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Effects of (very) brief writing on health: The two-minute miracle

Chad M. Burton[1] and Laura A. King*

Department of Psychological Sciences, University of Missouri, Missouri, USA

This study tested the lower boundary of the dosage required to garner health benefits from written emotional expression. Participants wrote about either a personal trauma, a positive life experience, or a control topic for 2 minutes each day for 2 days. Emotion word usage in the essays was examined and physical health complaints were measured 4–6 weeks after the last writing session. Trauma and positive experience essays contained more emotional content than the control essays and such content was of a similar percentage to that demonstrated by past research. Both the trauma and the positive experience conditions reported fewer health complaints at follow-up than the control condition.

How long must one write in order to enjoy the benefits of writing? In the vast majority of research, participants write for 15–20 minutes a day for 2–3 days. The time period spent for writing has been driven primarily by convention rather than empirical evidence and no studies have sought to identify the minimum dosage required to reap the benefits of writing. The first meta-analysis on expressive writing found that duration was unrelated to writing benefits (Smyth, 1998). A more recent (and larger) meta-analysis found that writing sessions longer than 15 minutes tended to show a larger effect than sessions less than 15 minutes (Frattaroli, 2006). However, of the 146 studies included in this exhaustive review, only 9 employed sessions of less than 15 minutes.

In order to test the lower boundary of the effects of expressive writing, in the present study, participants wrote for an almost inconceivably short period of time, just 2 minutes each day for 2 days (for a total of 4 minutes of writing). Previous suggestions for the mechanisms underlying the benefits of writing have typically drawn analogies to the therapeutic context and emphasized processes that are thought to occur during the writing session itself (e.g. story construction). In contrast, here we examined the impact of, essentially, broaching the topic on 1 day and briefly exploring it the next. Building on past research (Burton & King, 2004; King, 2001), the present study included both

* *Correspondence should be addressed to Professor Laura A. King, Department of Psychological Sciences, 210 McAlester Hall, University of Missouri, Columbia, MO 65211, USA (e-mail: kingla@missouri.edu).*

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positive and negative writing prompts. We predicted that just 2 minutes of writing over 2 days would lead to lowered physical symptoms.

Methods

Participants

Forty-nine undergraduate psychology students (36 women) gave informed consent and participated in return for course credit; 88% identified as Caucasian, 6% as African-American, 2% Asian, and the remainder identified as 'other'.

Materials

Participants rated their positive/negative moods (Diener & Emmons, 1984) on a scale of 1 (not at all) to 5 (a great deal) immediately before and after each writing session. Positive affect (PA) descriptors included happy, joyful, pleased, enjoyment/fun, satisfied, content, and self-confident (alpha's ranged from .83 to .95 across the four measurements). Negative affect (NA) indicators included depressed/blue, unhappy, frustrated, worried/anxious, and bored (alpha's ranging from .73 to .84).

After the post-writing mood measure on each day, participants rated their experience of the writing task, including how important, meaningful, emotional, and interesting, it was on the same 1 to 5 scale.

At follow-up, participants completed the Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982; Pennebaker & Beall, 1986). The PILL includes 54 physical complaints ($\alpha = .91$). Participants rated each item on the following scale: 1 (never or almost never experienced symptom), 2 (less than three to four times a year), 3 (every month or so), 4 (every week or so), and 5 (more than once a week).

Word usage was measured using the Linguistic Inquiry Word Count program (LIWC; Francis & Pennebaker, 1992; Pennebaker & Francis, 1996). LIWC utilizes a dictionary of more than 2,200 words that were categorized based on independent ratings by expert judges (Pennebaker & Francis, 1996; Pennebaker, Mayne, & Francis, 1997).

Procedure

Participants came into the laboratory once a day for 2 consecutive days for the writing sessions. On the first day, participants were randomly assigned to write about a trauma, a positive experience, or a control topic. The writing and all pre- and post-writing measures were conducted on a computer in a private cubicle. The procedure and topic assignment for the 2 days of writing were identical. After the mood ratings, participants were given their writing prompt and told they would have 2 minutes to write about their assigned topic. Once 2 minutes expired, the computer automatically closed the writing assignment and administered the post-mood questionnaire and the experience of writing items. The trauma and positive experience writing prompts were identical to those used in past research (Burton & King, 2004; King & Miner, 2000). Control participants wrote a physical description of the college campus on 1 day and described their shoes on the other day (in counterbalanced order).

Four to six weeks after the last day of writing, participants were contacted via e-mail and given a link to an on-line survey containing the follow-up measures. The survey contained the same NA items described above and the PILL. As suggested by previous research, NA was included order to control for negative mood in data analyses (Watson & Pennebaker, 1989).

Results

What does a 2-minute version of traumatic or positive experience writing contain? By far the most common traumatic event was the illness, injury, or death of a friend or family member. Notably, 81% of the trauma condition wrote about the same event on both days. Positive experiences were more diverse and consisted of meeting one's significant other, a sporting or academic accomplishment, or a vacation. Only 41% of the positive experience condition wrote about the same event on both days.

Mood

Mood did not differ significantly across the 2 days of writing so mean scores were computed for PA and NA. To control for pre-writing mood, post-writing PA and NA values were residualized on pre-writing PA and NA, respectively.[1] One-way ANOVAs conducted on residualized post-writing PA and NA indicated significant differences on PA ($F_{(2,46)} = 8.45, p = .001$) but not NA ($p = .20$). Planned comparisons for PA revealed that trauma was significantly lower than the control ($t_{(46)} = 2.64, p = .01$) and positive experience conditions ($t_{(46)} = 4.06, p < .001$). See Figure 1 for means.

Experience of writing

Given the unusual time limit for writing in this study, one might wonder whether individuals in this study experienced the writing intervention as important, meaningful, etc.[2] Analyses revealed that in general even just 2 minutes of writing about a trauma or a positive topic were, indeed, experienced as important. A MANOVA was conducted on the experience of writing items and significant differences were found for all items (Wilks $\lambda = .37$, $F_{(8,86)} = 6.82$, $p < .0001$; univariate F values ranged from 8.55 for emotional to 27.20 for important, all p's $< .01$). Compared to controls, those in the trauma (t's$_{(46)}$ ranging from 2.77 to 6.20, p's $< .01$) and positive experience conditions (t's$_{(46)}$ ranging from 2.89 to 6.78, p's $< .01$) found writing to be more important, meaningful, emotional, and interesting.

Physical health

To control for NA in physical health analyses (Watson & Pennebaker, 1989), PILL scores were residualized on NA measured immediately preceding the PILL items at follow-up. A one-way ANOVA on the residualized PILL indicated that the writing conditions did differ significantly ($F_{(2,46)} = 4.01$, $p = .03$). Trauma ($t_{(46)} = 2.66$, $p = .01$) and positive experience conditions ($t_{(46)} = 2.20$, $p = .03$) both differed significantly from control, but not each other ($p = .62$) (see Figure 1). Effect size estimates computed for both the trauma versus control ($d = .78$; $r = .37$) and positive experience versus control ($d = .65$; $r = .31$) indicate that the size of these effects is in line with what has been found in previous research. Meta-analyses have found that, for self-reported physical health, effect sizes of $d = .42$ or $r = .21$ are the average for this type of research (Smyth, 1998).

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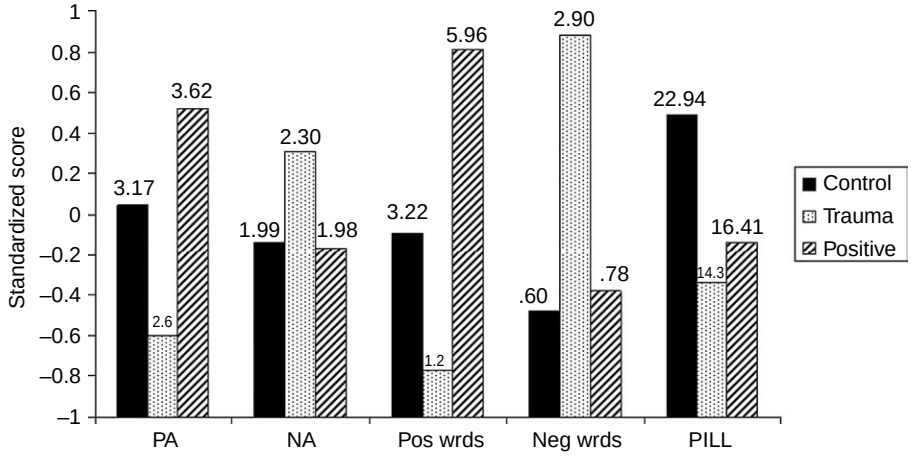
[1] *As expected by random assignment, there were no systematic differences between conditions on the pre-measures of mood.*

[2] *Ratings on the experience of writing were compared between the 2 days, with one significant difference emerging. The first day of writing was rated as more emotional ($t_{(48)} = 3.01$, $p = .004$). However, examining the days separately did not change the significance or pattern of results. Therefore, mean scores across the 2 days of writing for all experience of writing variables were used.*



Note: PA = positive affect post writing; NA = negative affect post writing; Pos wrds = positive emotion word usage; Neg wrds = negative emotion word usage. Values that appear above each bar are the unstandardized means for the respective variables and conditions.

Figure 1. Standardized scores by condition.

Word usage

LIWC created variables for word count, positive emotion words, and negative emotion words. Word count differed significantly across days (paired sample $t_{(48)} = 3.00$, $p = .004$) but positive and negative emotion words did not. Paired sample t tests were then conducted on days 1 and 2 word counts within each condition and it was found that only the trauma condition differed across days with day 2 being longer (M's = 69.88 vs. 84.06; $t_{(15)} = 3.27$, $p = .005$). Next, a MANOVA was conducted on the day 1 word count, day 2 word count, mean of positive emotion words across days, and mean of negative emotion words across days. The multivariate statistics indicated significant differences (Wilk's $\lambda = .33$, $F_{(8,86)} = 7.86$, $p < .001$). Univariate F values indicated differences on word count for day 2 ($F_{(2,46)} = 3.47, p = .04$), positive emotion words ($F_{(2,46)} = 17.70$, $p < .001$), and negative emotion words ($F_{(2,46)} = 14.66$, $p < .001$). Results of planned contrasts showed the trauma essays were longer than the controls (M's = 84.06 vs. 64.38; $t_{(46)} = 2.62$, $p = .008$). Though not significantly different, the length of positive experience essays on day 2 fell in between the other two conditions ($M = 76$). The positive experience essays contained more positive words than either the control ($t_{(46)} = 3.40$, $p = .001$) or the trauma ($t_{(46)} = 5.92$, $p < .001$). Controls used more positive words than trauma ($t_{(46)} = 2.50$, $p = .02$). Finally, trauma essays had more negative emotion words than control ($t_{(46)} = 4.85$, $p < .001$) or positive experience essays ($t_{(46)} = 4.54$, $p < .001$; see Figure 1).

Essays in this study demonstrated a similar percentage of emotion words as in studies with 15–20 minutes of writing. Negative emotion words comprised 2.9% of the trauma essays versus 2.3% reported by Klein and Boals (2001; Study 2) and 1–1.4% reported by Esterling, Antoni, Fletcher, Marguiles, and Schneiderman (1994). Percentage of positive emotion words for the trauma condition was about the same as past research: 1.16% versus 2.6% reported by Klein and Boals (2001; Study 2) and 0.5% reported by Esterling *et al.* (1994). For the positive writing condition, emotion

word usage was likewise comparable to past research – 5.96% versus 4.55% for positive words and 0.78% versus 1.31% for negative words; both reported by Burton and King (2004).

Discussion

This study shows that health benefits follow from just 2 minutes of written expression. Certainly these results do not mean that spending more time expressing emotion is bad but they do show that the minimum dosage required may be lower than previously thought. Due to the nature of this experiment, participants were often cut off in the middle of a thought, particularly on the first day of writing. Most likely participants did not stop thinking about their trauma or positive experience the moment the computer prompted them to continue to the next part of the study. Rather, participants may well have spent a good deal of time between the two sessions processing their experience – they just did not have to do so on a computer in a psychological laboratory in an unfamiliar building. In fact, the time constraint may have led trauma-writers, especially, to stay focused on the same topic from one day to the next, as participants essentially had no time to pick a new topic. In essence, this short writing for the trauma condition may have allowed participants to harness the power of 'unfinished business' or the Zeigarnik effect (Zeigarnik, 1938) to speed them to closure and resolution. Notably, those who wrote about positive experiences were more likely to switch to a new topic, suggesting that they might have wisely avoided the trap of over-analyzing positive experiences (Lyubomirsky, Sousa, & Dickerhoof, 2006).

In the past, research has tended to rely on a standard time frame. The present results suggest, provocatively, that it might be enough to take (literally) just a couple minutes to reflect on important life experiences to garner the health benefits of writing. These results suggest that the physical act of engaging in writing may represent just a part of the process by which writing influences physical health. Although researchers have certainly profitably explored the physiological mechanisms that might underlie the benefits of writing, future research should also explore the psychological processes that might occur not only while the individual is engaged in writing but also over the course of the writing sessions. Clearly, participants who have given informed consent know when their days of writing will end: They know if they will be writing for 1 day, or 2 or 4 days. Similarly, they know how long each individual session will last. It may be that individuals intuitively fit their writing to the allotted time, even if that time is the almost inconceivably short period of just 4 minutes in total.

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