

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

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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's 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 has shown 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).

Table 1. Background characteristics of participants

	7-day (N=17)	28-day (N=17)			
	M	M	F	p	η^2
Age	68.4	68.35	.00	1.0	.00
(SD)	(9.8)	(15.7)			
range	48-78	40-84			
Education (Years)	15.2	14.5	.45	.51	.01
(SD)	(3.4)	(2.7)			
range	9-20	9-18			
TICS-M	28.5	28.4	.01	.931	.00
(SD)	(3.5)	(4.4)			
range	19-33	21-37			

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.

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, violet bars).

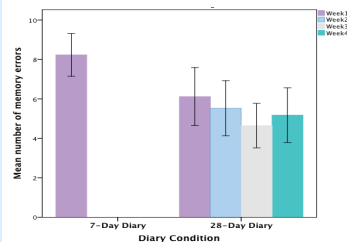


FIGURE 1: Mean number of recorded memory errors as a function of diary (7-day, 28-day) and week of recording (1, 2, 3, 4) Error bars: +/- 1 SE

(2) HYPOTHESIS 2

Mean number of recorded memory errors in each of the 4 weeks of 28-day condition were entered into a 1-way within subjects ANOVA (see Figure 1). There was no significant effect of weeks ($F(3,38)=1.15, p=.34$).

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.

	Week 1	Week 2	Week 3	Week 4
Week 1	1			
Week 2	.84***	1		
Week 3	.93**	.90***	1	
Week 4	.64*	.75**	.78**	1

*** $p < .0001$, ** $p < .001$, * $p < .01$

(3) HYPOTHESIS 3

Memory errors/lapses were assessed by two coders and classified as absent-minded (AM), prospective (PM) or retrospective errors (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 RM errors was significantly higher than AM errors ($p = .01$) while the mean number of PM errors was not significantly different from AM ($p = .12$) or RM ($p = .13$).

Table 3. Mean number of error types recorded by condition

	Absent Minded	PM	RM	F (2, 32)	p	η^2
7 day diary	2.24 (1.15)	3.24 (4.12)	2.76 (1.95)	.55	.58	.03
Week 1 28 day diary	1.59 (2.45)	2.06 (2.08)	2.41 (3.10)	.74	.49	.04
28 day diary	4.53 (7.63)	7.35 (5.86)	9.65 (9.90)	4.65	.017	.23

Diary Compliance Rates

Participants in both groups reported high compliance rates of recording memory errors in their diaries: 96% of errors recorded by the 7 day group, and 91% by the 28-day group ($F < 1$).

Examples of Recorded Memory Errors

Absent-minded errors

"Got out telephone book instead of address book"

"forgot what I went upstairs for"

Prospective Memory errors

"Forgot to charge mobile phone overnight"

"Forgot take my 3:15pm tablet"

"Forgot to tell brother something – rang later"

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"

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.

References

- Kamiya, S. (2013). Relationship between frequency of involuntary autobiographical memories and cognitive failure. *Memory*, 1–13. doi: 10.1080/09658211.2013.838630
- Miller, G. (2012). The Smartphone Psychology Manifesto. *Perspectives on Psychological Science*, 7(3), 221–237. doi:10.1177/1745691612441215
- Unsworth, N., Brewer, G. A., & Spillers, G. J. (2012). Variation in cognitive failures: An individual differences investigation of everyday attention and memory failures. *Journal of Memory and Language*, 67(1), 1–16. doi: 10.1016/j.jml.2011.12.005

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