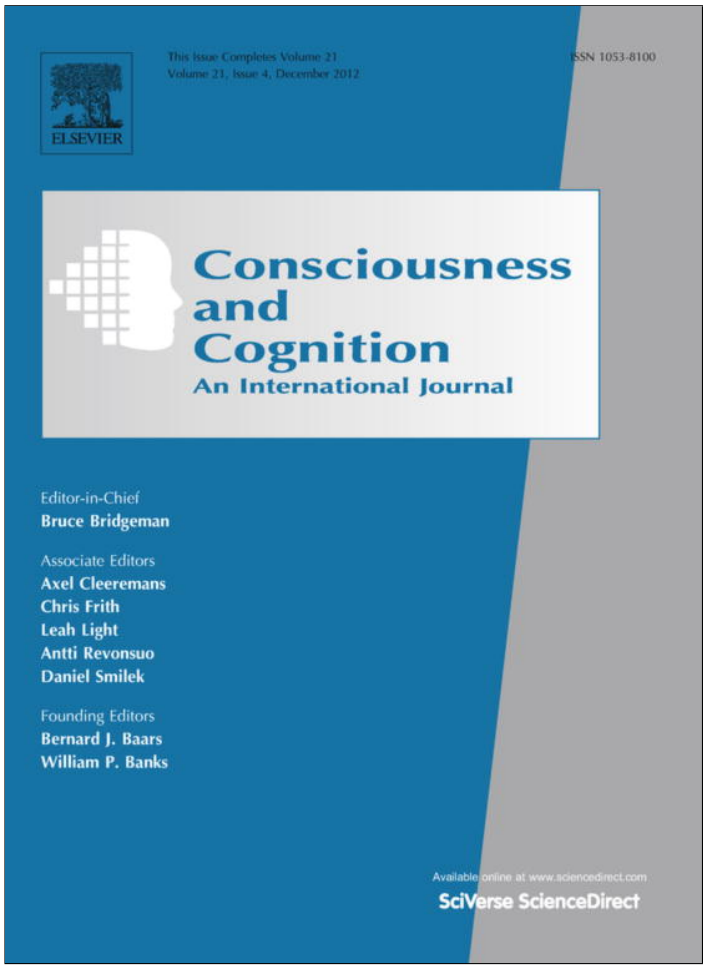

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# Dream recall frequency: Impact of prospective measures and motivational factors

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ABSTRACT

Significant individual differences exist in dream recall frequency (DRF) but some variance is likely attributable to instrument choice in measuring DRF. Three hundred and fifty eight participants estimated their weekly DRF and recorded their dreams in either a narrative log ($n$ = 165) or checklist log ($n$ = 193) for 2–5 weeks. There was an early peak in DRF within the first week of both types of prospective logs after which DRF remained relatively stable. Although the two groups did not differ in their estimated DRF, significantly fewer dreams were reported per week on the narrative logs and only checklist logs yielded significantly higher DRF than participants' questionnaire estimates. The interactions between DRF measures did not vary across groups with low, medium or high baseline levels of DRF. Keeping a dream log does not necessarily increase DRF and narrative logs' time consuming nature can impact subjects' motivation to report all of their dreams over time.



## 1. Introduction

Dream recall frequency (DRF) is one of the most studied variables in dream research (Beaulieu-Prevost & Zadra, 2007a; Cohen, 1974; Goodenough, 1991; Schredl, 2007). Although dreaming is presumed to occur nightly in virtually all human adults (De Gennaro, Marzano, Cipolli, & Ferrara, 2012; Domhoff, 2011), vast individual differences exist in the frequency and constancy of people's DRF. This significant variability is particularly salient when DRF is investigated either with questionnaires or prospective dream logs (Cohen, 1974; Watson, 2003).

Variability in DRF has been explored in relation to a wide range of variables (Beaulieu-Prevost & Zadra, 2007b; Belicki, 1987; Blagrove & Pace-Schott, 2010; Schredl & Montasser, 1996a, 1996b; Schredl, Wittmann, Ciric, & Götz, 2003) including gender (Schredl & Reinhard, 2008b) broadly defined trait factors such as visual memory (Cory, Ormiston, Simmel, & Dainoff, 1975; Schredl, Frauscher, & Shendi, 1995), attitude towards dreams (Beaulieu-Prevost & Zadra, 2005, 2007a), creativity (Schechter, Schmeidler, & Staal, 1965), absorption (Beaulieu-Prevost & Zadra, 2007a; Watson, 2003) as well as state factors such as stress (Armitage, 1992; Pagel, Vann, & Altomare, 1995), sleep duration (Schredl & Reinhard, 2008a) and sleep stage prior to awakening (Nielsen, 2000). The association between DRF and these variables, however, can be affected by the method used to actually measure DRF. For instance, one meta-analysis (Beaulieu-Prevost & Zadra, 2007a) of studies having examined the relationship between DRF and various personality dimensions found that personality scores were not related to prospectively measured DRF per se, but rather to people's tendency to retrospectively underestimate or overestimate their dream recall.

Although questionnaire items assessing people's retrospective estimates of DRF constitute one of the more frequently used measure of DRF, daily prospective logs are generally viewed as more direct and valid indices of global DRF as well

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as of specific types of dreams such as nightmares (Levin & Nielsen, 2007; Robert & Zadra, 2008). With rare exceptions (Cohen, 1969) though, measures of retrospectively estimated DRF show positive correlations with prospective indices of DRF, with coefficients ranging between .33 and .69 (Baekeland, 1970; Beaulieu-Prevost & Zadra, 2005; Belcher, Montgomery, & Bone, 1972; Cohen, 1979; Cohen & Wolfe, 1973; Hill, Diemer, & Heaton, 1997; Rochlen, Ligiero, Hill, & Heaton, 1999; Schredl, 2002; Watson, 2003). However, subjects' prospective home logs generally yield higher DRF than their questionnaire based estimates (Baekeland, 1970; Cohen, 1969; Cohen & Wolfe, 1973; Cory et al., 1975; Redfering & Keller, 1974). The magnitude of this difference varies considerably across studies with some reporting log based DRF 3–10 times greater than subjects' retrospective estimates (Cohen, 1969; Redfering & Keller, 1974) and one study (Schredl, 2002) failing to observe notable differences across their sample.

A closer examination of these findings reveals that participants' baseline level of dream recall, as measured retrospectively through questionnaire self-report, plays a role in the results obtained. Specifically, subjects who estimate having a high level of dream recall obtain equivalent (Cory et al., 1975) or even lower (Schredl, 2002) prospective log-based DRF whereas self described low recallers tend to obtain greater log-based DRF when compared to their retrospective estimates. One's baseline level of DRF thus appears to act as a moderating variable in the relation between retrospective and prospective measures of DRF. One explanation for this finding resides in the attention-focus hypothesis of dream recall which suggests that keeping a dream log augments DRF in low recallers by increasing the attention they pay to their dreams, whereas a ceiling effect prevents a similar augmentation in high recallers (Beaulieu-Prevost & Zadra, 2007a; Cory et al., 1975; Schredl, 2002).

That keeping a dream log increases dream recall is often reported as an established fact (e.g., Parker, Bauermann, & Smith, 2000; Wittmann, Schredl, & Kramer, 2006). However, it is not clear to what extent differences between prospective and retrospective DRF are due to increased DRF when keeping a log, an underestimation of retrospective self-reports, or a combination of both. The suggestion that keeping a dream log increases dream recall can be tested empirically as the longitudinal nature of dream logs reveals fluctuations in DRF over time. According to the attention-focus model of dream recall, the increased attention given to one's dreams resulting from keeping a dream log steadily increases participants' DRF until a ceiling effect is attained. However, Schredl (2001) noted a significant decrease in subjects' log based DRF from the study's first week to the second. Similarly, one study (Bernstein & Belicki, 1995) in which participants twice completed 2 week long logs a few months apart found that the mean number of nights with dream recall decreased significantly from the first 2 weeks to the last two. By contrast, studies based on logs of 4, 8, 12 (Schredl & Fulda, 2005) and 14 (Watson, 2003) week duration found that DRF remained relatively stable over these extended periods. These differences may be partially due to the fact that subjects in the shorter 2 week studies were required to provide a complete written transcript of each dream recalled (narrative logs) whereas participants in the longer 4–14 week studies only had to indicate if they recalled a dream without providing actual dream content (checklist log). Furthermore, subjects' baseline DRF level was not taken into account.

Taken together, these findings raise two important issues. First, contrary to the predictions derived from the attention-focus view of dream recall, DRF does not necessarily increase with the completion of daily logs, but can remain stable or even decrease over time. Second, the decrease in dream recall observed in some studies suggests that participants' level of motivation over time may also impact the DRF obtained prospectively. In fact, the decrease in DRF observed when using more demanding narrative logs (Bernstein & Belicki, 1995; Schredl, 2001) as opposed to the stable DRF found with the quickly completed checklist logs (Schredl & Fulda, 2005) suggests that the greater time investment needed to complete narrative logs negatively affects subjects' willingness to write out all of their remembered dreams over time. However, narrative and checklist logs have not been systematically compared to clarify the extent to which prospectively assessed DRF may vary between such instruments over time and in comparison to baseline DRF.

## 2. Aims and hypotheses

The overall aim of the present study was to help fill this research gap by comparing indices of DRF obtained prospectively using narrative as well as checklist logs in conjunction with questionnaire self-reports. Our first objective was to test the prediction that DRF obtained from narrative logs decreases over time while DRF from checklist logs remains stable. To further refine this research question, the mean dream report length (i.e., word count) of the dreams reported by participants in the narrative log condition over time was also investigated. Our second objective was to evaluate differences in subjects' DRF as determined prospectively with narrative and checklist logs as compared to their retrospective estimates. It was hypothesized that the difference between prospective and retrospective DRF would be significant for participants completing checklist logs but not for narrative logs. Finally, our third and more exploratory goal was to investigate possible interactions between participants' baseline level of DRF (i.e., low, medium or high), the type of log completed, and retrospective and prospective indices of DRF.

## 3. Methods

### 3.1. Participants

Participants were students recruited as nonpaid volunteers from the same undergraduate psychology class over a 6-year period. They were told that the study concerned the relation between dreams and measures of personality and well-being

and that we were interested in both high and low dream recallers and in all types of dreams. Participants interested by the study were provided with the required materials and detailed instructions at the beginning of their class. Five hundred and ninety-three students expressed interest in the study, and 479 (418 females, 61 males; *M* age = 22.8 ± 5.0 years) completed the study. The 7–1 female to male ratio was consistent with the average 6–1 sex ratio observed in class enrollment.

### 3.2. Procedure

Participants first completed a Sleep & Dream Questionnaire and several measures of personality and well-being which were included as part of a separate study. Once the questionnaires were completed, participants were required to record upon awakening all remembered dreams on the daily dream log provided for 2–5 consecutive weeks.

### 3.3. Measures

#### 3.3.1. Estimated DRF

An open-ended question from the Sleep & Dream Questionnaire required subjects to estimate the mean number of dreams typically remembered per week. This question served as the retrospective self-report estimate of DRF.

#### 3.3.2. Log DRF

Depending on the cohort, participants completed either a narrative or checklist log on a daily basis. Participants completing a narrative log ($N = 224$) were required to provide a complete written description for each remembered dream upon awakening. Participants completing a checklist dream log ($N = 255$) had to indicate in the appropriate space if one or more dreams were recalled upon awakening and provide a brief title for each dream. Both the narrative and checklist logs thus allowed the reporting of more than one dream per night and required participants to report each dream's main emotion (if any), to rate the emotion's intensity on a 5-point scale, and to note whether the dream was a lucid dream, a nightmare, a bad dream, or a flying dream. If no dreams were recalled on a given day, participants were still required to complete a dream record sheet by indicating the date and noting the absence of any dream recall. To help us distinguish actual dream reports from white dreams (i.e., vivid impressions of having dreamt but without any actual recall) participants in the checklist condition were allowed to indicate the presence of white dreams in a separate column but white dreams were excluded in the present study's tabulation of actual DRF. Thus, the two types of logs were completed on a daily basis regardless of whether or not a dream was recalled and they differed only as to whether or not a complete narrative was provided for each remembered dream. Log based DRF was calculated by dividing the total number of dreams reported by the total log duration in days (including days without recall), and then prorating results on a 1 week basis. Participants completed the questionnaires and dream logs at home and materials returned in class on a weekly basis. Subjects were identified by an alphanumerical code on all documents to preserve their anonymity and the study was approved by the university's ethics committee.

To investigate fluctuations in dream recall over time, log DRF data were grouped into sequential blocks of five consecutive days and dream recall compiled for each block. Successive 5 day windows were preferred to weekly or 7 day windows as they allowed for more refined assessments of dream recall variability over time. Dreams recalled on any "extra" days following the last complete 5-day time block was not tabulated (e.g., if log duration was 16 days, data from the 16th day was excluded). This procedure prevented inaccurate or extrapolated values of dream recall (windows containing fewer than 5 days) to be confounded with reliable dream recall values (windows based on a complete 5-day unit). The minimal log duration was set at 15 consecutive days. This duration respects findings showing that a minimal log duration of 14 days is needed to obtain acceptable DRF stability (Schredl & Fulda, 2005). Furthermore, logs containing 15 or more days allowed for a comparison of at least three mean data points for each of the three consecutive 5-day windows.

## 4. Results

One hundred and thirteen participants (23.6%) were excluded from the analyses as their log duration was less than 15 days. Eight other subjects were excluded as they gave non-quantitative answers (e.g., "many" or "over 10") for the their retrospective estimate of dream recall. The results presented are thus based on 358 participants (317 females; 41 males, *M* age = 22.9 ± 5.2 years), 165 of which completed a narrative log (46%) and 193 a checklist log (54%). As no significant differences in either retrospective or prospective DRF were found between men and women, their data were combined for all analysis.

The duration of all prospective logs combined ranged from 15 to 40 days with a mean of 28.4 ± 6.0 days. The duration of the narrative logs (24.7 ± 5.0 days) was significantly shorter than that of the checklist logs (31.6 ± 4.9 days), $t(356) = 13.26$, $p < .001$. The mean log-based DRF calculated on a weekly basis for all participants was 5.1 ± 3.1 dreams/week. The mean log DRF for the checklist group (6.1 ± 3.5) was significantly higher than for the narrative group (3.9 ± 2.1); $t(356) = 7.02$, $p < .001$, effect size (*ES*) = 12.1, or medium.

Subjects' mean retrospective estimate of the number dreams recalled per week was 4.5 ± 2.8. There was no significant difference between the estimated DRF for the narrative group (4.3 ± 2.6) and checklist group (4.7 ± 3.0); $t(356) = 1.26$,

$p > .05$. As per previous studies, retrospectively estimated DRF was used as participants' baseline DRF. To allow comparisons between self-reported high and low dream recallers, participants were divided into three subgroups, according to their estimated DRF; "low-recallers" ($n = 86$) reported an estimated DRF lower than three dreams per week, "medium-recallers" ($n = 139$), from 3 to 5 dreams per week, and "high-recallers" ($n = 133$), more than five dreams per week. Although the frequency value for our low recallers is considerably higher than the typical cut-off used in previous studies (e.g., about one dream recalled per month), such low levels of self reported DRF were virtually inexistent in our sample. The present categorization, however, resulted in three sizeable groups with a clear distinction between low and high recallers, our two main groups of interest.

### 4.1. Variation in log DRF as a function of time

The distributions for dream recall for the 5 day intervals were positively skewed and kurtosed. A logarithmic transformation was applied to the DRF data to normalize distributions. To investigate fluctuations in dream recall over time, a $2 \times 3$ analysis of variance (ANOVA) with one independent factor (group: narrative vs. checklist) and one repeated measure of log-based dream recall (time windows 1–3) was performed to investigate interaction and main effects. The same analysis was computed with a subgroup of participants ($n = 263$) having completed their log for a duration of at least 25 days (i.e., on five consecutive 5-day windows). Since both sets of analyses yielded virtually identical patterns, only the results from the first three time windows (i.e., first 15 log days) are presented here as they are based on all data from all subjects.

Fluctuations in dream recall over time based on narrative and checklist log reports are presented in Fig. 1. Values for windows 4 and 5 (i.e., days 16–25) available from subgroup of 265 participants are included for illustrative purposes. There was no significant interaction effect between log type and successive time windows of dream recall ($p > .05$). Statistically significant main effects were found for both the type of log and time windows. The checklist group reported a significantly greater number of dreams than the narrative group, $F(1, 356) = 52.36$, $p < .001$, with a medium *ES* (12.8). A significant difference was also found between the three 5-day time windows, $F(2, 356) = 33.36$, $p < .001$, with a moderate effect size (8.6). LSD (least significant difference) post hoc analysis revealed that significantly more dreams were reported during the 1st 5 day window than in windows 2 and 3 ($ps < .001$), with no significant difference between windows 2 and 3 ($p > .05$). Comparable results were obtained when the data were examined with the reduced sample having completed five time blocks, i.e., only the first window was significantly higher than the subsequent ones, with no significant differences between windows 2–5.

#### 4.1.1. Variation in narrative dream report length as a function of time

Dream report length (word count) was calculated for all of the dreams reported by each participant in the narrative log condition and the mean number of words per dream then computed for each 5 day time window. There was a significant difference between the three 5-day windows, ($F$ (2, 328) = 5.765; $p < .05$), with a small *ES* (3.4). Post hoc Tukey analyses revealed that the mean number of words per dream reported during the first 5-day window (123.1 ± 77.5 words) was significantly greater than for window 3 (98.1 ± 80.6 words), whereas the mean word count from time window 2 (109.1 ± 90.7 words) did not differ significantly from windows 1 or 3. The same analysis performed on a subgroup of participants ($n = 92$) having completed their log for at least 25 days did not reveal any significant differences between successive time windows, although word count decreased by approximately 20% over the first three time windows before stabilizing over windows 4 and 5.

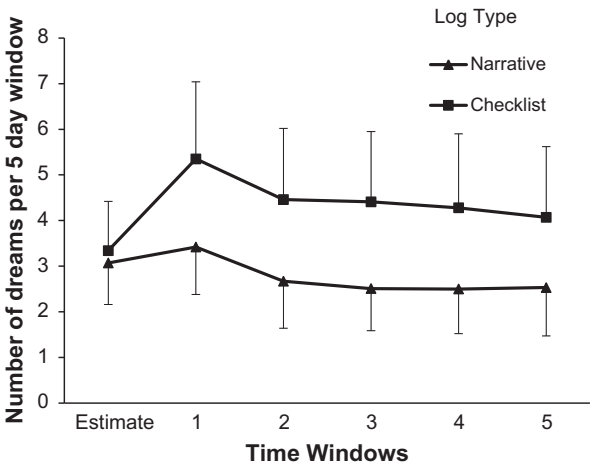


**Fig. 1.** Fluctuations in mean DRF ± SD over time as a function of log type.

### 4.2. Estimated DRF vs. log DRF

Correlations between subjects' retrospectively estimated mean DRF and their full log-based DRF were first calculated. The correlation for all participants was $r = .56$, $p < .001$, but the correlation for the narrative group ($r = .414$, $p < .001$) was significantly smaller than for the checklist group ($r = .645$, $p < .001$), $z = 3.05$, $p = .001$. To investigate differences between retrospective and prospective indices of DRF, a $2 \times 2$ ANOVA with one independent factor (group: narrative vs. checklist) and one repeated measure of dream recall (estimated DRF vs. log DRF) was performed. Prior to statistical testing, estimated DRF values were prorated to a 5 day period to allow comparisons with the log based 5 day windows. Since the distribution of estimated DRF was positively skewed and kurtosed, logarithmic transformations were applied to the raw data. Two sets of analyses were performed using two temporal measures of log DRF. Differences between retrospectively estimated DRF and log based DRF from the 1st five day block were first examined to investigate the immediate effect of keeping a dream log on DRF. The same analysis was then performed using the mean DRF from windows 1, 2 and 3 (i.e., all 15 log days) to examine the longer-term effect of keeping a dream log.

Analyses based on the first 5-day time window as well as on all three windows (15 days) yielded the same pattern. A significant interaction between log type and DRF measure was found for log-based DRF when only time block 1 was used ($F(1, 356) = 29.31$, $p < .001$, $ES = 7.6$) as well as when the mean from windows 1–3 was used for log-based DRF ($F(1, 356) = 50.91$, $p < .001$, $ES = 12.5$). Main effects were significant for both analyses ($ps < .001$). Simple effects were tested to examine the separate effects of log type on mean differences between retrospectively estimated and log-based DRF. ANOVAs showed that when compared to their retrospectively estimated DRF ($M = 3.3 \pm 2.2$) the checklist group had a significantly higher log DRF, whether based on block 1 ($M = 5.3 \pm 3.4$, $F(1, 192) = 84.83$, $p < .001$, $ES = 30.6$) or time blocks 1–3 ($M = 4.7 \pm 2.7$, $F(1, 192) = 78.42$, $p < .001$, $ES = 29.0$). By contrast, the narrative group's retrospectively estimated DRF ($M = 3.1 \pm 1.8$) did not differ significantly from either their block 1 log DRF ($M = 3.4 \pm 2.1$, $F(1, 164) = 1.41$, $p = .236$, $ES = .9$) or windows 1–3 ($M = 2.9 \pm 1.6$, $F(1, 164) = 2.24$, $p = .137$, $ES = 1.3$). Examining each of the three DRF measures separately revealed simple effects between the two log formats for log-based DRF: a significantly greater number of dreams were reported by the checklist group than the narrative group both during time window 1 ($F(1, 356) = 31.48$, $p < .001$, $ES = 8.1$) and over windows 1–3 ($F(1, 356) = 52.71$, $p < .001$, $ES = 12.9$). There was no significant difference between the two groups' retrospectively estimated DRF ($F(1, 356) = .49$, $p = .487$, $ES = .1$).

### 4.3. Low vs. high dream recallers

To further refine these results, we tested if the interaction effect between type of log and prospective DRF differed across subjects' grouping into low-recallers, medium-recallers and high-recallers based on their baseline DRF. A $2 \times 3 \times 2$ (ANOVA) with two independent factors (log group: narrative vs. checklist and baseline DRF: low vs. medium vs. high recallers) and one repeated measure of dream recall (estimated DRF and mean DRF from time blocks 1–3) was performed. The mean DRF obtained on the retrospective and prospective log measures for each of the six subgroups of participants is presented in Fig. 3. There was no significant triple interaction effect: $F(2, 352) = .52$, $p = .6$. Although the three double interaction effects were statistically significant ($ps < .05$), they are not detailed here as they are redundant with results presented above.

## 5. Discussion

The main objective of the present study was to investigate the impact of keeping a narrative or checklist dream diary on DRF. Our first prediction that DRF obtained from narrative logs would decrease over time while DRF from checklist logs would remain stable was partially confirmed. Similarly, there was evidence to support the idea that the actual length of dreams reported in narrative logs decreases over time with dreams collected during the third time window being approximately 25% shorter than those from the 1st window. The prediction that checklist logs would yield significantly higher DRF than participants' retrospective estimates was supported. Finally, we found that the interaction between log type and retrospective vs. prospective DRF did not vary across groups with low, medium or high baseline levels of dream recall. The implications of each of these findings are discussed below.

Despite having received equivalent instructions at the study's outset, the narrative log group completed their daily logs for a significantly shorter period of time than the checklist log group (24.7 vs. 34.6 days respectively). Moreover, although the two groups did not differ in their self estimated baseline DRF, subjects completing narrative logs reported significantly fewer dreams per week, and the mean number of words per dream reported in the narrative logs also tended to decreased over time, although somewhat later than the observed decrease in absolute DRF. This result runs counter to the attention-focus prediction that the more involving narrative logs would generate higher DRFs than the simpler checklist logs. Examining fluctuations in log-based DRF over time revealed that for both narrative and checklist dream logs, dream recall decreased after the first 5-day window, a finding consistent with previous studies having used narrative logs (Bernstein & Belicki, 1995; Schredl, 2001), while it remained steady from time block 2 onwards. Although the stability of DRF in checklist logs had been previously noted (Schredl & Fulda, 2005), the peak in DRF found in the first 5 days (block 1) of the checklist logs is new. It is possible that this early DRF peak effect was also present in Schredl and Fulda's (2005) study of checklist DRF but that it went undetected given the use of considerably longer 2 week windows as comparative time units. The same early peak in DRF was

also evident in our narrative logs, and both types of prospective logs showed a subsequent decrease in DRF during time block 2. The decrease in DRF observed after the first five diary days suggests that the attention-focus theory of DRF is partially incorrect since the effect would be expected to last beyond a few days.

Taken together, these results highlight the importance of motivational factors beyond any effects attributable to the level of attention paid to one's dreams. Specifically, the findings indicate that the time consuming nature of narrative logs affects subjects' motivation over time. As a result, they likely chose to provide complete written reports of only some of their remembered dreams, a phenomenon previously noted in a study of teenage boys (Strauch, 2004; Strauch, 2005), as well as shorten their dream reports' overall length as indicated by the decrease in their dream word count. By contrast, people's motivation over time is less affected by the less demanding checklist logs and subjects are thus more inclined to report all of their remembered dreams. The results may also be partially explicable by other factors such as auto-censorship mechanisms whose influence would be more prominent when completing a narrative log (e.g., to avoid detailing embarrassing dream content) whereas the same types of dreams could be more readily reported in checklist logs given the absence of content material.

Results from the comparisons between questionnaire estimated and log based DRF are in continuity with the observed differences between narrative and checklist DRF. As predicted, only DRF from checklist logs was significantly higher than subjects' retrospective estimates. Although this finding is consistent with previous studies, the magnitude of the difference observed was considerably smaller (increases of 58% and 42% from estimated DRF to block 1 and to blocks 1–3 respectively) than in past reports (increases of 200–968%) (Cohen, 1969; Redfering & Keller, 1974). This difference is likely due to the fact that subjects in past studies reported a mean estimated DRF of approximately five dreams per month while our subjects were not selected on the basis of poor dream recall and had an estimated DRF about four times as great.

Keeping a dream log has been found to increase DRF in people with low questionnaire based dream recall whereas log based DRF tends to remain constant or even decrease in people with high questionnaire dream recall estimates (Cory et al., 1975; Schredl, 2002). We did not find evidence supporting the idea that the interaction between estimated and log DRF varies significantly between subjects with low, medium or high baseline levels of dream recall. However, our low recall group had a considerably higher mean baseline DRF than low recallers investigated in past studies (i.e. $\leqslant$2 dreams per week vs. $\leqslant$1 dream per month). Our result should thus be viewed with caution since our subject pool contained very few truly low dream recallers and the three groups had in fact average (approximately two dreams per week) to above average baseline levels of dream recall. It is interesting to note, however, that as shown in Fig. 2, the high-recall/narrative group was the only one of the six subgroups investigated whose estimated DRF was actually greater than their log-based DRF. This observation suggests that the decreased motivation affecting participants completing narrative logs is particularly evident in people with high dream recall due to the increased time commitment required to record their greater volume of dream recall.

Several methodological recommendations for the use of log-based dream recall instruments can be derived from these findings. First, when compared to narrative logs, checklist dream logs appear to yield more reliable and accurate DRF values since they are less affected by attentional and motivational factors. Second, DRF scores derived from narrative logs need to be interpreted with caution as underreporting may occur, especially in participants with naturally elevated levels of dream recall. Third, although narrative logs are required to collect detailed dream content prospectively, researchers should bear in mind that reported dreams likely represent only a subset of dreams and/or an abbreviated narrative report of dreams actually recalled with a focus on their more memorable, exciting or salient dream experiences. As an example of this phenomenon, nightmares and bad dreams, two particularly salient and emotionally charged types of dreams, have been shown to be reported with equal frequencies in narrative and checklist dream logs (Robert & Zadra, 2008). Finally, although narrative logs remain the most frequently used method to collect dream content prospectively, alternative instruments such as tape-recorders (Foulkes, 1979; Hurovitz, Dunn, Domhoff, & Fiss, 1999) or automated phone answering systems (Simard & Nielsen, 2009) can be used to collect audio recordings of people's dreams. But irrespective of the type of prospective instrument used, the quantity and quality of dream content material collected will ultimately depend on subjects' inherent degree of motivation and interest in remembering and reporting dreams over time.

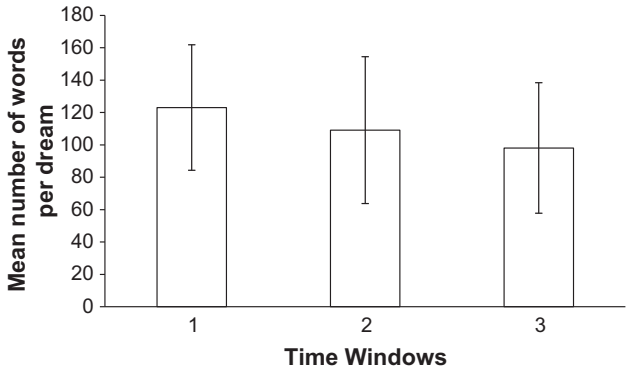


**Fig. 2.** Mean number of words ± SD per dream report from narrative logs over 5 day time windows.

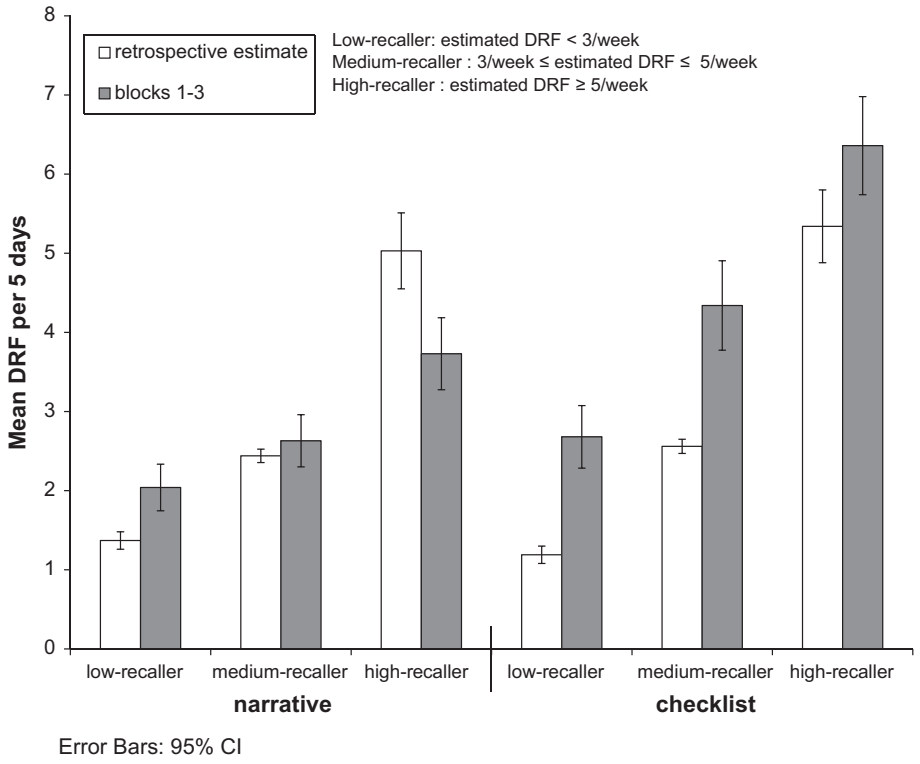


**Fig. 3.** Mean DRF per 5 day time windows as a function of log type, subjects' baseline level of dream recall, and type of DRF measure.

## 6. Conclusions

This study systematically compared DRF obtained with narrative and checklist prospective logs of at least 2 weeks' duration and retrospectively estimated DRF. Our results indicate that checklist dream logs yield higher prospective DRF than narrative logs, that significant differences between retrospective and prospective DRF are limited to checklist logs, and that prospectively measured DRF tends to peak at the beginning of the log and then remain stable over time. Thus, contrary to popular belief, keeping a dream log does not necessarily increase DRF, especially in individuals with average to high levels of dream recall. Improved DRF arising from subjects' increased attention towards their dreams can be short-lived and the effect quickly offset by motivational or other factors.

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