# Reports of relationship timing: Missing data and couple agreement

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In studying changes in family formation over time, social researchers and demographers have primarily relied on retrospective and prospective marital and cohabitation histories collected from surveys. With the increasing use of these types of retrospective questions in surveys, social researchers have now begun to pay more attention to the quality of the data and the degree of accuracy with which respondents are able to remember past events. The purpose of this paper is to explore the incidence and demographic and socio-economic correlates of recall error and inaccuracy of reporting of marriage and cohabitation dates. In the first part we investigate the degree of precision with which dates are remembered using both descriptive and multivariate analysis. We then compare married and cohabiting partner's reports about when their relationship started in order to check the consistency of with which both partners date the same event.

**Keywords:** Survey, recall error, retrospective data

## Introduction

Much of life-course research relies on survey data in which respondents are asked to recall the date or age at which a particular biographical event in their life, for example getting married or having a child, took place. Such data is commonly used either as an independent or a dependent variable (Manning and Smock 2005) to study individual level differences in the timing or duration of events. With the increasing use of these types of retrospective questions in surveys, social researchers have now begun to pay more attention to the quality of the data and the degree accuracy with which respondents are able to remember details about the outcome of interest. Such investigations are important because misreporting of dates may affect results from event history models (Courgeau 1992), and can affect causal research by disturbing the correct sequencing or temporal order of events (Mitchell 2010:898).

The purpose of this paper is to explore the incidence and correlates of recall error in life-course research, focusing in particular on the accuracy of reporting of marriage and cohabitation histories. Over the past few decades substantial societal changes have taken place in the area of family and relationship formation and dissolution including the decline and delay of marriage, the increasing popularity of cohabitation and increased rates of marital dissolution and non-marital childbearing (Casper and Hofferth 2007). To study these changes social researchers and demographers have primarily relied on survey data containing retrospective and prospective marital and cohabitation histories.

This paper gives a background to the characteristics of relationships which are thought to be associated with recall accuracy, and to the demographic correlates that have been found to be associated with memory. Two different types of evidence of accuracy in recalling relationship events are then examined. In the first part we investigate the degree of precision with which both current and past marriages and cohabitations are remembered. In the second part, we examine the extent to which two individuals in a married or cohabiting couple provide consistent dates when asked separately about the date that their relationship started. In all instances we use multivariate models to investigate any possible demographic and socio-economic correlates of error in dating of events, because it would be of particular concern if individuals with response error differ from those who are able to recall dates with accuracy (Mitchell 2010).

## Background

The ideal situation for life course researchers working with survey data would be to have complete and accurate dating of the particular events of interest, for example relationship histories, including both the month and year that every episode of interest started and ended. In reality however, it can be very difficult for survey respondents to fulfil these ideals and survey researchers have identified several types of recall errors that respondents may make: temporally displacing events, forgetting date or duration details or even forgetting or omitting entire events (Gaskell, Wright and O'Muircheartaigh 2000:77). The following section summarizes the main characteristics of events which are thought to be associated with event recall accuracy and outlines how these factors can be specifically related to the recollection relationship start and end dates. Furthermore demographic and

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socio-economic variables, as well as characteristics of the survey, which may affect recall accuracy are also explored.

## Characteristics of the event

There are various theories and considerable debate among memory researchers, regarding the structure and organizing principles of autobiographical memory and the process by which memories of particular events are retrieved (see Tourangeau, Rips and Rasinski 2009). There is however considerable consensus that certain factors including the length of time since the event of interest, the number of similar events that have taken place, as well as the distinctiveness and emotional impact of the event do affect the ease with which temporal memories are able to be recalled (Tourangeau et al. 2009).

In general with the increasing passage of time, it becomes harder to remember past events or specific details about them. This effect of time may be relevant for the recall of all types of relationships including both the start and end dates of marriages and cohabitations. The interference hypothesis posits that it is not the passing of time per se that affects recall, but rather that as time passes so does the likelihood that similar types of events take place and that it then becomes more difficult to distinguish and recall specific events (Tourangeau et al. 2009:82). The interference caused by multiple events of the same type may be particularly pertinent for the retrieval of certain types of autobiographical memories that occur frequently, for example doctors' visits, but it is less likely to apply to relationships which are only experienced a few times in a person's lifetime. Nevertheless individuals with more complex relationship histories who have experienced multiple cohabitations and or marriages may find that while they might remember the number and sequence of their relationships specific details about each one might become more difficult to recall, over and above the difficulty that would be normally experienced with the passage of time. In a study of recall accuracy in reporting of divorce dates, Mitchell (2010) found some support for the interference hypothesis in that respondents who had already had at least one previous divorce were more likely to misreport the date of their most recent divorce.

Also of relevance to the ease with which memories can be retrieved is the distinctiveness and emotional impact of an event. More important and atypical events are more likely to be easily retrieved because they are more likely to be noticed and encoded at the time they occur, and afterwards they are also more likely to be talked about or 'rehearsed' (Tourangeau et al. 2009). If an event date is not frequently rehearsed and automatically recounted survey respondents may instead need to reconstruct the date at the time of the interview using some retrieval strategy or estimation process such as trying to place the event with reference to another 'landmark' event (Wu, Martin and Long 2001:524).

There are several distinct features of marriages that predict that their dates should be remembered with great accuracy and little respondent burden during a survey. Marriages are associated with a single and celebrated date, the wedding, and furthermore many married couples frequently celebrate this date on an annual basis at the time of their anniversary (Peters 1988). Unlike the start date of a marriage however, the end date may be not be remembered as easily. The date of separation may be difficult to recollect because separation is often a process rather than a one off event, and furthermore multiple separations and reunions may have occured before the final separation (Mitchell 2010). Similarly while the granting of a divorce is technically associated with a particular date in time, it is also in many ways a process which can be of considerable duration. The date a divorce was granted is also not usually celebrated and remembered on an annual basis (Bumpass and Raley 2007).

While survey questions collect data on cohabitation histories in much the same way as marital histories, treating both as having discrete starting times, Manning and Smock (2005) observe that unlike marriage cohabitation usually lacks a defining point in time which marks the start of the union. Instead the movement into cohabitation is described as a 'gradual or unfolding process that occurs over a week or even months' with partners usually spending more and more time at each other's places of residence (Manning and Smock 2005:994-995). The difficulty of trying to recall or define a start time to their cohabitation is evidenced by the fact that, out of the 115 respondents in their study only 14 per cent could report the month and year that they had started living with their partners, and many spent a considerable reconstructing the date based on other memories. Other studies also report a high percentage of respondents that do not know the month their most recent cohabitation started or ended (Pollard and Harris 2007).

In many ways cohabitation is an 'incomplete institution' in that there are few socially agreed upon standards governing it (Nock 1995). This includes a lack of standard regarding the measurement of when a relationship formally started. The absence of such a standard or well defined starting point means that depending on the situation people may have different views on when they started living together. One partner may view that the cohabitation started when they first started spending at least one night a week at their partner's house, while the other partner may define the start date as they day they moved all their belongings to their partner's house or the day they signed a joint lease.

## Characteristics of respondent

*Gender differences.* There is a popular cultural stereotype that women are better at remembering things compared to men (Ross and Holmberg 1992). For example, Skowronski and Thomspon (1990:372) note that in advertising males are often shown forgetting the date of critical events (birthdays, anniversaries etc.) while similar behaviour is rarely shown for females. While earlier research on sex differences in recall did not reveal any systematic sex differences more recent studies provide evidence that the stereotypes may be true (Skowronski and Thompson 1990; Ross and Holmberg 1992; Pillemer, Wink, DiDonato and Sanborn 2003). In terms of accuracy of dating relationships, which is the focus

of this paper, most studies which include both male and female respondents find a consistent gender effect with women being more accurate and reliable at dating the start or end of their relationships (Poulain, Riandey and Firdion 1992; O'Connell 2007; Mitchell 2010).

If women do have a distinct memory advantage, the precise reasons or mechanisms behind this advantage are still not yet fully understood (Herlitz and Rehnman 2008). Possible sex differences can be occurring at any of the multiple stages of information processing relating to memories, including initial encoding, organization, retrieval and response generation (Siedlitz and Diener 1998:263). For example women may experience greater initial encoding of memories (Siedlitz and Diener 1998) and they may place greater value on, and spend more time purposefully reminiscing about the past (Ross and Holmberg 1992; Pillemer et al. 2003). In discussing sex differences most authors are tentative about the reasons behind the differences, noting that like all sex differences, differences in recall vividness or accuracy are likely to result from both cognitive biological as well as psychosocial factors including early learning and gender role socialization (Ross and Holmberg 1992; Siedlitz and Diener 1998; Pillemer et al. 2003). There may be a cultural expectation that women should be 'interpersonal historians' and the common stereotype that women are able to remember events better can in turn also affect behaviour so that men make less effort in remembering events because they rely on the women to do the remembering (Ross and Holmberg 1992).

*Age*. There is mixed evidence in the literature about the effect of ageing on the quality of autobiographical memory. While many memories are prone to lose specificity and detail with age, elderly people are thought to keep a selected sample of memories in their 'original vividness and detail' (Cohen 1998:12). These specially selected memories are frequently rehearsed and are used to maintain a person's identity and self-concept (Cohen 1998; Alea and Vick 2010). If weddings are part of the select sample of memories kept in great detail by the elderly, and possibly frequently rehearsed when reminiscing alone or with friends and family then we would expect little or no age differences in recall of these events. On the other hand, the end of marriages might be more likely to be forgotten with increasing age. Due to the recent emergence of cohabitation, there are not expected to be many cases of elderly individuals who experienced cohabitation in their youth. However they may be currently cohabiting.

*Education*. Finally, another variable which has been found to be related to the accuracy of recall is education, taken as a proxy for socio-economic status (Herrmann and Guadagno 1997). Studies have found that highly educated women are less likely to report inconsistent marital histories across waves of a survey (Peters 1988) and that more educated respondents are less likely to misreport their divorce date (Mitchell 2010). The reasons behind this effect are unclear; it could be due to differences in the quality and level of education which may affect memory retention, or to less direct influences such as variations in physical health or emotional adjustment across socio-economic status which in turn may affect memory (Herrmann and Guadagno 1997:117-118).

## Characteristics of the survey

The effort respondents put in to answering questions about relationship dates, and the ease with which they are able to recall events may also to some extent be influenced by characteristics of survey and the design of the questionnaire. An important aspect of the survey design is whether relationship dates are collected by a list of standard questions, or by an event-history calendar. Unlike the typical questionnaire design where respondents are asked a list of questions, for example the dates of every marriage they have experienced, the event-history calendar uses a central timeline from a predetermined starting point (e.g. from birth, or for the previous 10 years) and respondents are asked to indicate the timing of various events across different domains of life for example employment, education, residence, relationship and family formation since the beginning of the timeline. Event-history calendars are specifically designed for collecting calendar time information and they have been shown to significantly enhance the quality of retrospective factual data including relationship dates (Belli, Shay and Stafford 2001; Belli, Smith, Andreski and Agrawal 2007).

## Previous studies

In recent years there has been increasing interest in assessing the quality of retrospective and prospective relationship data (Teitler, Reichman and Koball 2006; Bumpass and Raley 2007; O'Connell, Gooding and Ericson 2007; Pollard and Harris 2007; Hayford and Morgan 2008; Mitchell 2010). Some studies have focused on the issue at a more general level for example by reviewing estimates of cohabitation derived from different surveys (Hayford and Morgan 2008). Others have looked more specifically at the incidence of misdating of events, either as a central or incidental part of their research. The studies which have looked specifically at misdating of events have used three different approaches to check the accuracy of the data provided by respondents.

The most direct method of checking for dating errors has been to compare dates as reported in a survey with external, usually administrative, data. Due to the significant data requirements required for such an exercise this method has only been used by a few studies. Recently, Mitchell (2010) studied both non-response and date misreporting errors by comparing matched survey and divorce certificate information from the 1995 Life Events and Satisfaction Study. Similarly Belgian register data was used to assess the level of accuracy with which individuals recalled a number of events, including their date of marriage (Poulain et al. 1992).

Another method of checking data quality has been to compare contemporaneous versus retrospective reports about a particular union (Belli et al. 2007). For example in the United States, Teitler et al. (2006) compared contemporaneous and retrospective reports of cohabitation among unmar-

ried mothers in the Fragile Families and Child Wellbeing survey and found that respondents made considerable revisions in their reports as to whether or not they were cohabiting at the time of the birth of their child, when asked at two different times: at the time of the actual birth and retrospectively around one year later. Peters (1988) used a similar approach when comparing retrospective and prospective marital histories as reported by women across waves of the National Longitudinal Surveys of Work Experience.

The third way to check recall accuracy is to check the degree of consistency with which partners date the same event (Poulain et al. 1992; Auriat 1993). In general there are four possible response outcomes:

Match:

1. both partners report the same date and both dates are true or correct
2. both partners report the same date and but both dates are *incorrect*

Dates do not match:[1]

3. One partner gives a correct date, one partner gives an incorrect date
4. Both partners give different and incorrect dates

Unlike the first method, this method does not allow researchers to know whether a date is true or false however. For example if both partners reported different dates, it is not impossible to tell whether one of these is correct or whether both are incorrect. It should also be noted that these four scenarios are relevant for both cohabitations and marriages, however for cohabitations there is also the additional possibility that both partner's gave different dates but that these dates were both correct, in the sense that the partners simply had different ways of judging when the cohabitation started. The partner consistency method can only be used in surveys where both partners are interviewed and asked the same sets of questions and it can only be used to check the consistency of reports regarding the current relationships. It cannot be used to check the degree of inconsistency in relationship histories which are not common to both partners.

In this paper we assess the level of misreporting of relationships in two ways. Firstly we directly examine the percentage of respondents who are unable to recall the exact date at when specific relationship events took place. Secondly, for current relationships we investigate the degree of partner consistency in the reporting of the start date of their relationship. Unlike other studies which focus on just one type of relationship, for example only marriages or only cohabitations, we look at both types of union simultaneously to explore whether the determinants of date misreporting are the same across both marriages and cohabitations or whether there are some unique features of recall for each type of relationship. Furthermore we add to the existing literature by looking at partner consistency in reporting of current marriages and cohabitations, and we use couple-level variables to examine the possible correlates of mismatch in reports between partners.

## Data and Method

### Data

To study the incidence and correlates of recall error in reporting of relationship histories we use data from the first wave of the Household, Income and Labour Dynamics in Australia (HILDA) survey. HILDA is a large-scale longitudinal household survey, which is conducted on an annual basis, starting from the first wave in 2001. HILDA interviews all members of a household aged 15 and over, primarily using face-to-face interviews, and it collects information on a wide range of demographic, social and economic topics. The fact that it is the only large scale-nationally representative longitudinal household survey available in Australia (Wooden, Friedman and Watson 2002) makes it a popular resource for social researchers.

Of the total of 13,969 respondents who completed an interview in Wave 1 the analytical sample used in this study is restricted to 11,486 individuals who had had experienced at least one cohabitation or marriage (n=2,470 had never experienced a relationship), and who had complete information on the number of times they had been married or had cohabited (n=13 had incomplete information on the number of marriages or cohabitations). The majority of those who were dropped from the analysis because they had never been in a live-in relationship were aged under 25 years old. The main demographic characteristics of the sample used in the study are set out in Table 1, according to their relationship status at the time of the survey.

A great advantage of the HILDA data is that it interviews all eligible members of a household. In households containing a couple, the two partner's interviews can be matched and the factual information provided by each partner can be compared and checked for consistency. In some households for a range of reasons (e.g. too busy or refused) one partner may not have been interviewed so we do not have data from both partners for *all* marriages or cohabitations. As shown in Table 1, 7,527 respondents were currently married and 1,348 respondents were currently cohabiting. After excluding cases where only one partner was interviewed and cases with missing data, we include in our analysis information regarding 3,525 marriages (7,050 respondents) and 613 cohabitations (1,226 respondents).

Different surveys collect relationship histories in different ways. In some surveys information is collected about all relationships including cohabitations and marriages in sequential relationship order. In others marital and cohabitation histories are collected separately. In HILDA the latter method is used. In the first wave a full marital history was collected first followed afterwards by a partial cohabitation history.

The level of detail collected about each marriage varied according to both the order of the marriage and the marital event. For the start of the present or most recent past both the

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[1] We acknowledge that some of the error in reporting may be due to errors in the data introduced during the interview or data entry process.

*Table 1:* Sample characteristics by current relationship status (column percentages)

| | Married | Cohabiting | Single | Total | |
|---|---|---|---|---|---|
| | % | % | % | % | n |
| **Sex** | | | | | |
| Male | 49 | 48 | 37 | 46 | 5,263 |
| Female | 51 | 52 | 63 | 54 | 6,223 |
| | | | | | |
| **Age** | | | | | |
| 18-34 | 18 | 55 | 24 | 24 | 2,738 |
| 35-49 | 38 | 31 | 29 | 35 | 4,058 |
| 50-64 | 27 | 12 | 20 | 24 | 2,727 |
| 65+ | 16 | 1 | 27 | 17 | 1,945 |
| | | | | | |
| **Highest education** | | | | | |
| University | 20 | 20 | 14 | 18 | 2,120 |
| Certificate | 30 | 30 | 28 | 30 | 3,421 |
| Year 12 | 11 | 17 | 12 | 12 | 1,397 |
| <Year 12 | 39 | 33 | 46 | 40 | 4,548 |
| | | | | | |
| **Number of times married** | | | | | |
| None | n/a | 68 | 29 | 14 | 1,664 |
| 1 time | 82 | 27 | 59 | 73 | 8,397 |
| 2 times | 12 | 5 | 11 | 11 | 1,292 |
| 3 times | 1 | 1 | 1 | 1 | 119 |
| 4 times | <1 | – | <1 | <1 | 13 |
| 5 times | <1 | – | – | <1 | 1 |
| | | | | | |
| **Number of cohabitations (inc. current)[a]** | | | | | |
| None | 91 | n/a | 58 | 73 | 8,396 |
| 1 time | 6 | 65 | 24 | 17 | 1,948 |
| 2 times | 2 | 19 | 11 | 6 | 693 |
| 3 times | <1 | 10 | 4 | 2 | 270 |
| 4+ times | <1 | 6 | 3 | 2 | 174 |
| Total Row % | 66 | 12 | 23 | 100 | 11,486 |
| Total Row n | 7,527 | 1,348 | 2,611 | | |

[a]Excluding 5 cases where the number of cohabitations was unknown or refused.

month and year was collected. For all other previous marriages only the year, and not month, that they had started was collected. Similarly, for the *end* of all marriages only the year was collected. For cohabitations, respondents were asked to report the number of times they had had a cohabitation which had lasted for more than 3 months, and the month and year they began living in the *first* and in their current cohabitation. Dates of any possible second or higher order cohabitations, excluding the current cohabitation, were not gathered.

## Method

In the first part of the analysis we start by examining the level of recall precision in the reporting of four key dates:

1) the start date of the present or most recent previous marriage (month & year).
   *Q: 'In what month and year were you married'*
2) the end date of the most recent marriage (year).
   *If previous marriage ended Q: 'In what year did this oc-*

*cur?' Years were asked separately for year of final separation, year of legal divorce and year of death of spouse.*

3) the start date of the first cohabitation (month & year)
   *Q: '…in what month and year did you start living together?'*
4) the start date of the current cohabitation (month & year)
   *Q: 'When did you begin living with your current partner?'*

Descriptive methods are used to outline the overall prevalence of recall precision, and then multivariate logistic models are used to model the correlates of imprecision in dating each event. For each event the dependent variable in the logistic regression is equal to 1 if the respondent was unable to provide the month and year the event occurred and equal to 0 if they gave the exact date. Independent variables related to both the event of interest, as well as individual level demographic characteristics are included. The independent variables can be split into four main sets.

The first set consists of demographic variables including sex, age (4 categories), highest education level, country of birth and current relationship status. The second set of variables relate to relationship history. Here we include the number of times the respondent has experienced of similar events. In examining the dating of the most recent previous marriage we include a variable describing whether this was the first marriage or a higher order marriage, and for cohabitation we look at the number of cohabitations the respondent has ever experienced. We would expect the number of multiple events of the same type that have occurred to influence recall (interference hypothesis).

In the third set of variables we control for characteristics of the events of interest themselves, including how the marriage ended (for the regression of marriage date), how long ago the event occurred and how long the relationship lasted. Information on the duration of the relationship was only available for the subset of respondents that provided both the month and year the relationship started. To avoid excluding those who had missing information on this variable, we analyse it by including it in an additional model for each relationship.

Finally we include information about the interview itself, and specifically whether the interview was conducted: with no other adult present, with another adult present but without influence from the other adult, or with another adult present who influenced responses. Previous studies (Poulain et al. 1992; Auriat 1993) have shown that when interviewed together about dates of past events; couples can together come up with a much more accurate account. In the case of HILDA unfortunately we do not know whether the other adult present during the respondents interview is their partner or not, but in many cases for currently cohabiting or married people it is likely that this is the case. Previous studies have shown that in the majority of cases when there is another adult present during the interview, that person is usually the spouse (Reuband 1992).

### Partner consistency

In the second set of analyses the consistency in partner's accounts of when their relationship started is checked for the start of the marriage for currently married partners, and for the start of the cohabitation for currently cohabiting couples. Again both descriptive and multivariate models are employed. This time however all the variables in the multivariate model are defined at the couple level rather than at the level of the individual.

For the demographic characteristics we include the average combined age of partners (grouped into 4 categories), and the combined education level as described in 3 categories. For the education level, the first category describes couples where both partners have a university degree, or where one has a university degree and the other has some other post-school qualification such as a certificate. The second category consists of those couples where both partners have education up to Year 12 or only below year 12, and the third category contains all other combinations. Couple's country of birth is summarized in a three category variable; both partners born in Australia, both born in non-English speaking countries, or some other combination.

We also look at relationship history, and whether this is the first marriage or cohabitation for both partners. The average duration of the marriage or cohabitation is controlled for, and in cases where differing years were reported by the partners we take the average year to calculate the duration. Finally we also include a variable describing the interview situation. The presence of other adults during the interview was coded into three categories: both partners had another adult present during the interview, only one of the partners had another adult present during the interview or neither partner had another adult present during the interview.

## Results

### Precision in reporting

The precision with which relationship dates were given is shown in Table 2. For each event the percentage of respondents who gave the full month and year (or just year for the end of marriages), who only remembered the year but not the month, who remembered the month but not the year and the percentage who could not recall either the month or years is shown.

For the start of the current or most recent marriage, the percentage of respondents who were able to report both the month and year of the marriage was nearly universal (98%). However, there was some difference according to whether or not that marriage had ended or was still on-going. For marriages that had already ended, just over 8 per cent of respondents could not give both the month and year of marriage. In most cases, they were able to give the year of the marriage, but not the month (n=175).

For the end of the most recent marriage, respondents were only asked for the year that this occurred. Divorced or separated individuals were asked about the date of final separation, and divorced individuals were also asked for the date of the divorce. The task of giving just the year of the event is less demanding than giving the more detailed month and year, so despite the predicted higher difficulty of remembering the date a marriage ended compared to when it started, levels of non-response were very low. The one surprising exception was the 12 per cent of respondents (n=85) who had been widowed and reported that they did not know when this has occurred.

For cohabitations, as predicted, the task of remembering both the month and year the relationship had started proved very difficult for many people. Less than half of respondents were able to report both the month and year that they first started living together in their first cohabitation (excluding the current). Among those currently cohabiting the percentage who were able to give both the month and year was considerably higher, but 14 per cent were still unable to report the month.

*Table 2:* Precision in reporting of selected relationship start and end dates

Start of current/most recent marriage

| Precision | Total | | Current marriage | | Most recent marriage | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Month and year | 9,594 | 97.7 | 7,501 | 99.7 | 2,093 | 91.4 |
| Only year | 198 | 2.0 | 23 | 0.3 | 175 | 7.6 |
| Only month | 5 | 0.1 | 1 | 0.0 | 4 | 0.2 |
| Neither month or year | 21 | 0.2 | 2 | 0.0 | 19 | 0.8 |
| Total | 9,818 | 100.0 | 7,527 | 100.0 | 2,291 | 100.0 |

End of most recent marriage

| Precision | Separation[a] | | Divorce | | Widowed[b] | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Year | 1,534 | 97.6 | 1,072 | 98.8 | 630 | 88.0 |
| No year | 38 | 2.4 | 13 | 1.2 | 85 | 12.0 |
| Total | 1,572 | 100.0 | 1,085 | 100.0 | 715 | 100.0 |

[a] excluding 11 cases where date was 'refused/not stated'

[b] excluding 3 cases where the date was 'refused/not stated'

First and current cohabitation start

| Precision | First cohabitation | | Current cohabitation | |
|---|---|---|---|---|
| | n | % | n | % |
| Month and year | 1,058 | 48.0 | 1,157 | 86.1 |
| Only year | 1,096 | 49.8 | 187 | 13.9 |
| Only month | 1 | 0.1 | | |
| Neither month or year | 48 | 2.2 | | |
| Total | 2,204 | 100.0 | 1,344 | 100.0 |

## Multivariate results

We now turn to the multivariate logistic regression to investigate possible factors which were related to the degree of recall specificity in the dating of relationships. We look at three relationship events, the start of the most recent previous marriage (for those not currently married), the start of the first ever cohabitation and the start of the current cohabitation. The other relationship events (start of marriage for those currently married, and end of marriage) are not analysed due to the small number of cases where respondents could not specify the dates.

In each case, the main outcome of interest is the inability to report both the month and the year that the relationship began. For each relationship event two models are run. The first does not include information about the relationship duration, while the second one does. The results of the logistic regressions are presented in Table 3.

For the previous marriage and the first cohabitation, there was a strong and consistent sex difference, with women having considerably lower odds of not giving a month and a year. No sex difference was apparent for the dating of the current cohabitation. Age appeared negatively related with dating precision. For every relationship event compared to

the reference category aged 50-64, those aged under 35 were significantly less likely to be unable to give a month and year. However in the second model which introduced information about the recency of the event, and the duration of the relationship, the effect of age at the younger end was no longer significant. This suggests that the effect of age is at least partly attributed to the fact that the younger respondents would have experienced the event more recently.

Highest education also emerged as an important predictor which had a relatively consistent effect across the relationships. Compared to those whose highest education was up to Year 12, those with a university degree were less likely to not give a month and year. Country of birth was also important for the previous marriage and first cohabitation. Compared to those born in Australia, those born in Non-English speaking countries were less likely to be able to give a precise date for these unions.

Currently married individuals were significantly more likely to forget the month and year of their first cohabitation, compared to those who were currently cohabiting in another relationship, or who were single. Relationship history also proved to be important for explaining dating of the previous marriage and cohabitation. Individuals who had had more than one marriage were more likely to be unable to give a

*Table 3:* Logistic regression results (Odds ratios) for not remembering full start

| | Previous marriage | | First cohabitation | | Current cohabitation | |
|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| **Demographic characteristics** | | | | | | |
| Sex | | | | | | |
| Male (ref) | – | – | – | – | – | – |
| Female | 0.35*** | 0.39*** | 0.79*** | 0.75*** | 1.03 | 1.05 |
| Age group | | | | | | |
| 18-34 | 0.52* | 0.49 | 0.53*** | 0.81 | 0.55** | 0.83 |
| 35-49 | 0.71* | 0.69 | 0.89 | 0.97 | 0.86 | 0.90 |
| 50-64 (ref) | – | – | – | – | – | – |
| 65+ | 1.32 | 1.27 | 2.47** | 2.10** | 1.91 | 2.29 |
| Highest education | | | | | | |
| University | 0.26*** | 0.21*** | 0.76* | 0.71** | 0.82 | 0.49** |
| Certificate | 0.89 | 0.90 | 1.32** | 1.23 | 1.13 | 0.73 |
| Year 12 (ref) | – | – | – | – | – | – |
| Year 11 or below | 1.08 | 1.00 | 1.38** | 1.25 | 2.09*** | 1.25 |
| Country of birth | | | | | | |
| Australia (ref) | – | – | – | – | – | – |
| Other English-speaking | 1.13 | 0.99 | 1.08 | 1.08 | 1.14 | 0.99 |
| Non-English speaking | 1.97*** | 1.89*** | 1.44** | 1.41* | 1.47 | 1.23 |
| Current relationship status | | | | | | |
| Married | | | (ref) | (ref) | | |
| Cohabiting | (ref) | (ref) | 0.74** | 0.94 | | |
| Single | 0.78 | 0.79 | 0.58*** | 0.77** | | |
| | | | | | | |
| **Relationship history** | | | | | | |
| Number of marriages | | | | | | |
| 1 (ref) | – | – | | | | |
| 2+ | 2.52*** | 2.18*** | | | | |
| Number of cohabitations | | | | | | |
| 1 (ref) | | | – | – | – | – |
| 2+ | | | 1.60*** | 1.27** | 0.69** | 0.86 |
| | | | | | | |
| **Event characteristics** | | | | | | |
| Marriage end | | | | | | |
| Separation (ref) | – | – | | | | |
| Divorce | 1.97*** | 1.87** | | | | |
| Widowed | 0.87 | 0.84 | | | | |
| Date of start of marriage | | | | | | |
| <20 years ago (ref) | | – | | | | |
| 20+ years ago | | 1.58* | | | | |
| Duration of marriage | | | | | | |
| 0-7 years | | 1.79*** | | | | |
| 8-19 years (ref) | | | | | | |
| 20+ years | | 0.73 | | | | |
| Duration of first cohabitation | | | | | | |
| <1 year | | | | 0.85 | | |
| 1-2 years (ref) | | | | – | | |
| 2-3 years | | | | 0.97 | | |
| 3-4 years | | | | 0.83 | | |
| Date of start of first cohabitation | | | | | | |
| 0-4 years ago | | | | 0.37*** | | |
| 5-9 years ago | | | | 0.67*** | | |
| 10-19 years ago (ref) | | | | – | | |
| 20+ years ago | | | | 1.20 | | |
| Date of start of current cohabitation | | | | | | |
| 0-2 (ref) | | | | | | – |
| 2-5 years ago | | | | | | 0.08*** |
| 5+ years ago | | | | | | 0.83 |

*Table 3:* Continued. Logistic regression results (Odds ratios) for not remembering full start

| | Previous marriage | | First cohabitation | | Current cohabitation | |
|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| **Interview characteristics** | | | | | | |
| Presence of other adult | | | | | | |
| No other adult present (ref) | – | – | – | – | – | – |
| Adult present, but no influence | 1.49* | 1.65** | 1.03 | 1.07 | 0.76 | 0.72* |
| Adult present & influenced | 2.59*** | 2.80*** | 1.08 | 1.04 | 0.87 | 0.88 |
| Number of observations | 2,284 | 2,163 | 2,192 | 2,139 | 1,329 | 1,172 |
| Overall model evaluation | | | | | | |
| Likelihood ratio test, $\chi^2$ | 146.8 | 145.26 | 169.59 | 201.35 | 45.74 | 131.88 |
| Likelihood ratio test, df | 15 | 18 | 14 | 20 | 12 | 14 |
| Likelihood ratio test, $P$ | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Goodness-of-fit test | | | | | | |
| Hosmer & Lemeshow, $\chi^2$ (8df) | 9.9 | 16.7 | 6.7 | 2.9 | 9.2 | 10.2 |
| Hosmer & Lemeshow, $P$ | 0.27 | 0.03 | 0.57 | 0.94 | 0.32 | 0.25 |

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

month and year that their most recent marriage started, and the same pattern was evident for first cohabitations.

The characteristics of the events themselves were also important. If a marriage had ended in divorce, the start of the marriage was less likely to be remembered. Also the longer ago the event of interest happened the harder it was to date within a month or year (in the case of previous marriages) and the shorter the duration of the relationship the less memorable it was (for both marriages and first cohabitations).

Finally the presence of other adults also proved important. For previous relationships having another adult present *increased* the likelihood of not reporting a month and year, although the effect only reached significance for marriages. For individuals that were currently cohabiting however the effect, while weak, was in the opposite direction. In that case having an adult present had a positive effect on the likelihood of dating the event within a month and year.

*Partner consistency*

For this next section s we focus on the relationship or couple level, rather than the individual respondent. The level and pattern of partner consistency in the dating of the current relationship is shown in Table 4. For marriages the overall level of consistency between partners was high, but in 5 per cent of cases there was a mismatch in the month and or the year of the marriage, indicating that either one or both partners could not date their marriage accurately (191 marriages). For current cohabitations, 17 per cent were not dated with a month or year by either one or both partners, and in a further 16 per cent of cases partners also gave different dates for the start of the relationship.[2]

For the 5 per cent of marriages, and the 17 per cent of cohabitations where differing dates were reported, Figure 1 shows the absolute difference in months in the couple's reports. When there was a discrepancy in the *marriage* dates in the majority of cases the dates were off by one year, but

the months were the same. For example the husband may have dated the marriage as starting in April 1994, while the wife said it started in April 1995. A significant percentage also had dates that differed by only one month, e.g. April 1994 and March 1994. For *cohabitations* there was a slightly more even distribution of absolute month differences, but the majority of cases only differed by one or two months.

The odds of having mismatching dates between partners for the same relationship are analysed in the logistic regression results presented in Table 5. Unlike in the earlier model of individual level recall problems, for couples demographic variables including age, education and country of birth had either no or very weak effects in determining partner inconsistency in dating.

More significant factors were the union history, and also the interview situation. For current marriages, couples were significantly less likely to report differing dates if the marriage was the first marriage for both partners. The effect was the same for cohabitation, although in this case the result was not significant. By far the strongest and most consistent effect is provided by the variable describing the presence of other adults during the interview. Compared to situations where both partners had other adults present during the interview, if only one partner had another adult present the odds of the couple reporting differing dates was significantly higher, and the odds were higher still if neither partner had another adult present.

Discussion

This paper has highlighted several important considerations when collecting and using timing data on marriages and cohabiting relationships. The discussion will focus on

[2] Given the absence of a socially recognised date of cohabitation start, we note that the accuracy of partner consistency will be less for cohabitation than marriage.

*Table 4:* Partner consistency in dating the start of the current relationship

| Partner consistency | Marriage | | Cohabitation | |
|---|---|---|---|---|
| | n | % | n | % |
| Month/Year unknown by either one or both partners | 13 | 0.4 | 102 | 16.6 |
| Different dates (for month and or year) | 191 | 5.4 | 95 | 15.5 |
| Matched on both month and year | 3,320 | 94.2 | 415 | 67.7 |
| Other | 1 | <0.1 | 1 | 0.2 |
| Total relationships – with two partners | 3,525 | 100.0 | 613 | 100.0 |
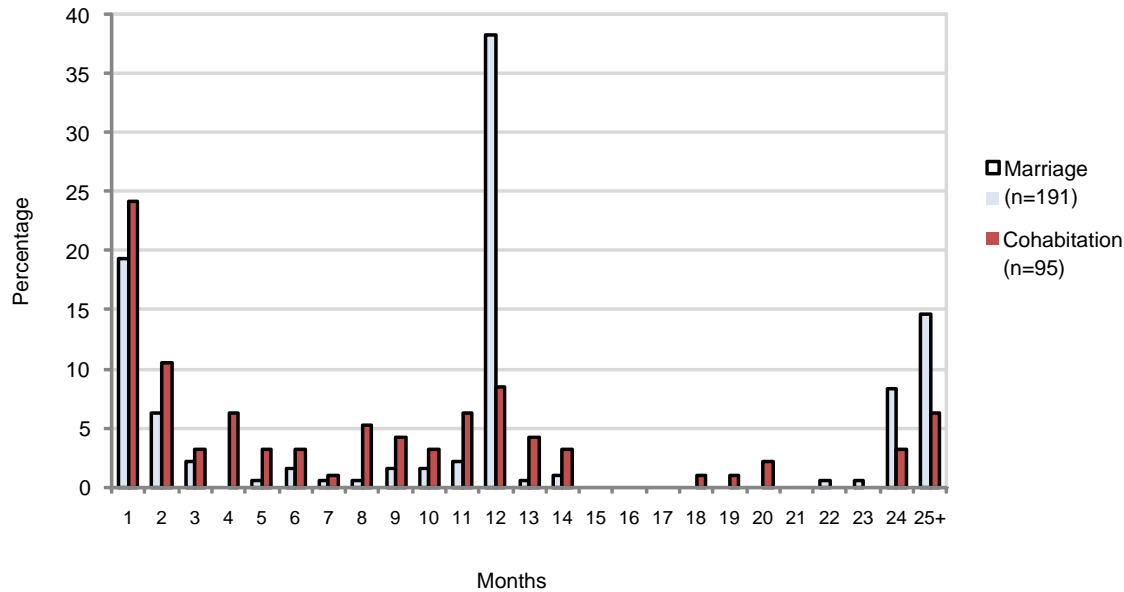


*Figure 1.* Absolute difference in months for the current relationship start date, as reported by the two partners

the social desirability or un-desirability of questions and responses, the interview setting, and the complexity of modern relationships as possible explanations.

A surprising result was that widowhood was associated with failure to recall dates. At the outset it was assumed that the death of a spouse would be such an important life event that provisions of dates would cause no problems. The finding of a surprising number of missing cases who did not know the year their spouse died could be due to the face-to-face nature of the interview. That is, it could be that interviewers did not want to push the question given that it signals remembrance of a time of grieving. This finding highlights the importance of the interview setting.

The presence of another adult affected both how past and current relationships dates were reported. In the case of past relationships, having another adult present increased the probability of not reporting a month and year for previous marriages (significantly) and for first cohabitations (not significant). There are a number of different interpretations for these results, and any interpretation must be tentative because we do not know the relationship of the other adult(s) present during the interview; they may or may not be partners. Ross and Holmberg (1992:602) note that recall of

events can provide powerful signals, because "if people can remember vividly that which is important to them, then a failure to remember details signals a lack of personal importance." One explanation for the effect of other adults on past relationships is therefore that among repartnered respondents, when asked to date their previous relationships they may be deliberately trying to de-emphasize the importance of that relationship in front of their new partner by showing that they are unable to remember the exact details of those memories. Another possibility is that the presence of another adult could be a signal that the person has repartnered and the lack of ability to recall exact details would be a reflection of the interference hypothesis.

For the current relationship, having another adult present proved to be an advantage in reporting of dates, particularly at the couple level. This was evident for both marriages and cohabitations. Simple bivariate analysis revealed that if both partners had another adult present during the interview only 3 per cent of marriages dates were inconsistently reported between partners, but this rose to 9 per cent when neither partner had another adult present. The equivalent figures for cohabitation were an increase from 6 per cent inconsistently dated when both partners were present, to 32 per cent incon-

*Table 5:* Logistic regression of mismatch in dates between partners (Odds ratios)

| | Marriage | Cohabitation[a] |
|---|---|---|
| **Average combined age of partners** | | |
| 18-34 | 1.20 | 1.43 |
| 35-49 (ref) | – | – |
| 50-64 | 1.02 | na |
| 65+ | 1.57 | na |
| | | |
| **Combined education level** | | |
| Both partners university degree, or one partner uni. & one partner post.school (ref) | – | – |
| Other combination | 1.39 | 0.53* |
| Both partners Year 12 or below | 1.06 | 0.53 |
| | | |
| **Couple's country of birth** | | |
| Both born in Australia (ref) | – | – |
| Both born in non-english speaking country | 1.54* | 1.59 |
| Other | 1.14 | 1.24 |
| | | |
| **First marriage/cohabitation for both partners?** | | |
| No (ref) | – | – |
| Yes | 0.61** | 0.78 |
| | | |
| **Average duration of marriage** | | |
| 0-4 years | 0.80 | |
| 5-9 years (ref) | – | |
| 10-19 years | 1.27 | |
| 20+ years | 0.67 | |
| | | |
| **Average duration of cohabitation** | | |
| 0-1 years | | 0.78 |
| 2-5 years (ref) | | – |
| 6+ years | | 1.34 |
| | | |
| **Presence of adults during interview** | | |
| Both partners had other adult present | – | – |
| One partner had other adult present | 2.27*** | 3.10*** |
| Neither partner had other adult present | 3.43*** | 7.38*** |
| **Number of observations** | 3,247 | 416 |
| | | |
| **Overall model evaluation** | | |
| Likelihood ratio test, $\chi^2$ | 69.56 | 41.50 |
| Likelihood ratio test, df | 13 | 10 |
| Likelihood ratio test, *P* | <0.001 | <0.001 |
| | | |
| **Goodness-of-fit test** | | |
| Hosmer & Lemeshow, $\chi^2$ (8df) | 8.1 | 3.4 |
| Hosmer & Lemeshow, *P* | 0.43 | 0.91 |

Note: * p<0.10; ** p<0.05; *** p<0.01

[a] Excluding 52 couples aged 50 or over

sistently dated when no partner had adult company during the interview. Again there are different explanations, which are based on the assumption that adult that is present is the partner. The most obvious explanation is that during the interview respondents may have consulted with their partner about the date being asked for. Another possibility is that there is some selection effect at work. Couples where both partners were present in each other's interview differ from other couples. Aquilino (1993) found that as well as various demographic characteristics that marital compatibility predicted the presence of partners at each other's interviews. Partner presence can therefore represent an opportunity to check dates of relationships or may be associated with a better ability to remember dates due to the quality of their relationship.

The complexity of an individual's lifecourse was also a factor in increasing recall error. In accordance with previous research (Mitchell 2010) we generally find evidence that respondents who experienced multiple events of the same type were more likely to have difficult dating previous relationships. This may have some implication for research depending on how response errors are handled.

Consistent with the notion of cohabitation not being well 'institutionalised' as compared to legal marriage (Nock 1995), we found that respondents experienced particular difficulty in reporting cohabitation histories. Depending on the research question, and on the way the data is handled, the large percentage of individuals who could not provide precise dates for their past cohabitations has a number of potential implications. If the retrospective information on cohabitations is used as a dependent variable, for example in an event history model, given the large number of cases missing the month of the event, the data may have to be examined only in terms of the year information. If missing data is deleted or excluded from the analysis then this would lead to estimation biases as these missing data are not randomly distributed: they are more likely to occur for people with complex relationship histories, men, and people from non-English-speaking backgrounds and those with lower levels of education. Given that surveys collecting retrospective cohabitation histories are an important source of data for those interested in analysing changes in family formation, we encourage researchers to be aware of the limitations and potential analytical issues arising from the large percentage of respondents who are unable to provide accurate or precise data regarding their cohabitation(s).

## Acknowledgements

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