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Measuring The Lifetime Experience of Domestic Violence: Application of The Life History Calendar Method

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Abstract

In the absence of a "gold standard," research on domestic violence relies primarily on self-report, the quality of which is known to decline as the length of the recall period increases. Eliciting valid and reliable self-report data is crucial to the development of prevention and intervention policies and services. Nevertheless, existing measures typically do not incorporate devices to facilitate respondents' recall of the lifetime experience of domestic violence. This article describes the application of the Life History Calendar (LHC) method (Freedman, Thornton, Camburn, Alwin, & Young-DeMarco, 1988) to increase a respondent's recall of domestic violence victimization over the lifecourse. The LHC method elicits memorable information of a personal nature (e.g., children's birth dates) and uses this information to facilitate the recall of less memorable events. A recent field test of this LHC measure indicates its utility in assessing domestic violence victimization, which takes place in a complex sequence of episodes and often involves multiple perpetrators over the lifecourse.

One of the major challenges in domestic violence research lies in eliciting valid and reliable data in the absence of a "gold standard" against which the data's validity can be verified. Verifying respondents' experiences of partners' violence is difficult unless couples are observed 24 hours a day. Because such a study design poses ethical and practical difficulties, studies of domestic violence rely primarily on the respondents' self-reports, which are inevitably subject to their ability to recall and willingness to disclose their experiences of victimization or perpetration. Over the years, methodological improvements have been made to increase data quality in studies of domestic violence (DeKeseredy, 1995; Smith, 1994). Increasingly, research has investigated the validity and reliability of self-report data on individuals' perpetration and victimization (Arias & Beach, 1987; Straus, 1990), the extent to which social desirability influences the self-report (Dutton & Hemphill, 1992; Sugarman & Hotaling, 1997), and the degree of concordance between couples' self-reports (Szinovacz, 1983; Szinovacz & Egley, 1995). Little investigation, however, has focused on the degree to which the respondent remembers past incidents of domestic violence (notable exceptions are a recent study by Goodman and colleagues [1998] and by Yoshihama and Gillespie [2002]).

In this article, we discuss the strategies we have taken to increase a respondent's recall of domestic violence victimization over the lifecourse and to develop a measure of lifetime domestic violence experience that would be applicable to large-scale surveys. We drew from theoretical and methodological advances in the fields of autobiographical memory and survey methodology. Specifically, we applied the Life History Calendar (LHC, Freedman, et al., 1988) and developed a semi-structured interview schedule. We discuss the rationale for using the LHC method, outline the development of a face-to-face interview schedule, the LHC of Domestic Violence, and present the findings from its field test.

AUTOBIOGRAPHICAL MEMORY: IMPLICATIONS FOR DOMESTIC VIOLENCE RESEARCH

Most existing measures of domestic violence are designed to assess the respondents' experiences within a 1-year or 6-month timeframe. For example, the Conflict Tactics Scale (CTS, Straus, 1979; CTS2, Straus, Hamby, Boney-McCoy, & Sugarman, 1996) and the Severity of Violence Against Women Scale

(Marshall, 1992) assess the respondents' experiences during the previous 1-year period. Straus, the author of the CTS, argues that a reference period of 1 year is "too long a period for accurate recall" (1990, p. 55). In practice, however, these measures, which are primarily designed for a short reference period, have been used to examine the lifetime experience of domestic violence without making adjustments necessary to facilitate respondents' recall. Other existing measures, such as the Index of Spouse Abuse (Hudson & McIntosh, 1981), do not have a specific reference period or incorporate devices to facilitate respondents' recall. Research in cognitive psychology and survey methodology has found a decline in the quality of self-report data for personally experienced events as the length of the recall period increases (Bradburn, Rips, & Shevell, 1987; Jobe, Tourangeau, & Smith, 1993; Thompson, Skowronski, & Lee, 1988). This decline poses a threat to the validity of respondents' reported experiences of domestic violence, especially those incidents that occurred in their remote past.

In fact, there is reason to believe that respondents' recall of domestic violence experiences has been incomplete in previous studies. Several studies found a higher lifetime prevalence of physical violence among younger respondents than among their older counterparts (Lloyd & Taluc, 1997; Smith, 1990). This finding contradicts the presumably longer exposure to risk among older respondents. It is possible that older women reported a lower rate of domestic violence because they were less likely to consider a partners' acts as domestic violence. However, most studies use behavior-specific questions, which, unlike broad screening questions, do not heavily rely on the respondent's perception of what constitutes domestic violence. Cohort effects are also plausible; however, the analysis of three national surveys conducted in 1975, 1985, and 1992 with similar methodologies (Straus & Kantor, 1994) provides little evidence for systematic cohort effects that could explain the lower rate of victimization among older respondents. Disclosure bias and recall bias are plausible, in that older women may be less willing to disclose their victimization experiences than younger women, or may not remember these experiences, especially those that occurred in their distant past. In light of the findings from studies of autobiographical memory (Bradburn, et al., 1987; Jobe et al., 1993; Thompson et al., 1988), problems with recall, especially increased degrees of difficulty encountered by older respondents, appear to account for lower rates of reported domestic violence victimization among older women.

Using methods of survival analysis with left-truncated data (also known as the delayed entry method), Yoshihama and Gillespie (2002) investigated this possibility and found that recall bias had a major impact on previous estimates of domestic violence. Specifically, they found that a substantially lower proportion of middle-aged women reported partners' violence that occurred during their younger years compared to the proportion of younger women reporting partners' violence. This finding suggests that middle-aged respondents encountered increased difficulty in recalling events that took place during their earlier years. Clearly, systematic and focused efforts are needed to enhance the respondents' recall of their lifetime experiences of domestic violence victimization, especially those occurring in their remote past. Such methodological improvements are indispensable for valid and reliable prevalence estimates of domestic violence and examination of risk and protective factors, upon which policy and prevention and intervention services can be developed.

Problems in recall of lifetime experiences are not unique to studies of domestic violence. Results from the Epidemiologic Catchment Area Study suggest potential underreporting or inaccurate reporting of the timing of mental disorders (Bromet, Dunn, & Connell, 1986; Robins, 1985). One obvious way to

address the problem of memory is to use a data collection format that encourages better recall. Such efforts have been made in measures of mental health, such as the Composite International Diagnostic Interview (CIDI, Wittchen, 1994) and its modified version (Knauper, Cannel, Schwarz, Bruce, & Kessler, 1999). In studies of stressful life events, methodological improvements, such as the use of memory aids, have resulted in enhanced recall (Kessler & Wethington, 1991; Wittchen et al., 1989). Similar methodological improvements are needed and may be useful in the field of domestic violence.

Autobiographical Memory Research

Many theoretical and methodological advances have been made in the field of cognitive psychology, particularly in research on autobiographical memory (Belli, 1998; Bradburn et al., 1987; Conway, 1996; Jobe et al., 1993; Sudman, Bradburn, & Schwarz, 1996). As studies have uncovered how autobiographical memory (an individual's memory of personally experienced events) is stored, improvements have been made to survey instruments in order to facilitate the respondent's memory retrieval. In general, autobiographical memory has a hierarchical structure in which different types of events of varying scope and specificity are organized and stored (Belli, 1998; Conway, 1996). Memories of general events are stored typically at the top of the structure (i.e., most readily accessible to recall), while memories of specific events are stored at the bottom of the hierarchy (i.e., more difficult to recall). Most survey instruments are constructed by ordering questions from general to specific events, allowing for memories of more general events to serve as cues to facilitate the retrieval of memories of specific events—a process referred to as topdown retrieval.

However, autobiographical memories are stored in a far more complex manner. At each level of structure, events are organized according to their thematic and/or temporal nature (Belli, 1998; Conway, 1996). For example, events that are thematically similar (e.g., events pertaining to work) are organized and stored together, often temporally, in a forward or backward chronological order. At the same time, events in one thematic domain (e.g., partner's violence) may be stored parallel to events in other interrelated thematic domains. For example, while a woman's memories of partners' violence may be organized in a chronological, sequential manner from the first episode to the most recent one, each episode may be indexed by memories of events in other domains, such as changes in residence or jobs (e.g., "The first episode took place right after we moved to an apartment on 7th Street. The second episode was on the day he lost his job."). The structure of autobiographical memory is both chronologically and thematically based.

Given the complexity of how autobiographical memory is stored, individuals use additional retrieval approaches—that is, sequencing and parallel retrieval approaches—in addition to top-down retrieval (Belli, 1998; Conway, 1996). Sequencing retrieval refers to tracing events in a chronological sequence within a specific thematic life domain.) For example, when asked to report the lifetime experience of domestic violence, a woman may recount how her partner's violence has escalated over time: for example, "At first, he shoved me and shook me, and gradually, he began to punch and kick me." Parallel retrieval refers to remembering interconnected events across domains that associate themes to one another; a woman may trace back episodes of domestic violence using easily remembered events in other aspects of her life (e.g., "When I was pregnant, he began hitting me"). Memory cues, such as graduation or a birth of a child, facilitate sequential and parallel retrieval and are particularly effective when recalling events over an extended period of time (Barsalou, 1988). Such personal

memory cues are, however, rarely incorporated in conventional data collection methods used in studies of domestic violence. In contrast, the LHC method, which we used to assess the lifetime domestic violence experience, is designed to provide memory cues and to facilitate the use of sequencing and parallel retrieval approaches.

LIFE HISTORY CALENDER METHOD

The LHC (also known as Event History Calendar) method involves a semi-structured interview schedule (Freedman et al., 1988). It elicits memorable and/or relatively easily recalled information of a personal nature, such as places of residence and birth dates of children, and uses this information to aid in the retrieval of less easily recalled information. As its name implies, the information elicited is laid out in a calendar format. The interview consists of questions organized into separate domains, such as geographic mobility (timing and location of moves), family (marriages and births), occupation (employment history, job titles), and so on. Depending on the topic of a study, pertinent domains are selected and ordered in such a way that the respondent would be asked first about more easily recalled domains, followed by questions about less salient domains (Freedman et al., 1988; McPherson, Popielarz, & Drobnic, 1992). A distinct strength of the LHC is its fit to the structures of individuals' autobiographical memories (e.g., having a combination of the chronological and theme-based organization), which encourages sequencing and parallel retrieval approaches. In addition, the calendar format makes it easier for both the respondent and interviewer to assess consistency and correct discrepancies, if any, of the reported timing of events during the interview.

Increasingly, the LHC method has been adopted as a data collection method for largescale population-based surveys on various topics in the United States: for example, a follow-up for the Epidemiologic Catchment Area Study (Lyketsos, Nestadt, Cwi, Heithoff, & Eaton, 1994); the Study of Income and Program Participation by the Bureau of Census (Kominski, 1990); and the Panel Study of Income Dynamics (Belli, Shay, & Stafford, 2001). The LHC also has been used successfully abroad: for example, in a study of fertility history in Nepal among women with limited degrees of literacy (Axinn, Pearce, & Ghimire, 1997) and a panel study of delinquency and violence, including partners' violence, among youth in New Zealand (Caspi et al., 1996; Magdol, Moffitt, Caspi, & Silva, 1998). The results of these studies indicate that the LHC elicits high-quality retrospective reporting. For example, in a panel study by Caspi and colleagues (1996), a 3-year retrospective report of living arrangements, cohabitation, schooling, employment, and job training for a given month obtained using an LHC had over 90% agreement with the report obtained at prior data collection. Ensel and colleagues' longitudinal study (Ensel, Peek, Lin, & Lai, 1996) found high agreement between retrospective and concurrent reports taken 15 years earlier with respect to the occurrence of life events, including marriages, divorces, and employment histories. Ensel and colleagues also found that when disagreement was observed between the retrospective data obtained through the LHC method and data obtained 15 years earlier, the former involved underreporting, which suggests that additional probes used in the LHC method are unlikely to lead to over-reporting.

The application of the LHC to a measure of domestic violence is likely to increase the quality of retrospective reports in several important ways. Because memories of personally experienced events that are thematically similar and/or sequentially proximal are stored together, and the LHC provides memory cues in the form of events in thematically linked life domains and a sequential timeline, this

match between the data collection method and the structure of memory should optimize respondents' recall of domestic violence victimization (Belli, 1998). The LHC also prompts more accurate recall of the timing of domestic violence victimization, largely because memorable events in other domains recorded in a calendar format provide the context within which the respondent can anchor the timing of events in question. This ability of LHC to elicit the timing of domestic violence victimization is critically important to examining the health impact of victimization, which must establish that the development of a health problem was subsequent to the victimization. An additional and important advantage of the LHC is that events in several life domains (e.g., a birth of a child, a change in residence or SES) not only can serve as memory cues for domestic violence victimization, but also represent factors correlated with both domestic violence victimization and health in women. In other words, the LHC method by design obtains information on the occurrence and timing of not only domestic violence but also events that affect the relationship between domestic violence and women's well-being. Clearly, the application of the LHC could improve the data quality substantially in studies of domestic violence and women's well-being.

DEVELOPMENT OF LIFE HISTORY CALENDAR OF DOMESTIC VIOLENCE (LHC-DV)

Applying the LHC method, we developed a face-to-face interview schedule, the Life History Calendar of Domestic Violence (LHC-DV). Approval was obtained from an institutional review board. A draft LHC-DV was developed drawing from previous studies (e.g., Axinn et al., 1997; Caspi et al., 1996; Freedman et al., 1988; Lyketsos et al., 1994) and professional consultations from experts in the field. Considering potential fatigue on the part of both the respondent and interviewer, coupled with our future plan to use the LHC-DV in a large-scale population-based survey, efforts were made to keep the administration of the LHC-DV to 40 to 60 minutes (an additional set of questions about the respondent's health and socio-demographic characteristics was projected to take another 20 to 30 minutes). A series of pre-tests were conducted with a convenience sample of approximately 25 women, during which period the draft LHC-DV was continuously revised and enhanced. The overall structure, format, organization, and contents of the LHC-DV, which are discussed below, were determined during this period.

Time Frame of Examination and Time Units

As in any survey, the specific timeframe of examination (i.e., the recall period, which may depend on the age of the respondent) depends on the study topic and research questions. Consistent with most population-based studies of domestic violence, we planned to fieldtest the LHC-DV with women between the ages of 18 and 54. With respect to recall period, many previous studies of domestic violence have examined the past-year victimization. However, because of our interest in women's lifetime experiences with domestic violence, our examination covered a period starting from the age at which the respondent began dating, generally between the ages of 12 and 18, resulting in a recall period of over 40 years for some respondents.

Subsequently, the unit of time appropriate to both the study topic and the timeframe of examination was selected. For this study, we chose one-year intervals as the time unit. The relatively long recall period to be covered in this study would make it difficult for the respondent to accurately recall a smaller time unit in which a particular event occurred. However, the LHC method does not necessarily

have to cover the respondent's lifetime as a reference period and can be applied to a study that covers a shorter reference period (e.g., the past 12 months or since the last data collection). In longitudinal studies, the LHC method may be used to collect the experiences of domestic violence since the last data collection. If a shorter time frame is used, smaller time units, such as months or weeks, can be used. For example, Kessler and Wethington's study of stressful life events (1991), which covered a recall period of 12 months, used three parts of a month (beginning, middle, and end) as the time unit.

Format and Organization of the LHC-DV

As shown in Figure 1, the calendar's two axes are time (X axis) and various life domains in which the respondent's experiences are examined (Y axis). Although any size calendar can be custom made, we chose to work with paper sizes commonly available in the United States. Four legal-sized papers (landscape) were taped together to form one large rectangle. Although a larger sheet of paper would have provided more space to record the respondents' answers, it would have been difficult to use in settings where large desk-top space is not available, as is common in many community-based surveys.

X Axis: Time.

Because we used one-year intervals, the widest recall period (43 years, for a 54-year-old woman who began dating at age 12) would require 43 columns in the calendar. The left-hand page covers ages 12 to 33, and the right-hand page covers ages 34 to 54. For respondents younger than 34, only the left-hand page is used. Every other column is color-coded to help distinguish them and to minimize the risk of recording events in the wrong column. The respondent's age and the calendar year are presented in the top two rows of the calendar. Both age and calendar year are used because each may prompt recall of different events for different respondents. For example, births of children may be better recalled in terms of the calendar years for some women, whereas graduation from schools may be indexed in terms of chronological ages. In this study, because the interviewer would not know the respondent's age prior to the interview, the calendar year row was left blank. The interviewer would ask the respondent's age at the beginning of the interview and fill in the calendar year that corresponded to it: For example, for a 30-year-old respondent, the interviewer would write the current year (e.g., "2000") in the column corresponding to age "30" and record all previous years by counting back from that year.

Y Axis: Domains.

Life domains listed on the Y axis are comprised of two sections. The first section consists of a preselected set of domains to serve as memory cues, and the second section pertains to domestic violence experiences (specific types of domains and their order are discussed below). This organization reflects the thrust of the LHC method, that is, to obtain information about memorable and/or easily recalled experiences in a number of thematic life domains and to use such information to assist the respondent's recall of events that are more difficult to remember. In this study, these events are experiences of domestic violence.

As indicated previously, the need to keep the interview length to 40 to 60 minutes limited the number of domains that could be used as memory cues. Based on a literature review and a series of pre-tests, we sought to identify domains of events that were likely to increase the respondent's recall of experiences of domestic violence. Because collecting data for the sole purpose of using them as memory cues would mean wasting valuable survey administration time, we tried to select events in

those domains that were conceptually and/or empirically linked to women's health and/or experiences of domestic violence (e.g., risk and protective factors for health or domestic violence).

The order of domains was determined based on the degree of sensitivity and relative difficulty of recall. In general, life domains were listed starting with those considered to be less threatening and/or sensitive to facilitate the development of rapport between the interviewer and respondent before asking more sensitive questions. We also strove to order the life domains from those that are more easily recalled to those that require more memory cues to recall.

For the field test, seven domains were selected and listed in the following order: residence (the timing of residential moves), schools attended, work history, births of children, financial difficulties (i.e., receipt of public assistance), relationship history (the initial or first name of a partner, the relationship duration, the level of sexual involvement, timing of cohabitation, marriage, separation, and divorce, if any), and pregnancy outcomes (e.g., miscarriage, abortion, stillbirth). In addition, respondents were asked to identify memorable and/or significant events in their lives other than those events in the preselected domains. These respondent-generated landmark events were recorded in the calendar so that they could serve as additional memory cues.

Depending on the nature of the domain, more than one row was provided to ensure sufficient space to record the occurrence of events. For example, multiple rows were needed for recording relationship history if the respondent had more than one relationship simultaneously. A specified event experienced by the respondent was recorded using an X in the column corresponding to her age (or the calendar year). For the Residence, Schools, and Work History sections, blank rows were provided to record descriptive information, such as places of residence (e.g., city), and types or names of schools attended and jobs held, which might help trigger the respondents' memory of other events. For certain domains, the type of event (e.g., pregnancy outcome, relationship characteristics) was recorded using predetermined coding: For example, cohabitation was coded C, marriage, M, and separation, S The duration of an event/experience (e.g., cohabitation) was denoted by drawing a straight horizontal line across columns.

Domestic Violence Victimization.

After answering questions about the preselected life domains, respondents were asked about experiences with partners' violence. As seen in Figure 1, Section II, 22 types of violence were listed in the far left column. They included physical violence (12 items) and sexual violence (2 items), as well as threats and harassment such as stalking or interference in the respondent's work and/or school (8 items).¹ Each specific type of violence was written in a separate row. Two additional rows were provided to record types of violence reported by the respondent that were not included in the pre-identified types.

For each intimate relationship mentioned in the previous section of the interview, the respondent was asked whether she had experienced each specific type of violence. If so, information about the year (or her age at the time) of the first episode of a given type of violence and whether it also happened in subsequent years was obtained. The interviewer recorded the initial (or first name) of the partner who perpetrated a given type of violence in the column corresponding to the age of victimization. By using the horizontal axis of time, vertical axis of types of violence, and the partner's initial, the LHC-DV

obtained information on who perpetrated what type of violence when. If the respondent reported any type of violence in a given relationship, she was asked whether she sustained injuries, sought medical care, obtained a restraining order, reported it to the police, or left home. If she answered "yes" to any of these, the timing of those events was also obtained.

CHALLENGES FACED AND STRATEGIES USED

There were many challenges involved in applying the LHC method to assess the lifetime domestic violence experience. These challenges can be organized into the following three, somewhat interrelated, aspects: the subjectivity of personal experiences, the complex sequencing and non-discrete nature of certain life experiences, and variations in individuals' recall approaches. Some aspects of the challenges are germane to research on personal experiences in general, and others are unique to research on domestic violence.

Subjectivity in Definition

Definitions of most, if not all, life events vary by individuals. For example, when asked about their work history during pre-tests, some respondents offered information regarding every volunteer and wage-earning job since childhood, including occasional baby-sitting. Others limited themselves to long-term hourly jobs and salaried positions. Similar variations in definition were observed with respect to the respondents' schooling history.

Variations in definitions of a relationship were particularly salient to this study of domestic violence. Most previous studies of domestic violence examined victimization in the past year among women currently married or in a cohabiting relationship. In contrast, because of our interest in the lifetime experience of domestic violence, we planned to ask the respondent to report all relationships she had had and ask whether she had experienced a partner's violence in each of them. This approach required us to define "relationship." Previous researchers have operationalized a relationship using multiple criteria, including the nature (e.g., sexual involvement or exclusive/steady nature) and the duration of the relationship (e.g., 3 months or longer). While such operationalizations are helpful in standardizing the types of relationships to be reported by the respondents, in our study this would result in excluding some relationships in which violence may have taken place.

After extensive discussion, coupled with pre-tests and professional consultation, we decided to ask the respondent to report all relationships according to her definition. For each relationship mentioned, the respondent was asked the initial (or first name) of the partner; the duration of the relationship; the timing of cohabitation, marriage, separation, and divorce if any; and the degree of sexual involvement. A period when the respondent was dating but with no specified individual was recorded as a dating period (DP) instead of with the partner's initial (or first name); the duration and the degree of sexual involvement were also assessed for each DP reported. One advantage of this approach is the ability to examine the occurrence of partner's violence in relationships that have seldom been examined in previous studies. In addition, because the duration and characteristics of the relationship were obtained, the likelihood of partners' violence in specific subtypes of relationships (e.g., cohabiting relationships or relationships longer than 6 months) can also be examined, which may be useful in comparing the results of this study to those of other studies.

Complex Sequencing and Nondiscrete Nature

The nondiscrete nature of relationships was related to their subjective nature. Some relationships may be off and on. After a relationship is over, legally or otherwise, one may continue to have contact with an ex-partner through children or for other reasons. Considering the high risk of domestic violence victimization after separation from an abusive partner (Fleury, Sullivan, & Bybee, 2000), the respondent was asked whether she had ongoing contact with any of the ex-partners, and if so, she was asked about any violence experienced not only during the relationship but also after the separation. One may be involved with multiple partners simultaneously. Or because one year was used as the time unit, if a respondent ended a relationship some time in a given year and began another relationship subsequently but in the same year, it would appear on the calendar as if she had two relationships simultaneously. Multiple rows were provided to allow recording of multiple relationships that the respondent had within the same year.

Episodes of domestic violence represent the epitome of nondiscrete events. Violence may occur off and on, and multiple types of violence may occur at the same time, or occur sequentially. In some years, violence is more frequent than in others. It is difficult for most respondents, especially those who experienced violence in their remote past and/or who experienced repeated victimization over a period of time, to remember the exact timing or frequency of specific types of violence a partner perpetrated in a given year. This reality required us to balance the specificity of data desired for precision in statistical analysis with the level of specificity we could expect respondents to remember.

Variations in Recall Approaches

Although researchers have consistently found that people remember past events better when they are anchored to other memorable experiences (e.g., Conway & Bekerian, 1987), no single set of memory cues works for everyone or for every type of event. It was apparent from the pre-tests that people used different approaches to recall events. For some respondents, events in the work domain were more salient than those in schooling when it came to remembering domestic violence episodes. Some respondents chose to report the timing of some events using chronological age, and others using calendar year. We addressed this challenge of accommodating idiosyncratic retrieval approaches in a number of ways. The use of both the calendar year and chronological age was one attempt to provide choice in memory cues. As described previously, the respondents were asked to generate their own personal landmark events as memory cues in addition to events in the preselected domains.

During the pre-tests, it took a number of respondents an extremely long time to complete the first part of the calendar (domains that serve as memory cues). It was particularly difficult for those respondents who have had numerous residential moves or jobs, for example, to recall all the places of residence or jobs. These respondents (and often interviewers as well) became frustrated and/or tired at the early stage of the interview. A delicate balance had to be struck between eliciting detailed information on events in various life domains so that they could serve as memory cues for domestic violence victimization, and not spending too much time and energy in this process. Thus, if the respondent had difficulty remembering the timing and places in the Residence, Schools, and Work History sections, the interviewer was instructed to solicit summary information, such as how often the respondent moved, or whether or not she was in school or working in a given year. In addition, if the respondent had difficulty remembering the name of a city or street, characteristics of a house or apartment (e.g., a

yellow apartment building) were recorded instead. These strategies allowed interviewers to obtain types of information that particular respondents were capable of remembering and to use such information as memory cues.

FIELD TESTING

After a series of pre-tests and revisions, the LHC-DV was field tested in the spring of 2000 with low-income women who were selected randomly from a list of welfare recipients residing within two zip codes in a large urban county in a midwestern state. After sending an introductory letter, an interviewer contacted them in person or by telephone. Written informed consent was obtained at the beginning of the interview. Of the 42 women who completed the interview, 40 were re-interviewed 2-3 weeks later. The first interview consisted of the administration of the LHC-DV as well as a questionnaire, which included questions on the respondent's sociodemographic and other characteristics, health status, and perceptions about the LHC-DV. The second interview consisted of the administration of the LHC-DV and a shorter questionnaire that contained only questions on the respondent's perceptions of the LHC-DV. Both interviews were tape-recorded. Respondents received \$20 and a list of assistance programs at the end of the first interview and \$30 at the end of the second interview. After each interview, the interviewer completed a brief questionnaire about her perceptions of the effectiveness of the LHC-DV for the specific respondent. This article presents findings based on those 40 women who completed two interviews.

Development of Written Instructions and Interviewer Training

Ensuring certain degrees of standardization was no easy task in a study aimed at capturing the complex sequencing of events in various domains and domestic violence victimization. For the field test, written instructions were developed that described how to elicit and record the respondent's experiences in a given domain. Instructions for each section begin with section objectives, followed by an introductory statement to read and a set of questions to use. Coding, recording, and skip instructions were also included. Each section in the instructions ends with points check to help the interviewer ascertain that all necessary information has been obtained before moving to the next section.

Two female interviewers were recruited for this study from a pool of trained interviewers at a survey institute of the authors' university. They participated in one-and-onehalf days of training prior to the beginning of data collection. Because both interviewers had been trained on general interviewing techniques and had worked previously in faceto- face interview studies of domestic violence and women's mental health, the training for this study focused on the specifics of administering the LHC-DV, rather than providing general information on, or sensitizing the interviewers to, domestic violence and mental health issues. This initial training consisted of an overview of the study, a role-play demonstration of how to administer the LHC-DV, didactic instructions on how to administer the LHC-DV and the questionnaire, and practice interviews. The first five interviews completed by each interviewer were reviewed by the project staff, and detailed feedback was provided both verbally and in writing. In addition, the project staff and interviewers held conference calls to discuss and troubleshoot interview administration every week for the first 2 months and less frequently afterwards. Approximately 1 and a half months after the data collection began, a follow-up training meeting (1 half day) was held. Throughout the study period, a clinical social worker with expertise in mental health

surveys was available for the interviewers and respondents to provide consultation and assistance in dealing with distress and other emotional difficulties they might experience.

Respondents' Characteristics and Perceptions of LHC-DV

The respondents' ages ranged from 18 to 50 ($M = 33.4$, $SD = 7.5$). Of the 40 respondents, 38 identified themselves as African American, one respondent identified herself as White, and the remaining one as mixed race. The respondents had an average of 3.3 children (range 1-7); they had their first child at age 18 on average ($SD = 2.0$). The mean number of years of schooling the respondents completed was 11.8 ($SD = 1.6$, range 8-15), with the majority (70%) having earned a high school diploma or GED. At the time of the interview, one in five respondents was attending a school or training program. The average length of the LHC-DV in the first interviews was 56 minutes ($SD = 24.3$, range 23-140), and in the second interviews it was 55 minutes ($SD = 28.1$, range 15-145). The length of the LHC-DV was positively associated with the respondent's age in both interviews.

Respondents were asked to rate the degree to which events in specific domains were difficult to remember on a 5-point Likert-type scale ranging from 1 "not at all" to 5 "extremely" (Difficulty Ratings). Using the same 5-point scale, respondents rated the degree to which events in specific domains were helpful in remembering partners' violence (Helpfulness Ratings), as well as the overall effectiveness of the LHC-DV. Table 1 presents mean scores for Difficulty Ratings (Panel A), mean scores for Helpfulness Ratings (Panel B), and the overall perceived effectiveness of LHC-DV (Panel C). For each rating score, correlation (r) with the respondent's age and the length of LHC-DV are also presented. In general, respondents reported low degrees of difficulty in recalling events in the pre-selected domains (range 1.1 - 2.1 on a 5-point scale). Among the lowest in both the first and second interviews was the perceived difficulty of remembering domestic violence experiences. Respondents also rated schools attended and children's birth dates as not so difficult to remember. In comparison, residences and work history were rated, on average, as more difficult to remember. The timing of relationships was rated as most difficult to remember; nevertheless, the average difficulty ratings of 1.9 (first interviews) and 2.1 (second interviews) indicate "slight" difficulty. Age was not significantly associated with the degree of perceived difficulty in any domain; however, the length of the LHC-DV was positively associated with Difficulty Ratings for work history, the timing of relationships, and names/initials of partners in the first interviews, and for the timing of relationships in the second interviews.

The difficulty in remembering was not necessarily related to helpfulness in prompting the recall of domestic violence (see Table 1 Panel B). For example, in the first interview, respondents rated residence and work history relatively more difficult to remember; however, they considered residence as the most helpful, and work history as the least helpful, in remembering their experiences of domestic violence. Helpfulness Ratings for residence and names/initials of partners were among the highest in both the first and second interviews. Respondent-generated landmarks (other significant life events) also had high Helpfulness Ratings ($M = 3.0 - 3.2$). There were no significant relationships between the length of the LHC-DV and Helpfulness Ratings in any domain. Overall, respondents rated the LHC-DV as effective in both interviews ($M = 3.8$ and 4.0 , respectively). Neither the respondents' ages nor the lengths of the LHC-DV were significantly associated with their perceptions of the overall effectiveness of the LHC-DV.

At the end of the interviews, respondents were asked what changes should be made to the LHC-DV. While over three quarters of the respondents suggested no change, five women suggested shortening the interview length. One respondent suggested expanding the timeframe of the calendar and beginning at an age younger than 12. Two respondents provided suggestions for additional types of events to cover, including abuse during childhood and "happy events."

Interviewers' Perceptions of LHC-DV

Table 2 presents interviewers' observations of the respondents' reactions to the LHC-DV (Panel A) and interviewers' perceptions of the effectiveness of the LHC-DV (Panel B). According to the interviewers, the respondents for the most part were interested in the LHC-DV and serious about recalling events in their lives during both the first and second interviews. Interestingly, the older the respondents, the more frequently they referred to the calendar. On average, respondents were observed to be less than "slightly" confused or frustrated (mean ratings 1.4-1.9 on a 5-point scale). The perceived degree of confusion was positively associated with the length of the LHC-DV in both the first and second interviews. The longer the LHC-DV took, the more difficult the interviewer considered the administration of the LHC-DV ($r = .39$ and $.74$ for the first and second interviews). In contrast, the overall perceived effectiveness of the LHC-DV was not associated with the length of the LHC-DV or the respondents' age.

Assessment of Reliability and Validity

Based on the information collected using the LHC-DV, the following continuous variables pertaining to the respondents' experiences with partners' violence were created: the number of partners who perpetrated some type of violence and the age at which the first and last incidents of physical violence, sexual violence, and threats/harassment occurred. In addition, three dichotomous variables of whether respondents reported any physical violence, sexual violence, and threats/harassment were created. Test-retest reliability was assessed using the following measures of association. For continuous variables, Pearson product-moment correlation was calculated between data obtained in the first and second interviews. For dichotomous variables, simple kappa (k) was calculated to assess the degree of agreement between data obtained in the first and second interviews. The simple kappa coefficient takes a value between 0 and 1 and is an index of the level of agreement between two interviews beyond what would be expected by chance (Agresti, 1990; Cohen, 1960). A value of 0 indicates that the agreement is by chance only, and a value of 1 indicates complete agreement. Percent of agreement across the first and second interviews was also calculated.

On average, respondents reported having had six partners in the past (range 1-14), two of whom were reported to have perpetrated some type of violence against the respondent in the past. The degree of agreement in the number of abusive partners was high between the first and second interviews ($r = .80$). As shown in Table 3, the level of agreement between the two interviews was high for whether the respondent reported physical violence (95%), sexual violence (80%), and threats/harassment (90%) (? range .53-.71). Correlation (r) of the timing of the first incident between the two interviews was .92 for physical violence, .59 for sexual violence, and .62 for threats/harassment. Higher correlation was found for the age at the last incidence of violence between the two interviews ($r = .92, .68, \text{ and } .84$, respectively). The observed agreement in the reports of the timing of victimization was much higher

than the agreement found in a previous examination of the age of first arrest (Henry, Moffitt, Caspi, Langley, & Silva, 1994) or the age of onset of mental disorders (Wittchen et al., 1989).

Only three respondents reported experiencing types of partners' violence other than the pre-identified 22 types, indicating that the pre-identified items cover the range of manifestations of partners' violence fairly well.² The construct validity of the LHC-DV was assessed by examining the degree to which the respondents' reported domestic violence experience was associated with variables that are theoretically and/or empirically predicted to be correlated with domestic violence (Cronbach, 1970; Nunnally, 1978). Those respondents with a history of childhood physical abuse reported a significantly larger number of abusive partners (3.6) than did those without such history (2.1) ($t = 3.10, p = .002$). An association between childhood abuse and partners' violence is consistent with social learning theory and with empirical findings in general, such as the findings from a study of similar low-income single mothers in a midwestern state (Yoshihama, Tolman, & Gillespie, 2002). In addition, consistent with the literature, the reported level of health problems was higher among those respondents with a reported history of partners' physical violence ($t = 5.93, p < .001$), sexual violence ($t = 2.93, p = .006$), and threats/harassment ($t = 1.98, p = .06$) than those without a victimization history. The reported levels of health problems were also positively correlated with a number of indicators of the severity of domestic violence (e.g., medical care sought as a result of domestic violence, restraining order sought, and the report to the police).

SUMMARY AND IMPLICATIONS FOR FUTURE STUDIES

Taped interviews revealed that both the interviewer and the respondent actively, and often spontaneously, used the calendar to remember events in question or to identify and correct discrepancies in the time sequence of events. For example, one respondent reported having been pregnant during a period in which she reported no intimate relationship. The interviewer noticed this discrepancy and probed for more information. In another example, many consecutive blank columns in a particular domain (e.g., work history, relationships) prompted the interviewer to probe whether blank columns accurately represented the absence of experience in that domain or indicated that there were unreported events.

It should be noted that, although it is not unique to this study, the association between data obtained in the two interviews may have been influenced by a number of factors. For example, participation in the first interview may have triggered the respondent's memory of previously forgotten events, and thus, additional events may have been reported at the second interview. The respondent's report in the second interview may be affected by what she remembers having reported in the first interview. In the second interview, a respondent may also choose not to disclose what she had disclosed in the first interview for a variety of reasons, such as distress experienced at disclosure, or a desire to shorten the interview length. Alternatively, the difference in the respondent's report may be a true reflection of changes in her life condition between the two interviews. In fact, one respondent was pregnant at the time of the first interview, and she delivered a baby before the second interview.

The unique characteristics of the respondents limit generalizability. Because the respondents for this study were low-income single mothers aged 18-50 in a large city, the findings are not generalizable to women across socioeconomic statuses, age groups, or geographic areas. Certainly, the feasibility and

effectiveness of the LHC-DV must be investigated prior to using it with other population groups. For use with older women, for example, not only is age likely to influence the degree to which the respondent remembers past events, but also different types of life domains may be appropriate to be used as memory cues.

In this study, many respondents had frequent residential moves and interruptions in their schooling and work history, which are characteristics common to women who have experienced partners' violence (Sullivan, Campbell, Angelique, Eby, & Davidson, 1994). Although these characteristics posed a challenge and prolonged the administration of the LHC-DV, an encouraging finding is that the interview length was not associated with the respondents' nor the interviewers' perceptions of the effectiveness of the LHC-DV. The strengths of the LHCDV lie in its ability to provide multiple memory cues and the use of a calendar format that facilitates consistency checks in the reported timing of various events. Given the successful application of the LHC to this highly mobile population, the LHC-DV may also be applied successfully to the general population of women. Taken together with the observed reliability and validity, and the assessment by respondents and interviewers, this field test provides encouraging data that indicate the feasibility and effectiveness of the LHC in a study of domestic violence. With additional refinement, the LHC method may be used in larger studies of domestic violence and mental health over the lifecourse.

NOTES

1. The random sample of women in this study was drawn from the same sampling frame used by another study, which was being conducted in the same locality at about the same time. To allow for the future possibility of comparing the reported rates of domestic violence victimization using the Life History Calendar method and that using a conventional question format, we used the same set of 22 types of violence as this other study.
2. It should be noted, however, that regardless of whether the Life History Calendar method or other conventional questionnaire methods are used, behavior-specific questions pertaining to various types of acts committed do not capture subjective experiences of terror. The absence of abusive acts committed does not necessarily mean that a given relationship is not abusive. For example, some partners may use violence early in a relationship, instilling a sense of terror in women. As a result, the partner may not feel the need to resort to violence any more, while women remain in a state of terror and intimidation.

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Sample ID:	Interviewer Name								Interviewer #					Interview Date				
AGE	12	13	14	15	16	17	18	29	30	31	32	33	29	30	31	32	33	
YEAR																		
1. Residence																		
2. School																		
3. Work																		
4. Financial difficulty																		
5. Children																		
6. Other Significant Life Events																		
Relationship History																		
7. First Name																		
8. S. CMSD/Wave																		
10. Relationship Category (A-F)																		
First Name																		
Length of relationship																		
CMSD/Wave																		
Relationship Category (A-F)																		
First Name																		
Length of relationship																		
CMSD/Wave																		
Relationship Category (A-F)																		
11. Frequencies (1-5)																		
AGE	12	13	14	15	16	17	18	29	30	31	32	33	29	30	31	32	33	
YEAR																		
B.V.																		
1) Threatened to hit you?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2) Thrown anything at you?	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3) Pushed, grabbed, or shoved?	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
4) Slapped you?	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
5) Kicked you?	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
6a) Hit you with his fist?	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
6b) Hit you with an object?	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
8) Stamped you against a wall?	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
9) Beat you?	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
10) Choked you?	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
11) Threatened to use a knife or gun?	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
12) Used a knife or gun?	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
13) Used force to make you have sex?	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
14) Held on sex, but not force?	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
15) Threatened to take children?	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
16) Threatened to harm family?	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
17) Made you do illegal things?	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
18) THREATENED to harm you into CPS?	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
19) Harassed you at work?	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	
20) Harassed with your work, harassing, without?	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
21) Harassed you or upset on...	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
22) Harassed you at home?	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
23) Emotional Abuse?	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
24) Other violence?	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
25) Injury / ER	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
26) Medical attention	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	
27) Professional help	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
28) Receiving Order	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
29) Police	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	
30) Left home	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	

Figure 1. Life history of domestic violence (ages 12-33)

			Respondents' Age	LHC-DV Length			Respondents' Age	
	<i>M</i>	<i>(SD)</i>	<i>r</i>	<i>r</i>	<i>M</i>	<i>(SD)</i>	<i>r</i>	<i>r</i>
A. Respondents' Reaction to LHC-DV								
Interested	3.74	(.50)	.20	.37*	3.79	(.66)	-.11	-.21
Serious about recalling events	3.72	(.72)	.01	.04	3.66	(.88)	-.08	-.13
Referred to the calendar to remember other events	3.08	(1.12)	.32*	.28	2.53	(.86)	.35*	.26
Confused	1.92	(.96)	-.02	.35*	1.79	(.87)	.18	.34*
Frustrated	1.51	(.79)	.19	.33*	1.39	(.68)	.07	.30
Tired	1.26	(.64)	.37*	.28	1.26	(.50)	.32	.13
Had difficulty in remembering events	1.97	(.90)	.21	.24	2.05	(1.09)	.09	.36*
Uncomfortable in reporting domestic violence victimization	1.44	(.79)	-.04	-.24	1.50	(.89)	.18	-.04
Impatient to end the interview	1.39	(.79)	.27	.24	1.32	(.84)	-.08	-.03
B. Interviewers' Perceptions of LHC-DV								
Difficulty administering LHC-DV	2.05	(1.07)	.30	.39*	1.92	(1.05)	.34*	.74***
Overall effectiveness of LHC-DV	3.08	(1.06)	.29	.21	2.64	(1.01)	.29	-.18

^ 1 = "not at all," 2 = "slightly," 3 = "moderately," 4 = "quite a bit," 5 = "extremely."

r = Pearson correlation coefficient.

* < .05. ** < .01. *** < .001.

Table 3. The Degree of Association Between the First and Second Interviews.

% Experienced Victimization					Age at First Incident				Age at Last Incident		
	1st Int. %	2nd Int. %	κ	% In Agreement	1st int. <i>M (SD)</i>	2nd int. <i>M (SD)</i>	<i>r</i>	1st int. <i>M (SD)</i>	2nd int. <i>M (SD)</i>	<i>r</i>	
PV	90.0	92.5	0.53	95.0%	18.44 (3.18)	19.38 (4.13)	0.92***	28.19 (8.10)	27.76 (7.76)	0.92***	
SV	57.5	62.5	0.58	80.0%	22.61 (6.79)	21.00 (7.07)	0.59***	27.00 (7.55)	26.48 (9.04)	0.68**	
T/H	75.0	80.0	0.71	90.0%	19.97 (3.43)	21.84 (6.64)	0.62***	28.86 (7.14)	28.00 (8.26)	0.84***	

Note. PV = physical violence; SV = sexual violence; T/H = threats/harassment; κ = kappa coefficient; *r* = Pearson correlation coefficient. * < .05. ** < .01. *** < .001.