How long should a diary be kept? A diary study of everyday prospective, retrospective and absent-minded errors

Andrew Laughland, Lia Kvavilashvili
University of Hertfordshire, Hatfield, UK

Introduction
• Diary and experience sampling methods are becoming increasingly popular in many areas of psychology, including cognitive psychology (Miller, 2012)
• While there are a large number of diary studies researching involuntary autobiographical memories, there are very few diary studies on people everyday memory errors (Unsworth et al., 2012). In addition, almost all studies require participants to record data for relatively short periods of time (typically 7 days).

Aims
• To conduct the first diary study of everyday memory errors over a longer period of time (28 days), to ensure the collection of a larger amount of data and examine possible fluctuations in recording different types of errors over a longer time period.
• To compare the data collected with 28-day diary method to more standard 7-day diary method.

Hypotheses
HYPOTHESIS 1 – Research on involuntary autobiographical memories shows that shorter diary recording periods elicit more entries from participants than longer recording periods (Kamiya, 2013). Therefore, it is predicted that participants in 28-day diary will record fewer memory errors in Week 1 than participants in the 7-day diary condition.

HYPOTHESIS 2 – Alternatively, 28-day and 7-day diary participants may record equal numbers of memory errors in Week 1 but the 28-day diary group may record progressively fewer memory errors in Weeks 2, 3 and 4.

HYPOTHESIS 3 – It is also possible that different patterns of memory errors will emerge for shorter (7 day) and longer (28 day) recording periods.

Method
Participants
34 volunteers (28 female, 6 male) were recruited from panels who had helped in previous studies, university staff and alumni.

Half of the participants recorded memory errors for 7 days and half for 28 days. The groups did not differ from each other on background characteristics (Table 1).

Materials and Procedure
Participants received A5-size booklets to record memory errors for a period of either 7 days or 28 days. They were instructed to keep the diary with them at all times and record any errors they noticed as soon as possible after they occurred by filling in a questionnaire page.

Table 1. Background characteristics of participants

<table>
<thead>
<tr>
<th></th>
<th>(N=17)</th>
<th>(N=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (SD) range</td>
<td>68.4 (9.0)</td>
<td>68.35 (15.7)</td>
</tr>
<tr>
<td>Education (Years)</td>
<td>15.2 (3.4)</td>
<td>14.8 (3.0)</td>
</tr>
<tr>
<td>TICS-M (SD) range</td>
<td>28.5 (3.5)</td>
<td>28.6 (3.4)</td>
</tr>
</tbody>
</table>

Results

(1) HYPOTHESIS 1
We compared the mean number of recorded memory errors in Week 1 in 7-day and 28-day diary conditions. One-way between subjects ANOVA was not significant F (1,32)=1.34, p=26. (See Figure 1, Voile bar).

(2) HYPOTHESIS 2
Mean number of recorded memory errors in each of the 4 weeks of 28-day diary were entered into a 1-way within subjects ANOVA (Figure 1). There was no significant effect of weeks (F(3,98)=1.15, p=.34).

In addition, the number of recorded memory errors in each week were highly correlated with each other (Table 2).

Table 2. Spearman Rho Correlations between the number of memory errors recorded in Weeks 1, 2, 3 and 4 in a 28-day diary condition.

<table>
<thead>
<tr>
<th>Week</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>.84***</td>
<td>.90***</td>
<td>.64**</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>.93*</td>
<td>.78***</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>.92**</td>
<td>.78**</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>.82***</td>
<td>.79***</td>
<td></td>
</tr>
</tbody>
</table>

(3) HYPOTHESIS 3
Memory errors/lapses were assessed by two coders and classified as absent-minded (AM), prospective (PM) or retrospective (RM) (see panel with examples). The agreement between coders was 95%.

There was no difference between AM, PM and RM in the 7-day diary condition and week 1 of the 28-day diary condition (see Table 3). However, in the 28-day diary condition the mean of recorded PM errors was significantly higher than AM errors (p = .01) while the mean number of PM errors was not significantly different from RM (p = .12) or RM (p = .13).

Table 3. Mean number of errors types recorded by condition

<table>
<thead>
<tr>
<th></th>
<th>Absent minded</th>
<th>PM</th>
<th>RM</th>
<th>F (2,32)</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 day diary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 1</td>
<td>1.59</td>
<td>2.45</td>
<td>2.06</td>
<td>3.16</td>
<td>.04</td>
<td>.11</td>
</tr>
<tr>
<td>Week 2</td>
<td>1.59</td>
<td>2.45</td>
<td>2.66</td>
<td>3.19</td>
<td>.04</td>
<td>.11</td>
</tr>
<tr>
<td>28 day diary</td>
<td>4.53</td>
<td>7.25</td>
<td>7.35</td>
<td>9.05</td>
<td>.04</td>
<td>.14</td>
</tr>
</tbody>
</table>

Discussion

• Hypothesis 1 was not supported. Although 28-day participants recorded nominally fewer memory errors in Week 1 than the 7-day diary group, this difference was not significant.

• No support was found for Hypothesis 2, as 28-day participants consistently recorded similar number of memories across 4 weeks (Figure 1) and correlations between the number of errors between weeks was very high (Table 2).

• Finally, different patterns emerged in 7-day and 28-day diary conditions in terms of the number of recorded types of errors. While in the 7-day condition participants recorded equal numbers of absent-minded, PM and RM errors, in the 28-day condition, significantly more RM errors were recorded than absent-minded errors.

Conclusions

Unlike autobiographical memory studies, our results show that recording everyday memory errors is less susceptible to length of recording. In fact, longer recording periods are not only possible but even advisable, given that more time is needed for patterns to emerge.

The diary method of everyday memory failures may provide researchers with unique insight into everyday memory functioning not only in normal healthy adults but also in various clinical populations.

Examples of Recorded Memory Errors

- Absent-minded errors
  “Forgot the name of a shop I regularly visit”
  “Forgot to tell brother something – rang later”

- Prospective Memory errors
  “Forgot to charge mobile phone overnight”
  “Forgot take me to 3:30 pm tablet”

- Retrospective Memory errors
  “Forgot the name of a shop I regularly visit”
  “Couldn’t remember part of a dance I have done many times”
  “I was not able to find papers I had stored safely”

References


Poster Presented at the 4th International Conference on Prospective Memory, Naples, Italy, 26-30 May, 2014