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Respondent Uncertainty about the Timing of Residential Changes and Employment-Related Events: Examining the Interviewer-Respondent Interaction in the Panel Study of Income Dynamics' Event History Calendar

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Abstract. The Panel Study of Income Dynamics (PSID) uses an interviewer-administered computerized event history calendar (EHC) to collect information about respondents' past-two-year residence(s) and employment. Research has demonstrated that the calendar method generated better quality reports than conventional interviewing and that improved reports were associated with characteristics of the interviewer-respondent interaction unique to the calendar method. Yet, whether and how interviewers use the EHC to help respondents resolve uncertainty about the timing of life changes is unknown. We coded the interviewer-respondent interaction in a random sample of 103 respondents from the 2013 PSID's main study, all of which experienced a residential change or employment-related event since the 2011 interview. One-third of respondents expressed uncertainty about the timing of changes in residence or employer and the majority of respondents expressed uncertainty about the timing of periods away from work. Interviewers generally accepted uncertain responses or requested less precise timing information and rarely used the unique features of the EHC to help respondents resolve uncertainty. Our findings suggest that the collection of less precise timing information would likely reduce respondent burden. Future research should experimentally examine whether and which features of the calendar method help resolve respondent uncertainty.

Key words: Calendar method, verbal behavior coding

1. Introduction

Event history calendars (EHC) are used to collect information about the occurrence and timing of life events (i.e., event history data) (see Freedman et al. 1988 for one of the first generalized descriptions of such calendars). These calendars are typically formatted as grids or matrices such that columns represent one unit of time (e.g., week) and rows represent the life event in question. Whether the calendar is self- or interviewer-administered, event information is entered directly into the calendar. When interviewer-administered, the calendar method often permits interviewers and respondents to engage in an unstandardized conversation as they work together to fill out the calendar. At their most basic level, then, EHCs are data entry tools for the collection of event history data.

These calendars might be more than mere data entry tools, however: research suggests they can be used to help facilitate recall. As described by Belli (1998), calendar methods might be particularly suitable to the collection of retrospective information because they capitalize on the structure of respondents' autobiographical memory. Specifically, information about seemingly distinct life domains (e.g., employment, relationship, and residential history) is often interrelated in one's memory. For example, a memory about a relationship change might trigger a memory about a related residential change. Whereas traditional question-list methods often separately gather this information, calendar methods often permit respondents to provide autobiographical information in the order they retrieve it. Furthermore, interviewers can use information about one domain (e.g., relationship history) already recorded in the calendar to help facilitate recall about information in a separate but related domain (e.g., residential history). Adapting to a respondent's preferred recall sequence and providing tailored recall probes are two

unique features of calendar methods using conversational interviewing that are more difficult to replicate in traditional interviewer-administered methods.

Over the past two decades, several studies have examined whether event history information collected using calendar methods is more accurate than that collected using traditional, question-list methods (e.g., Engel, Keifer, and Zahm 2001; Reimer and Matthes 2007; Yoshihama et al. 2005) and the explanatory mechanisms underlying any such differences (e.g., Belli et al. 2004). For example, as part of a special methodological investigation associated with the Panel Study of Income Dynamics (PSID), a nationally representative household panel study in the United States, Belli et al. (2001) demonstrated that an interviewer-administered paper EHC, compared to the standard question-list approach, provided better estimates of key data without negatively affecting interview length or respondent burden. Data quality was operationalized as the presence or absence of various life events (reported over the two-year reference period) and the total number of weeks engaged in certain employment-related spells (e.g., working, out of labor force, missed work due to illness). Subsequent research asserted that better data quality was the result of improved retrospective recall facilitated by verbal behaviors unique to the calendar method's conversational interviewing style (Belli et al. 2004). Specifically, there was a weak, but positive, association between data quality and the use of parallel probes (i.e., probes in which the interviewer uses information about one domain to facilitate recall in a separate domain). The authors recommended that future implementations of the EHC include training interviewers to use such probes. For the most part, results from this study were replicated in an analogous investigation of the collection of life course (vs. past-two-year) histories (Belli et al. 2007; Bilgen & Belli 2010).

Notably, these studies did not evaluate how well the EHC replicated the timing of life events (i.e., beginning and end dates)—key information for many event history data analyses. Further, although the studies provide general information about the frequency with which respondents provide qualified responses or express uncertainty, they do not address how often respondents are uncertain about timing information, in particular, or, more importantly, whether and how interviewers use the calendar to resolve such respondent uncertainty.

2. Aims

We evaluate the interviewer-respondent interaction during the administration of the PSID's EHC in the main interview. Specifically, as outlined below, we address three research questions.

Aim One: Prevalence of Key Verbal Behaviors. The first aim of the study is to document the prevalence of interviewer and respondent verbal behaviors. This descriptive information helps to characterize the interaction between interviewers and respondents.

Aim Two: Respondent Uncertainty about the Timing of Residential Changes and Employment-Related Events. The second aim of the study is to document the extent to which respondents express uncertainty about the timing of residential changes (e.g., moving dates) and employment-related events (e.g., the beginning and end of employment/unemployment spells or time away from work for other reasons). The calendar permits interviewers to record timing information at several levels of precision, including the exact date of the change; the month in which the change occurred; whether the change occurred during the beginning, middle, or end of the month; and in what season the change occurred. The prevalence of respondent uncertainty provides some information about the quality of this timing information.

Aim Three: Interviewer Reactions to Respondent Uncertainty. The third aim of the study is to document how interviewers react to respondent uncertainty about the timing of residential

changes and employment-related events. Knowing whether interviewers utilize the calendar to address respondent uncertainty will provide some information about the importance of the calendar's use. For example, if interviewers attempt to assist uncertain respondents with recall by prompting them with information already recorded in the calendar, the calendar is functioning as a recall aid in addition to a data entry tool. Conversely, if interviewers ignore respondent uncertainty or resolve it without the intended use of the calendar, a further investigation of the calendar's utility for this specific purpose might be warranted.

3. Methods

3.1 Data. Since 2003, the PSID has utilized an interviewer-administrated computerized EHC to collect information about residential changes and employment-related events over the past two years. In 2013, 9063 main interviews were collected by PSID. Interviews were eligible for the current study if the respondent consented to the interview being recorded and if the household head was currently working and had experienced at least one residential change or employment-related event between 2011 and 2013 (N=844). A random sample of 240 eligible interviews was selected for transcription; however, 18% (n=44) were not transcribed because of issues with the audio file (e.g., poor sound quality or incomplete interview) or because the interview was conducted in Spanish. Altogether, 196 audio files were successfully transcribed using SoundScriber. Note that only the EHC portion of the main interview was transcribed.

3.2 Event History Calendar. In the PSID's EHC, interviewers ask respondents to provide the addresses of the places they have lived in the past two years and when they moved to and from each address; the names of the places they have worked in the past two years and when they started and stopped each job; if and when they ever were away from work because they were sick, took a vacation, went on strike, or were laid off, or because someone else was sick; and if

and when they were ever not employed in 2011 and 2012. Each of these nine categories (e.g., residence, employment, time away from work because self sick, time away from work because on vacation, etc.) is called a *domain*; each unique occurrence within a domain is called a *spell*. For example, if a respondent was away from work because h/she took two separate vacations, each vacation is considered a separate spell within the domain of time away from work because of vacation.

3.3 Verbal Behavior Coding. In Summer/Fall 2015, the verbal behavior coding team, consisting of the principal investigator (PI) and two coders, adapted a coding scheme from previous research on the PSID's EHC (Bilgen and Belli 2010). To develop the coding scheme and establish inter-rater reliability, a total of 22 transcripts were coded and discussed across five iterative training sessions. The team met before and after each training iteration to identify, resolve, and document outstanding issues. Once training was complete, the codebook included 73 codes (34 interviewer codes and 39 respondent codes). Prior to production coding, one of the coders had to leave the project due to unforeseen circumstances; thus, one primary coder coded 103 transcripts. To ensure sufficient inter-rater reliability, the PI and coder both coded 10% (n=10) of the production transcripts (Krippendorff's alpha = 0.831) (Hayes and Krippendorff 2007). Verbal behavior coding was conducted using QDA Miner version 4.1.20.

For the purposes of this study, we are interested in (1) interviewer verbal behaviors that reflect the interviewers' use of the calendar either through dependent interviewing or specific calendar cues and that reflect the conversational style of the calendar's administration; (2) how interviewers probe for spell timing information (i.e., when the spell occurred) and how respondents provide spell timing information, either in response to an interviewer's timing probe

or spontaneously; and (3) respondent verbal behaviors that reflect uncertainty about a response. See Table 1 for a description of these verbal behavior codes.

Table 1 Select verbal behavior code definitions

Verbal Behavior Code	Definition
Interviewer (I) Behaviors	
Dependent Interviewing	
Preloaded verification	I confirms the accuracy of information preloaded into the questionnaire (e.g., last known address, last known job)
Conversational Interviewing	
Interviewer gives clarification	I provides unscripted clarification about some aspect of the survey or questionnaire
Directive	I probes in a manner that poses the risk of biasing the R's answer
Calendar Cues	
Parallel	I uses information from a concurrent domain as an anchor
Holiday	I uses a holiday as an anchor
Historical	I uses a historical landmark event as an anchor
Timing	
General	I probes for general timing information (e.g., When did you live there?)
Day/Date	I probes for day or date that spell began or ended
Month	I probes for month that spell began or ended
Third	I probes for third of month that spell began or ended
Portion	I probes for portion of month that spell began or ended
Season	I probes for season that spell began or ended
Year	I probes for year that spell began or ended
Duration	I probes for duration of spell
Respondent (R) Behaviors	
Timing	
Day/Date	R provides day or date that spell began or ended
Month	R provides month that spell began or ended
Third	R provides third of month that spell began or ended
Portion	R provides portion of month that spell began or ended
Season	R provides season that spell began or ended
Year	R provides year that spell began or ended
Duration	R provides duration of spell
Uncertainty	
Qualified response	R qualifies response using words or phrases like probably, I guess, I think, around, about, maybe, not really sure, I would say, it was like, etc.
Don't know	R indicates that h/she does not know the answer of the question by explicitly saying "I don't know"

4. Results

Altogether, the 103 respondents were asked about the existence of 1416 spells across the nine domains; 39.7% (*n*=562) of these spells existed (i.e., a residential change or employment-related event occurred). As illustrated in Figure 1, current residence or change in residence, current employer or change in employer, and time away from work for vacation or because on strike or laid off were the most commonly reported spells.[1] Specifically, 32 percent of existing spells were changes in current residence, 27.8 percent were changes in current employer, and 23.8 percent were periods of such time away from work. All respondents reported a current residence or change in residence and a current employer or change in employer, and more than two-thirds (71.8 percent) of respondents reported at least one vacation or time away because on strike or laid off. Time away from work because of one's own illness or someone else's were less common as were periods of being not employed.

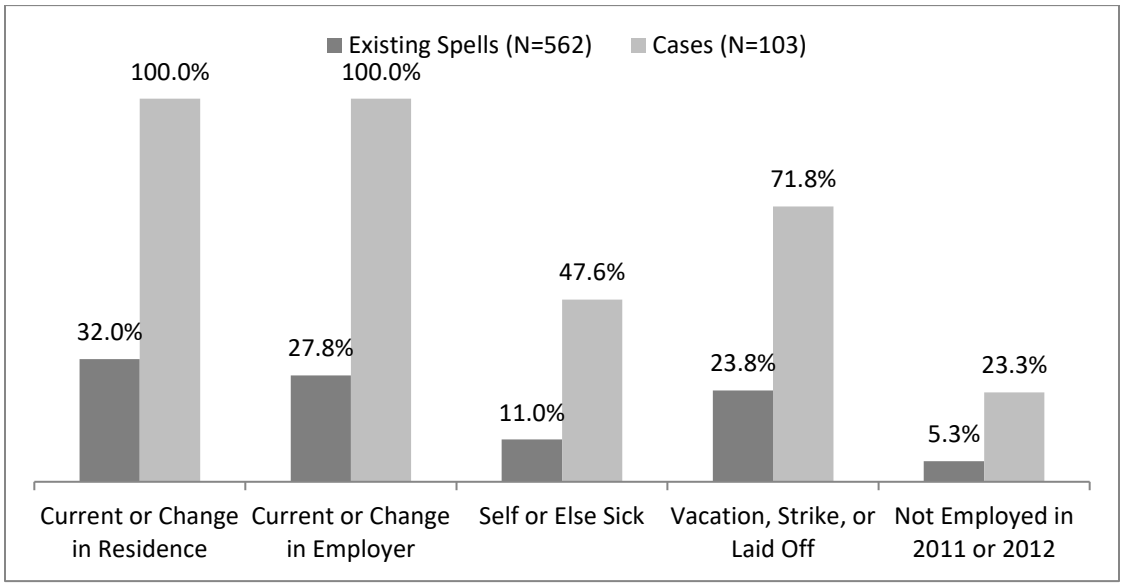

Figure 1. Domain prevalence

[1] Occurrences of time away from work because on strike or laid off were too infrequent to report separately; thus, they have been combined with vacation.

4.1 Aim One: Prevalence of Key Verbal Behaviors

Altogether, 8650 interviewer behaviors were coded. Notably, unscripted calendar cues that are intended to help respondents recall the existence or timing of spells were all but nonexistent. Specifically, there were fewer than 11 occurrences of parallel, holiday, and historical probes combined, the minimum required number for public reporting of these data.

Table 2 Prevalence of calendar-specific interviewer behaviors

Verbal Behavior	% of Codes (*N*=8650)	% of Cases (*N*=103)
Dependent Interviewing		
Preloaded verification	3.55	96.10
Conversational Interviewing		
Interviewer Gives Clarification	1.88	62.10
Directive	1.25	45.60

Note that calendar cues, including parallel, holiday, and historical probes were too infrequent to report.

With respect to the collection and reporting of spell timing information, interviewers most often probed for general timing information (e.g., "When did that happen?") and respondents most commonly provided the month during which a spell occurred (see Figure 2). To better understand how respondents provided timing information, we examined the prevalence of spontaneous and qualified responses for each timing category (e.g., day/date, month, year). As illustrated in Figure 3, respondents did not generally provide timing information spontaneously; rather, the majority of all timing responses were provided in response to an interviewer. Generally speaking, timing responses were more likely to be qualified (i.e., reflect respondent uncertainty) the more precise the timing category. For example, nearly half (42.8 percent) of all day/date responses were qualified whereas approximately one quarter (27 percent) of year responses were qualified. Note that spontaneous portion and third responses and spontaneous and qualified season responses were too infrequent to meet the standards for public reporting of these data.

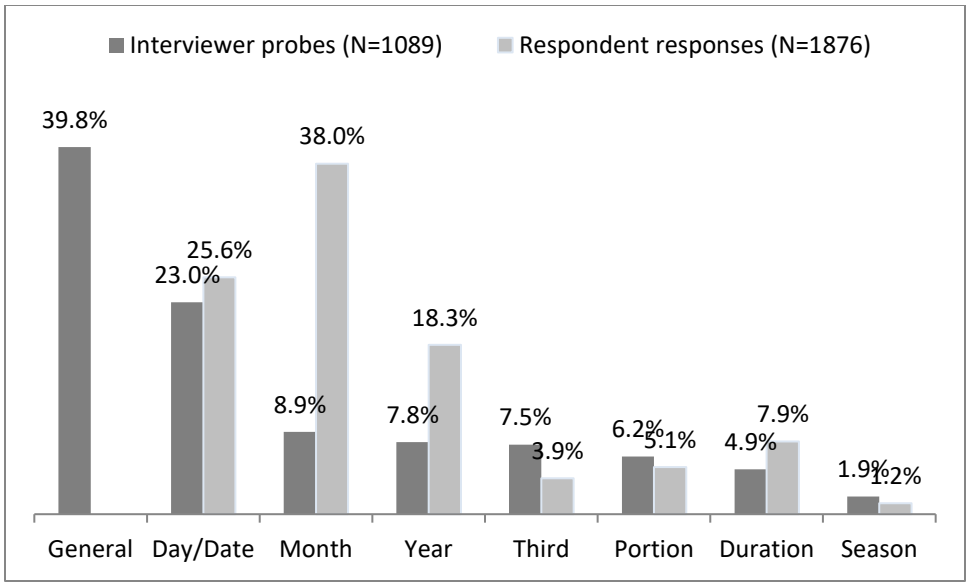

Figure 2. Prevalence of timing behaviors

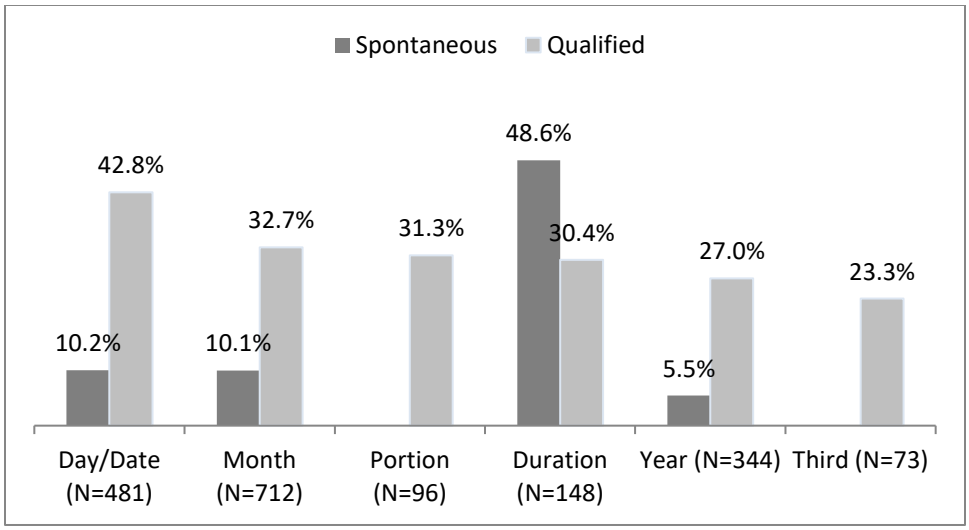

Figure 3. Prevalence of spontaneous and qualified timing respondent responses

4.2 Aim Two: Respondent Uncertainty about the Timing of Residential Changes and Employment-Related Evets

As illustrated in Figure 4, respondents were least likely to express uncertainty when providing information about the timing of residential changes or employment-related events—approximately one third of these responses reflected uncertainty. Conversely, the majority of timing responses regarding time away from work for vacation and other time away from work

(i.e., self sick, else sick, strike, laid off, not employed) were either qualified or explicit "don't knows." Further, expressions of uncertainty were more often qualified than explicit "don't knows." Note that "don't know" responses for current employer/change were too infrequent to meet the standards for public reporting of these data.

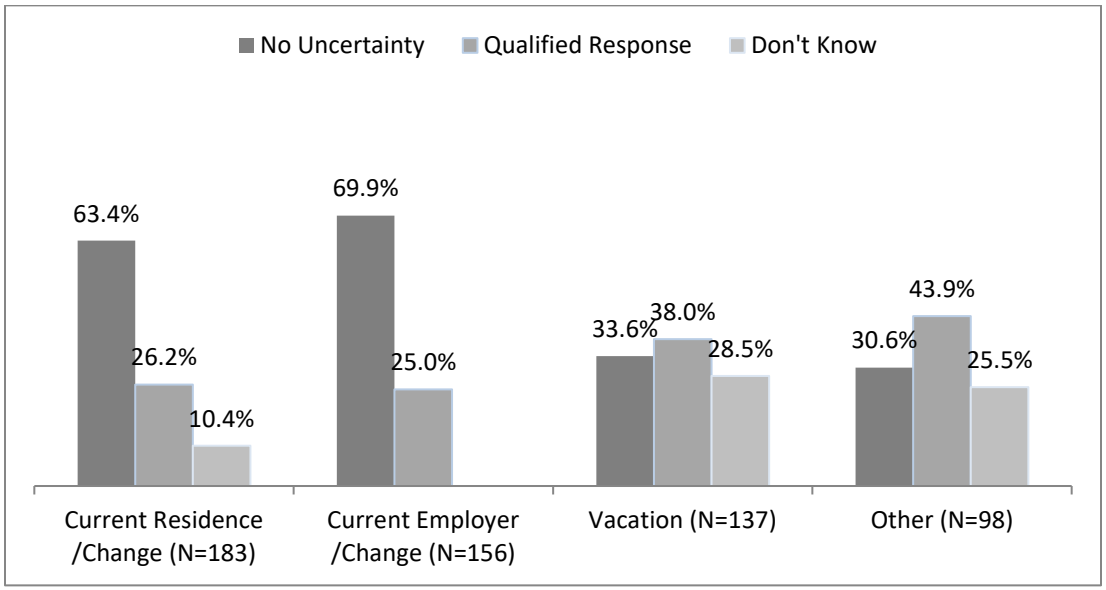

Figure 4. Prevalence of respondent uncertainty

4.3 Aim Three: Interviewer Reactions to Respondent Uncertainty

The prevalence of interviewer reactions to respondent uncertainty is illustrated in Figure 5. When respondents provided a qualified response, interviewers most often reacted with feedback behavior (e.g., "Thank you. I'm entering that in the computer."). Such behaviors indicate that the interviewer's reaction was to accept the response given. Conversely, when respondents provided a "don't know" response, interviewers most often reacted with a timing probe, followed closely by feedback behavior. Such a pattern suggests that interviewers either accept the response given or request the same or additional (often less precise) timing information. We also coded whether interviewers responded with directive timing probes or calendar probes; however, the occurrences of both types of behaviors were too infrequent to publicly report here. Such a

finding indicates that interviewers do not respond by possibly biasing a respondent's answer nor do they appear to be using the calendar to help resolve respondent uncertainty.

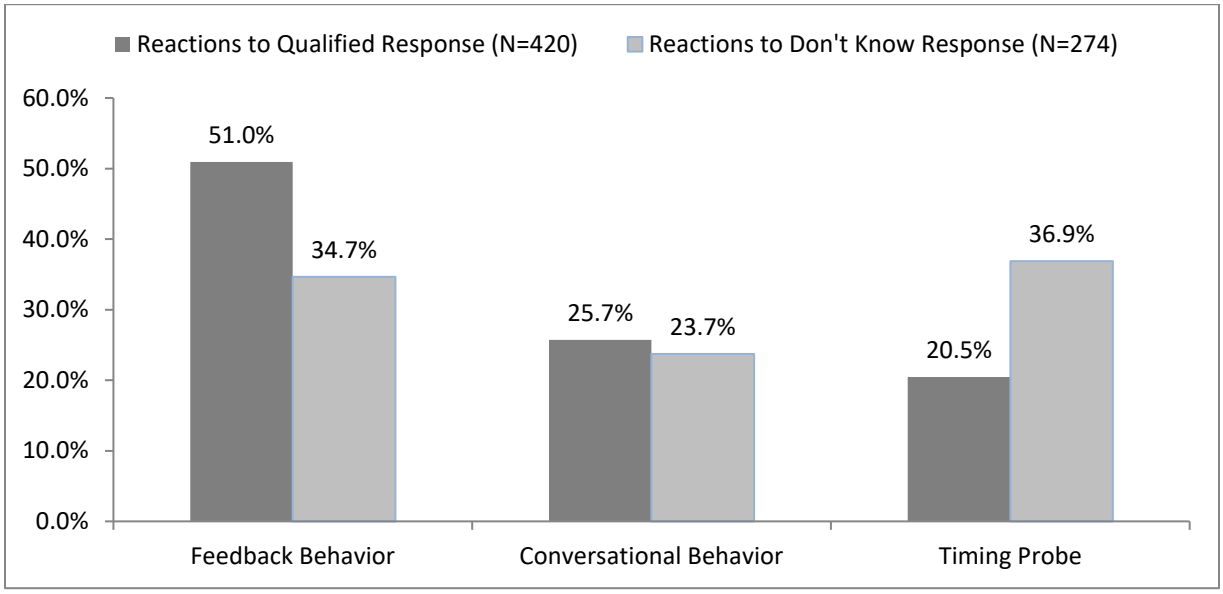

Figure 5. Prevalence of interviewer reactions to respondent uncertainty

5. Discussion

The current study aimed to better understand the interviewer-respondent interaction and the calendar method during the collection of specific timing information. Even in the absence of an experimental design, the descriptive information that this study provides sheds light on the precision of timing information respondents are able to provide and the extent to which interviewers utilize the calendar method to help resolve respondent uncertainty.

Among the nine domains about which respondents are asked, changes in residence or employer and time away from work for vacation or because on strike or laid off were most common. Other domains were not applicable for the majority of respondents. Further, with the exception of the timing of residential changes and changes in employer, respondents were uncertain about the majority or near majority of all other spell timings. Together, these results suggest that collecting less precise timing information would reduce respondent burden.

Notably, interviewers do not appear to use the EHC as a recall aid or to help resolve respondent uncertainty, as evidenced by the overwhelming acceptance of uncertain responses and the almost nonexistent use of calendar cue probes. Future research should experimentally examine which aspects of the calendar method, including which interviewer behaviors, most effectively help resolve respondent uncertainty about the timing of life events.

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