all activities that they were engaged in within a 24 hour period. These activities were reported in chronological order, to facilitate respondent's recall. "An important part of this study is to learn what kinds of pollutants adults and

children come in contact with in their daily activities. To do this we need to find out how and where people spend their time. I would like to ask you about the things (child's name) did yesterday -- from midnight (the previous day) to midnight last night."

An activity was defined as the primary event which occupied a person's time at a given moment. Hence, a person could only be engaged in one activity at a time. The completion of a 24-hour time diary study requires a considerable amount of cognitive effort on the part of the respondent.

At the start of the diary, the interviewer gives the respondent carefully structured neutral probes to aid the respondent in separating activities and reporting the desired level of detail. Some respondents had a tendency to lump activities together, such as "I got up this morning, left for work, watched television, and went to bed." The interviewer's task would then be to elicit more detailed activities from the respondent.

Occasionally, respondents gave too much detail. For instance, they might say "I got up this morning, placed my feet in my slippers, walked across the room, etc..." In these cases interviewers guided the respondent to give the correct level of detail.

As mentioned in hypothesis #2, we expected to find fewer activities reported by the initial refusers than the initial cooperators (See Table 2).

Table 2

Based on our findings of the total sample there is a significant difference between the number of activities reported by initial cooperators (16.7 activities) and the converted respondent refusals (15.8 activities). It is statistically significant at .001 level. Yet there is no difference between activities of the initial cooperators (16.7) and informant refusals (16.8).

The direction is the same for the self sample. In looking at the mean number of activities for the self sample, initial cooperators had a total of 16.7 activities and converted informant refusals had 17 activities, whereas the converted respondent refusals for this group had 15.8 activities, which is 5.8% fewer reported activities. The difference between activities reported by initial cooperators and converted respondent refusals is statistically significant at the .001 level. For the proxy sample, although the converted respondent refusals had a mean number of activities of 15 which is 4.4% fewer activities reported, both the differences between initial cooperators and converted refusals, and initial cooperators and converted informant refusals are not statistically significant. This is most likely driven by the smaller proxy interview sample size.

Demographics

Could some of these differences be attributed to the demographic differences between the initial cooperators and the converted respondent refusals? Several of the

Mean Number of Activities Reported			
	All Adults	Self	Proxy
Initial cooperators	16.7 N=7432	16.7 N=6520	15.8 N=917
Converted respondent refusals	15.8 N=700	15.8 N=626	15.1 N=74
Converted informant refusals	16.8 N=412	16.8 N=368	15.8 N=44
	5.5% fewer activities reported by respondent refusals	4.5% fewer activities reported by respondent refusals	5.8% fewer activities reported by respondent refusals
Statistically significant for initial cooperators and converted respondent refusals at the .001 level (adult and proxy sample only).			

available demographics for this study had the same proportions in each of the two groups. These demographics included, gender, region, household size, and number of children. However, there were some differences found. There were more black respondents, more elderly respondents and more respondents who did not complete high school among the converted respondent refusal group. In controlling for the effects of demographic differences in the overall findings, only slight differences were found between black and non-black respondents in terms of item non-response and number of diary activities. Also, no differences were found for respondents who had not completed high school. Elderly respondents did provide more item non-response and fewer diary activities. However, the total number of elderly respondents in the data set was small so the impact on the overall finding is minimal. If elderly respondents were removed from both the converted respondent refusal and initial cooperator group, the findings in this paper would still be significant.

Summary

Studies have been completed (Blair and Chun 1992) and (Cannell and Fowler 1963) that have argued that there are differences between respondents who initially cooperate and those who initially refuse. This study was large enough that the refusers could be broken into two distinct groups. First were refusals where clearly the chosen respondent refused. Second were those refusals where an informant likely refused. Having collected data from a sample of 1,112 respondents who initially refused allowed reliable data quality comparisons between respondents who initially cooperated and households where there was initially a refusal. As hypothesized, the converted respondent refusals consistently provided less information. However, in households where informant refusals occurred the data quality was comparable to that of initial cooperators.

This research provides strong support for the hypothesis that people who initially refuse to complete a survey have higher levels of item non-response, shorter interviews and generally provide less information. Future studies should continue to test these hypotheses on other subject matter and data collection modes. A missing element in all the research conducted to date (including our study) on this issue is a validation source to measure differences in accuracy between converted refusals and initial cooperators.

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