

Stepping Back to Move Forward: Expressive Writing Promotes Self-Distancing

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Prior research indicates that expressive writing enhances well-being by leading people to construct meaningful narratives that explain distressing life experiences. But how does expressive writing facilitate meaning-making? We addressed this issue in 2 longitudinal studies by examining whether and how expressive writing promotes *self-distancing*, a process that facilitates meaning-making. At baseline in both studies, participants reflected on a distressing life experience. In Study 1 participants were then randomly assigned to write about their distressing experience or a non-emotional topic for 15 min on 3 consecutive days; in Study 2 participants were randomly assigned to write or think about their distressing experience or write about a non-emotional topic for the same amount of time. One day following the intervention, expressive writing participants in both studies self-distanced more when they reflected over their distressing experience compared with participants in the other conditions, which in turn led them to experience less emotional reactivity 1 month (Studies 1 and 2) and 6 months (Study 2) after the intervention. Analyses using data from both studies indicated that expressive writing reduced physical symptoms indirectly through its effects on self-distancing and emotional reactivity [that is, expressive writing group (vs. comparison groups) → greater self-distancing → less emotional reactivity → fewer physical symptoms]. Finally, linguistic analyses using essays from both studies indicated that increased use of causation words and decreased use of negative emotion words and first-person singular pronouns predicted increases in self-distancing over time. These findings demonstrate that expressive writing promotes self-distancing and illustrate how it does so.

Keywords: expressive writing, meaning-making, self-distancing, emotional reactivity

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Imagine that someone told you that writing about your deepest thoughts and feelings surrounding your most distressing life experience for 15 min a day for three consecutive days would dramatically improve your well-being. That engaging in this process would lift your mood, lead you to ruminate less about the negative experience, and lead you to visit the doctor less. Although this simple prescription might sound too good to be true, dozens of experiments performed on expressive writing over the past two decades provide consistent evidence to support it (for reviews, see Baikie & Wilhelm, 2005; Frattaroli, 2006; Pennebaker & Chung, 2007; Smyth, 1998).

The remarkable effects associated with this simple intervention have led to much research on the psychological mechanisms that underlie it (e.g., Creswell et al., 2007; Stone, Smyth, Kaell, & Hurewitz, 2000). According to one view, expressive writing leads people to create narratives that explain their feelings, which in turn lead them to feel better (Graybeal, Sexton, & Pennebaker, 2002; Lyubomirsky, Sousa, & Dickerhoof, 2006; Pennebaker, Mayne, & Francis, 1997; Smyth, True, & Souto, 2001).

But how does expressive writing promote such healthy explanations? People are notoriously bad at “thinking through” negative experiences to understand them—their attempts to do so often lead them to ruminate and feel worse (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Wilson, 2002). Thus, there must be something specific about expressive writing that facilitates this process. Here we begin to address this question by examining whether and how expressive writing promotes self-distancing, an emotion-regulatory process that facilitates adaptive meaning-making (Ayduk & Kross, 2010a; Kross, 2009; Kross & Ayduk, 2011), and whether self-distancing mediates emotional benefits associated with expressive writing. For exploratory purposes, we also examined the links between self-distancing and physical health benefits associated with expressive writing.

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Self-Distancing, Meaning-Making, and Expressive Writing

Research on self-reflection indicates that when people analyze negative autobiographical experiences, they tend to adopt a self-immersed perspective in which they visualize their experience happening all over again through their own eyes (Ayduk & Kross, 2010b; Grossmann & Kross, 2010; Verduyn, Van Mechelen, Kross, Chezzi, & Van Bever, 2012). From this perspective, the self that is experiencing the event and the self that is reasoning about it are one. However, it is also possible for people to reflect over their experience from a self-distanced perspective in which they see themselves in the event from afar. From this perspective, the self that is reasoning about the event is psychologically removed from the self that is experiencing the event.

Several studies indicate that reflecting over negative experiences from a self-distanced perspective facilitates adaptive self-reflection by changing the way people cognitively represent negative experiences in ways that reduce their aversiveness—a process often referred to as “emotional processing” (Foa & Kozak, 1986; Rachman, 1980) or adaptive “meaning-making” (Kross & Ayduk, 2011). These cognitive shifts, in turn, allow people to reflect over their negative experiences in the future without becoming overwhelmed by negative emotional and physiological reactivity, in ways that buffer against rumination over time. This is true regardless of whether self-distancing is experimentally manipulated or spontaneously engaged in (for reviews, see Ayduk & Kross, 2010a; Kross, 2009; Kross & Ayduk, 2011) and has been shown in a variety of samples, including healthy adults (Katzir & Eyal, 2013; Kross & Ayduk, 2008; Kross, Ayduk, & Mischel, 2005; Mischkowski, Kross, & Bushman, 2012), children (Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011; White, Kross, & Duckworth, 2015), subclinical (Kross & Ayduk, 2009; Wisco & Nolen-Hoeksema, 2011), and clinical (Gruber, Harvey, & Johnson, 2009; Kross, Gard, Deldin, Clifton, & Ayduk, 2012; Park et al., 2014) populations.

Several features of expressive writing suggest that this process should promote self-distancing. Constructing narratives, which are integral to the success of expressive writing (Graybeal et al., 2002; Smyth et al., 2001), separates “the self-in-the-present-as-narrator” from “the-self-in-the-past-as-protagonist” (Apgar, 1997), requires people to adopt other people’s perspectives (Labov & Fanshel, 1977), and leads them to focus on the broader context (Meier, 2002). All of these processes involve transcending one’s egocentric viewpoint on the self (Linde, 1993), which should promote self-distancing. In addition, people often write about their experiences using the past tense (Polanyi, 1982). Research on construal level theory indicates that different dimensions of psychological distance are interrelated (Trope & Liberman, 2010). Thus, enhancing temporal distance by writing in the past tense should also promote self-distancing.

Research Overview

Our analysis suggests that writing expressively about negative experiences should lead people to self-distance more when they reflect over these experiences again in the future. To our knowledge, however, no research has directly tested this idea. We addressed this issue by examining the effects of the standard 3-day

expressive writing intervention (Pennebaker & Francis, 1996) on self-distancing both 1 day and 1 month following the initial writing intervention in Study 1, and 1 day, 1 month, and 6 months following the intervention in Study 2.

If writing expressively about a negative experience promotes self-distancing, then it should also allow people to reflect on that same experience again in the future without becoming overwhelmed by negative affect. Indeed, one of the principle ways of gauging whether self-distancing facilitates adaptive self-reflection has been to demonstrate that people who engage in this process are capable of reflecting on painful emotional experiences without succumbing to intense negative affect (Kross & Ayduk, 2008; also see Foa & Kozak, 1986). Our second goal was to examine this issue. We did so by examining whether writing expressively about negative experiences leads people to experience less emotional reactivity when they think about these experiences again after the intervention by enhancing people’s tendency to self-distance.

Our third goal was to explore the relationship between expressive writing, self-distancing, and physical health improvements. Although it is well established that self-distancing promotes emotional well-being, it remains unexplored how this process influences physical health. Given that emotional and physical health are closely related (e.g., Eisenberger, 2012; Kross, Berman, Mischel, Smith, & Wager, 2011; MacDonald & Leary, 2005; Prince et al., 2007), we reasoned that it was possible that self-distancing might also explain how expressive writing promotes improvements in physical health over time.

Our final goal was to explore which aspects of expressive writing promote self-distancing. Pooling data from expressive writing participants from Studies 1 and 2, we addressed this issue by conducting a series of linguistic analyses to test a number of a priori, theoretically informed predictions about the linguistic mechanisms (i.e., cognitive processing, emotions, or pronoun use) that underlie the shifts in self-distancing that expressive writing promotes.

Study 1

Method

Participants. Fifty-six undergraduates (32 women; $M_{\text{age}} = 19.25$, $SD_{\text{age}} = 1.05$; 49.1% Caucasian, 28.3% African American, 9.4% Hispanic, 5.7% Asian American, 7.5% of other) were recruited via flyers posted on the campus. Participants received \$40 for participating. Participants were randomly assigned to one of two experimental conditions: expressive writing ($n = 26$) or control writing ($n = 30$). This sample size was consistent with conventions in the field at the time that this study was run (e.g., Simmons, Nelson, & Simonsohn, 2011).

Baseline Assessments: Day 1. After providing informed consent, participants completed several baseline measures.

Depressive symptoms. First, participants completed the Beck Depression Inventory—II (BDI-II; Beck, Steer, & Brown, 1996; $\alpha = .87$, $M = 9.38$, $SD = 6.66$), a commonly used measure of depressive symptomatology. We assessed this construct and controlled for it in our analyses because depressive symptoms correlate positively with the distress people experience when recollecting negative autobiographical experiences (Bylsma, Taylor-Clift, & Rottenberg, 2011; Kross & Ayduk, 2009).

Physical symptoms. Participants were then asked to complete the 54-item Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982) as their baseline measure of physical health. Participants rated on a 5-point scale (1 = *have never or almost never experienced the symptom*, 5 = *more than once every week*) how frequently they experienced each of 54 common physical symptoms over the past 1 month (e.g., sore throat, headaches; $\alpha = .91$, $M = 114.02$, $SD = 23.06$).

Baseline self-distancing. Next, participants were asked to reflect over their deepest thoughts and feelings surrounding their most distressing experience for 60 s following established procedures (Ayduk & Kross, 2010b; Grossmann & Kross, 2010). Subsequently, participants were asked to answer two questions to assess their tendency to spontaneously self-distance when reflecting over their negative emotional experience (Mischkowski et al., 2012; Park et al., 2014). They rated (a) the extent to which they saw their memory replay through their own eyes versus watched it unfold from a self-distanced perspective (1 = *predominantly immersed participant*, 7 = *predominantly distanced observer*), and (b) how far away from the scene they were in their mind's eye as they thought about and analyzed their emotions about the negative experience (1 = *very close, saw it through my own eyes*, 7 = *very far, saw it as if an observer*). These ratings were averaged to create a single self-distancing index ($\alpha = .85$, $M = 3.24$, $SD = 1.77$).

Baseline emotional reactivity. Subsequently, participants answered four questions to assess emotional reactivity (Ayduk & Kross, 2008, 2010b; Kross & Ayduk, 2008). First, they rated how unhappy they felt "right now" (1 = *very unhappy*, 9 = *very happy*; $M = 4.46$, $SD = 1.61$), using the valence subscale of the Self-Assessment Mannequin (SAM; Bradley & Lang, 1994). In addition, to directly examine participants' current feelings about their experience, they were asked to rate their agreement (1 = *strongly disagree*, 7 = *strongly agree*) with the following three items: "Thinking about this event still makes me feel upset (e.g., sad, hurt, angry, rejected)"; "I re-experienced the emotions I originally felt during the event when I thought about it now"; and "As I think about this event now, my emotions and physical reactions are still intense." The ratings from these items were averaged to form a single emotional reactivity index after reverse-coding participants' scores on the valence question and standardizing all scores ($\alpha = .83$, $M = .03$, $SD = .85$).

Experimental manipulation: Days 2–4. Participants returned to the lab one day after the baseline session and were randomly assigned to an expressive writing or control writing condition. Participants in the expressive writing condition were reminded of the distressing experience they thought about during the baseline session. They were then asked to write about their deepest thoughts and feelings regarding their experience by focusing on their past, present, and future, and their relationships with others. Participants in the control writing condition were asked to write about a neutral topic (i.e., what they had done since waking up that morning) in a non-emotional fashion; the experimenter emphasized that they were to describe the topic without discussing their emotions, feelings, or opinions. The instructions for each writing condition were taken verbatim from Pennebaker and Francis (1996). Participants returned to the lab on three consecutive days and received the same instructions at the beginning of each session. They were asked to write continuously for 15 min during each session.

1-day and 1-month follow-up sessions. Participants returned to the lab 1 day and 1 month following the final writing session. During each of these follow-up sessions, they were asked to reflect over the same distressing experience they thought about during the baseline session. They then rated their levels of self-distancing (1-day follow-up: $\alpha = .86$, $M = 3.72$, $SD = 1.55$; 1-month follow-up: $\alpha = .89$, $M = 4.20$, $SD = 1.81$) and emotional reactivity (1-day follow-up: $\alpha = .79$, $M = -.003$, $SD = .77$; 1-month follow-up: $\alpha = .78$, $M = .02$, $SD = .85$) using the same measures administered during baseline. During the 1-day follow-up session, participants also indicated when their negative experience happened ($M = 1015.75$ days, $SD = 1231.35$). We obtained information on this dimension to adjust for it in our analyses, since previous studies suggest that older memories elicit less emotional reactivity (Ayduk & Kross, 2010b; Nigro & Neisser, 1983; Robinson & Swanson, 1993). In addition, during the 1-month follow-up session, participants' self-reported levels of physical symptoms were again assessed with the PILL ($\alpha = .93$, $M = 109.74$, $SD = 26.71$).¹

Results

Exclusion criteria. We excluded participants who did not meet the following three a priori exclusion criteria: (a) participants who did not complete all phases of the study, (b) participants who did not comply with the study protocol, and (c) participants whose depressive symptoms exceeded the clinical cutoffs for severe depression (BDI-II ≥ 30). Eight participants (three expressive writing and five control writing participants) did not complete the study (drop-out rate = 14.29%). In addition, four participants were excluded because they did not comply with the study protocol; three expressive writing participants wrote about more than one distressing event, and one control writing participant wrote about an emotional event. All participants scored below the clinical cutoff for severe depression so no one was excluded on this basis. These exclusions left 44 participants with analyzable data (25 women; $M_{\text{age}} = 19.18$, $SD_{\text{age}} = 1.11$; 20 in the expressive writing condition and 24 in the control writing condition). Attrition and exclusions were independent of condition, $\chi^2(1, N = 56) = .08$, $p = .78$, $W = .04$.

Preliminary analyses. The expressive and control writing groups did not vary on depressive symptoms, $F(1, 42) = 1.72$, $p = .20$, $\eta_p^2 = .04$, age, $F(1, 42) = .14$, $p = .71$, $\eta_p^2 = .003$, or gender, $\chi^2(1, N = 44) = .05$, $p = .82$, $W = .03$. However, expressive writing participants recalled distressing events that were older ($M = 1,548.85$, $SE = 284.20$, 95% confidence interval; CI; [975.32, 2,122.48]) than control writing participants ($M = 708.42$, $SE = 259.43$, 95% CI [184.86, 1,231.98]), $F(1, 42) = 4.77$, $p = .04$, $\eta_p^2 = .10$. We thus controlled for memory age in all analyses.

Overview of data analyses. We performed repeated measures general linear models (GLMs) with condition (expressive writing vs. control writing) as a between-participants factor, follow-up time (1 day vs. 1 month) as a within-participants factor, and participants' baseline levels of the dependent measure being analyzed and memory age as covariates. Each analysis also controlled for BDI-II scores because this variable was positively related to

¹ See the online supplementary materials for additional measures included in Studies 1 and 2.

emotional reactivity at all sessions ($r_s > .38$, $p_s < .05$; see also Ayduk & Kross, 2010b; Bylsma et al., 2011; Kross & Ayduk, 2009).²

Does expressive writing promote self-distancing? The effect of condition was significant for self-distancing, $F(1, 39) = 5.83$, $p = .02$, $\eta_p^2 = .13$. As predicted, expressive writing participants self-distanced more when they reflected over their distressing experience during the follow-ups ($M = 4.59$, $SE = .32$, 95% CI [3.94, 5.24]), compared with control writing participants ($M = 3.48$, $SE = .29$, 95% CI [2.89, 4.07]; see Figure 1).

The effect of follow-up time was also significant, $F(1, 39) = 4.86$, $p = .03$, $\eta_p^2 = .11$, indicating that participants self-distanced more during the 1-month follow-up ($M = 4.32$, $SE = .26$, 95% CI [3.80, 4.85]) than during the 1-day follow-up ($M = 3.75$, $SE = .20$, 95% CI [3.34, 4.16]). Follow-up time did not interact significantly with condition, $F(1, 39) = .06$, $p = .83$, $\eta_p^2 = .001$.

Does expressive writing buffer against future emotional reactivity? As expected, expressive writing participants experienced less emotional reactivity ($M = -.21$, $SE = .13$, 95% CI [-.48, .05]) than control writing participants ($M = .11$, $SE = .12$, 95% CI [-.13, .36]), $F(1, 39) = 3.15$, $p = .08$, $\eta_p^2 = .08$. Neither the effect of follow-up time nor the interaction between follow-up time and condition were significant ($F_s < .42$, $p_s > .52$, $\eta_p^2 < .01$).

The longitudinal nature of our data was ideally suited to test whether participants' tendency to self-distance 1 day following the writing intervention mediated the effect of condition on their levels of emotional reactivity 1 month following the intervention. The mediation analysis we performed supported this prediction. Specifically, condition (0 = control writing, 1 = expressive writing) was related to both self-distancing during the 1-day follow-up, $b = 1.17$, 95% CI [.25, 2.10], $t(39) = 2.57$, $p = .01$, $d = .82$, and emotional reactivity during the 1-month follow-up, $b = -.51$, 95% CI [-1.01, -.01], $t(39) = 2.08$, $p = .04$, $d = .66$. When both condition and self-distancing during the 1-day follow-up were entered as joined predictors of emotional reactivity during the 1-month follow-up, the path from condition to emotional reactivity

was no longer significant, $b = -.19$, 95% CI [-.66, .28], $t(38) = -.81$, $p = .42$, $d = .26$, whereas the relationship between self-distancing and emotional reactivity remained significant, $b = -.27$, 95% CI [-.43, -.12], $t(38) = -3.66$, $p < .001$, $d = 1.19$. A bootstrapping test confirmed that the mediated path from condition to emotional reactivity during the 1-month follow-up through self-distancing during the 1-day follow-up was statistically significant (95% bias-corrected bootstrapping CI = [-.74, -.09]; see Panel A of Figure 2).

Although the aforementioned analysis provides evidence to support the hypothesized link between expressive writing, self-distancing, and emotional reactivity, it is also possible that the reductions in emotional reactivity that expressive writing participants displayed 1 day following the intervention led them to adopt a self-distanced perspective 1 month following the intervention. We thus examined whether emotional reactivity during the 1-day follow-up mediated the effect of condition on self-distancing during the 1-month follow-up. This mediation was not significant (95% bias-corrected CI = [-.05, 1.35]).

Does expressive writing promote physical health over time? Contrary to prior research, the effect of condition was not significant for physical symptoms, $F(1, 39) = .09$, $p = .77$, $\eta_p^2 = .002$. Despite this null result, both self-distancing and emotional reactivity were correlated with physical symptoms in the expected directions (see Table 1). Across all participants, physical symptoms were negatively associated with self-distancing during the 1-month follow-up, $r(44) = -.30$, $p = .05$, and positively associated with emotional reactivity during the 1-month follow-up, $r(44) = .40$, $p = .01$. These relationships indicate that regardless of condition, those who self-distanced more and felt emotional reactivity less 1 month following the intervention experienced fewer physical symptoms.

Summary and Discussion

Four key findings emerged from this study. First, participants who wrote about their most distressing experience for 15 min a day for three consecutive days self-distanced more 1 day following the writing intervention than those instructed to write about a non-emotional topic for the same amount of time. It is important to note that this effect held 1 month following the intervention, highlighting the long-term robustness of our findings.

Second, expressive writing participants experienced less emotional reactivity when they reflected over their distressing experience again during the two follow-up sessions compared with control writing participants. This finding suggests that expressive writing changes the way people represent their negative experience in ways that reduce its reactivity—a finding that is consistent with

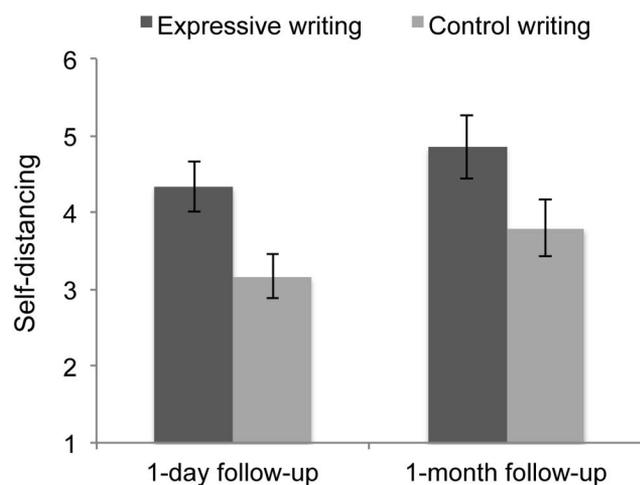


Figure 1. Self-distancing assessed during the two follow-up sessions (1 day and 1 month) for expressive writing and control writing participants in Study 1. Baseline self-distancing, memory age, and BDI-II scores are controlled. Error bars indicate standard errors.

² Following Judd and McClelland (1989) and Owen and Froman (1998), we controlled for variables that were either linked to the independent variable (expressive writing vs. control writing) or dependent variables (self-distancing and/or emotional reactivity). BDI-II and memory age were such variables and we thus controlled for them in all analyses. Excluding these variables somewhat weakened the Study 1 findings—the effects of condition on self-distancing and emotional reactivity: $F(1, 41) = 1.33$, $p = .26$, $\eta_p^2 = .03$ and $F(1, 41) = 1.30$, $p = .26$, $\eta_p^2 = .03$, respectively—but did not substantially alter the Study 2 findings—the effects of planned contrast with expressive writing (+2) versus control writing and thinking (both -1) on self-distancing and emotional reactivity: $F(1, 63) = 5.70$, $p = .02$, $\eta_p^2 = .08$ and $F(1, 63) = 6.15$, $p = .02$, $\eta_p^2 = .09$, respectively.

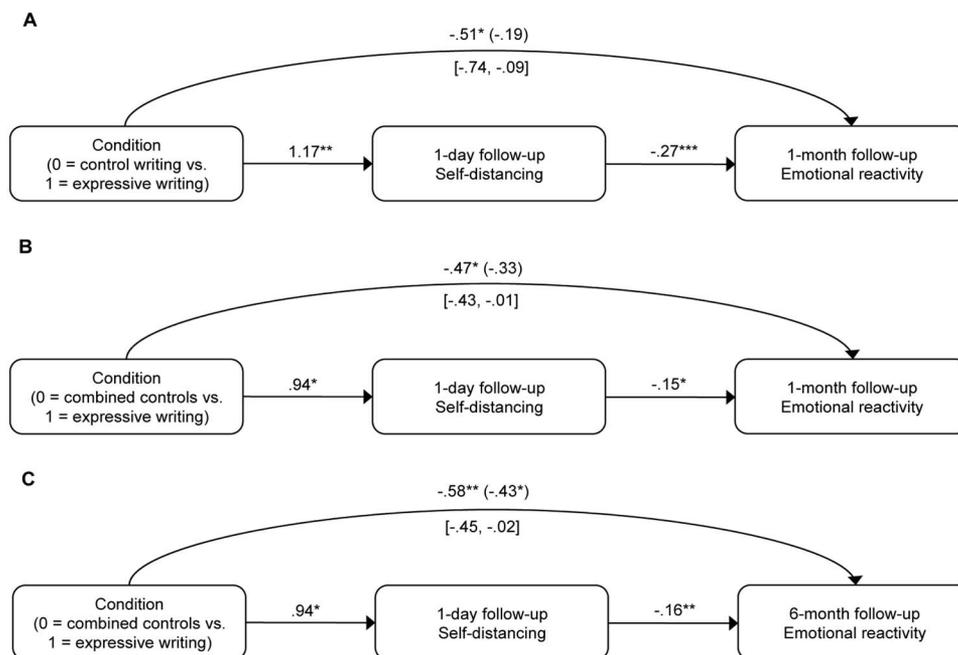


Figure 2. Results of path analyses examining the role of self-distancing 1 day following the intervention in mediating the effect of condition on emotional reactivity 1 month following the intervention in Study 1 (Panel A), and emotional reactivity 1 month (Panel B) and 6 months (Panel C) following the intervention in Study 2. Unstandardized coefficients are shown. The values in parentheses show the relationship between condition and the dependent variables after controlling for 1-day follow-up self-distancing. The values in square brackets are 95% bias-corrected confidence intervals from a bootstrap test with 2,000 replications; the mediation is significant if the confidence interval does not include zero. Baseline self-distancing, memory age, and BDI-II scores are controlled. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

previous studies demonstrating that expressive writing decreases emotional reactions to negative experiences (Hemenover, 2003; Lepore & Greenberg, 2002; Mendolia & Kleck, 1993).

Third, expressive writing participants self-distanced more 1 day following the intervention than control writing participants, which in turn, led them to experience less emotional reactivity 1 month following the intervention. This finding suggests that self-distancing partly explains how expressive writing leads to reductions in emotional reactivity over time.

One unexpected finding that emerged from this study was our failure to replicate the long-term physical health benefit of expressive writing. There are two plausible explanations for this null finding. First, it is important to recognize that not all prior research has linked health benefits with expressive writing (e.g., Greenberg & Stone, 1992; Levey-Thors, 2000; Lutgendorf, Antoni, Kumar, & Schneiderman, 1994). In particular, a meta-analysis reported that the effects of expressive writing tend to be weak (unweighted mean r effect size = .02, $p = .16$), especially when self-report measures of general physical symptoms are employed to assess physical health (e.g., PILL scores; Frattaroli, 2006). To overcome this limitation, in Study 2 we assessed participants' physical health both subjectively, based on self-report measures of physical symptoms and general health, and objectively, based on their health center visit record.

Second, it is also possible that physical health benefits associated with expressive writing may not occur immediately following

the intervention and may take more time to demonstrate significant changes. Consistent with this view, previous studies suggest that some health effects associated with expressive writing do not emerge until several months after the intervention (e.g., Smyth, Stone, Hurewitz, & Kaell, 1999). To test this possibility, we assessed participants' health outcomes both 1 month and 6 months following the experimental manipulation in Study 2.

These explanations notwithstanding, we did observe significant correlations between self-distancing, emotional reactivity, and physical health in the expected directions. These correlations provide preliminary evidence that is consistent with the idea that self-distancing may be related to physical health.

Study 2

Study 2 had three goals. First, Study 1 showed that the effects of expressive writing on self-distancing and emotional reactivity persisted up to 1 month following the intervention. To further examine the robustness of these effects, we added a 6-month follow-up session in Study 2.

Second, we examined the effects of expressive writing on physical health again in Study 2. However, this time we administered both subjective (i.e., self-reported physical symptoms and general health) and objective (i.e., health center visit record) measures of health. We also assessed physical health outcomes multiple times, during both the 1-month and 6-month follow-ups.

Table 1
Intercorrelations Among the Key Outcome Variables Assessed During the Follow-Up Sessions in Study 1 and Study 2 Separately and Also for Combined Data Across Both Studies

Variable	2		3		4		5		6		7		8		9		10		11		
	<i>r</i>	<i>pr</i>																			
Study 1																					
1-day follow-up																					
1. Self-distancing	-.57***	-.56***	.65***	.60***	-.53***	-.50***	-.24	-.14													
2. Emotional reactivity		-.47***	-.43**	.57***	.72***	.57***	.24	.06													
1-month follow-up																					
3. Self-distancing			-.51***	-.49***	-.30*	-.30*	-.12														
4. Emotional reactivity					.40**	.40*															
5. Physical symptoms																					
Study 2																					
1-day follow-up																					
1. Self-distancing	-.42***	-.46***	.56***	.49***	-.32**	-.31*	-.22†	-.17	.12	.08	.30*	.21†	-.35***	-.38**	-.21†	-.15	.14	.07	-.07	-.01	
2. Emotional reactivity		-.38**	-.48***	.74***	.72***	.64***	.31*	.29*	-.30*	-.17	-.13	-.12	.62***	.53***	.26*	.18	-.38***	-.25*	.25*	.18	
1-month follow-up																					
3. Self-distancing			-.43***	-.47***	-.43***	-.47***	-.10	-.10	.07	-.00	.52***	.49***	-.35***	-.41***	-.09	-.12	.09	.05	.03	.06	
4. Emotional reactivity					-.24*	-.24*	.24*	.16	-.22†	-.03	-.16	-.17	.70***	.66***	.14	.06	-.25*	-.11	.15	.02	
5. Physical symptoms									-.79***	-.69***	-.10	-.09	.24†	.27*	.77***	.55***	-.70***	-.47***	.43***	.17	
6. General health											.09	.09	-.19	-.06	-.62***	-.28*	.70***	.55***	-.32**	-.18	
6-month follow-up																					
7. Self-distancing													-.28*	-.31*	-.13	-.11	-.01	-.07	-.05	-.03	
8. Emotional reactivity															.19	.19	-.27*	-.16	.13	.03	
9. Physical symptoms																	-.69***	-.44**	.24*	-.07	
10. General health																					
11. Health center visit																					
Combined data																					
1-day follow-up																					
1. Self-distancing	-.48***	-.49***	.59***	.54***	-.40***	-.39***	-.16†	-.15													
2. Emotional reactivity			-.42***	-.44***	.74***	.64***	.21*	.17†													
1-month follow-up																					
3. Self-distancing					-.47***	-.49***	-.15	-.10													
4. Emotional reactivity							.24*	.24*													
5. Physical symptoms																					

Note. *N*s = 44 for Study 1, 67 for Study 2, and 111 for combined data. Zero-order correlations (*r*) and partial correlations (*pr*) are presented. Partial correlations were computed after controlling for baseline levels of outcome variables being analyzed, memory age, and BDI-II scores.

† *p* ≤ .10. * *p* ≤ .05. ** *p* ≤ .01. *** *p* ≤ .001.

Finally, in Study 1 we compared the effects of expressive writing against a control writing condition following the standard expressive writing procedures. However, differences between these conditions lie not only in the mode of processing (expressive writing vs. writing in a non-emotional fashion) but also in the content of writing (a distressing event vs. a daily routine experience). Thus, it is possible that expressive writing participants self-distanced more simply because they had more time to think about their distressing experience over the course of writing compared with control writing participants. To address this issue, we added another control condition in Study 2, in which participants were asked to *think* about their distressing experience for 15 min a day for three consecutive days. This procedure effectively “matched” participants in the expressive writing and thinking groups on the amount of time they spent focusing on their negative experience during the intervention. Thus, the only element that differed across these conditions was the mode of processing (writing vs. thinking). Following prior research suggesting that thinking privately about distressing experiences does not facilitate the integration of emotional memories into a coherent story (Lyubomirsky et al., 2006; Martin & Tesser, 1989), we did not expect thinking to promote self-distancing or any of the other benefits associated with expressive writing. This prediction was also motivated by a large body of data indicating that asking people to think about negative experiences often leads to rumination rather than improvements in well-being (Nolen-Hoeksema et al., 2008; Wilson, 2002).

Method

Participants. Eighty-four undergraduates (52 women; $M_{\text{age}} = 19.04$, $SD_{\text{age}} = .94$; 72.6% Caucasian, 15.5% Asian, 4.8% African American, 1.2% Native American, 3.6% of other, 2.4% missing) participated in this study in exchange for \$60. Participants were recruited via flyers posted on campus and on social networking sites. Participants were randomly assigned to one of three experimental conditions: expressive writing ($n = 28$), control writing ($n = 30$), or thinking ($n = 26$). As in Study 1, this sample size was consistent with convention in the field at the time that this study was run (e.g., Simmons et al., 2011).

Baseline assessments: Day 1. Upon arrival to the lab, participants provided informed consent and signed a release form for their medical records from the University Health Service (UHS). After completing the BDI-II ($\alpha = .82$, $M = 10.00$, $SD = 6.41$), they were asked to complete two health measures. First, as in Study 1, participants completed the PILL (Pennebaker, 1982; $\alpha = .89$, $M = 82.71$, $SD = 16.85$). Second, participants completed the Medical Outcomes Study Short Form-20 (MOS SF-20; Stewart, Hays, & Ware, 1988), which assessed their health-related quality of life during the past 1 month on six domains: health perceptions (5 items), physical functioning (6 items), role functioning (2 items), social functioning (1 item), mental health (5 items), and pain (1 item).³ Following previous research (Stewart et al., 1988), the scores obtained based on domain-specific scales were converted to a 0–100 scale, with a higher number indicating better health. The converted numbers were then averaged across the six domains to create a composite index of general health ($\alpha = .65$, $M = 81.33$, $SD = 10.65$).

The rest of the procedure was identical to Study 1. Participants recalled their most distressing life experience and reflected over their thoughts and feelings surrounding this event for 60 seconds. They then completed the baseline measures of self-distancing ($\alpha = .81$, $M = 3.27$, $SD = 1.55$) and emotional reactivity ($\alpha = .81$, $M = .00$, $SD = .80$).

Experimental manipulation: Days 2–4. When participants returned to the lab one day following the baseline session, they were randomly assigned to an expressive writing, control writing, or thinking condition. The instructions for the expressive writing and control writing conditions were identical to Study 1. Participants in the thinking condition were given the same instructions that were provided to the expressive writing participants except that they were asked to *think privately* about their distressing experience rather than write about it. Participants were asked to return to the lab on three consecutive days to repeat the same exercise for 15 min during each session.

1-day, 1-month, and 6-month follow-up sessions. Participants returned to the lab 1 day and 1 month following the final experimental manipulation session. In addition, 6 months following the manipulation, they received an email with a link to an online survey to participate in the final follow-up session. During the three follow-ups (1 day, 1 month, 6 month), participants were reminded of the same distressing experience they thought about during their baseline session. They were then asked to rate their levels of self-distancing (1-day follow-up: $\alpha = .86$, $M = 3.50$, $SD = 1.66$; 1-month follow-up: $\alpha = .86$, $M = 4.06$, $SD = 1.71$; 6-month follow-up: $\alpha = .83$, $M = 4.36$, $SD = 1.63$) and emotional reactivity (1-day follow-up: $\alpha = .77$, $M = .00$, $SD = .76$; 1-month follow-up: $\alpha = .82$, $M = .00$, $SD = .80$; 6-month follow-up: $\alpha = .78$, $M = -.01$, $SD = .78$). As in Study 1, memory age was assessed ($M = 725.43$ days, $SD = 775.58$) during the 1-day follow-up. Four missing memory age values (one expressive writing, one thinking, and two control writing participants) were replaced with the sample mean.

Health outcomes. We assessed long-term health outcomes in two ways. First, during both 1 month and 6 months following the experimental manipulation, participants’ self-reported levels of physical symptoms and general health were assessed with the PILL (1-month follow-up: $\alpha = .92$, $M = 80.67$, $SD = 18.25$; 6-month follow-up: $\alpha = .93$, $M = 91.71$, $SD = 23.82$) and the MOS SF-20 (1-month follow-up: $\alpha = .73$, $M = 82.11$, $SD = 11.75$; 6-month follow-up: $\alpha = .77$, $M = 83.52$, $SD = 11.17$). Second, participants’ health center visit records were obtained from the UHS 6 months following the experimental manipulation. We counted the number of visits participants made to the UHS during the 6-month period (a) prior to their study participation ($M_{\text{baseline}} = 1.10$, $SD_{\text{baseline}} = 1.48$) and (b) following their final experimental manipulation session ($M_{\text{post-manipulation}} = .89$, $SD_{\text{post-manipulation}} = 1.81$).

Results

Exclusion criteria. The same exclusion criteria we used in Study 1 were applied. Ten participants (three expressive writing, five control writing, and two thinking participants) did not com-

³ Four questions belonging to the health perceptions domain were not included due to an experimenter error during all study sessions.

plete the study. In addition, five participants who did not comply with the study protocol were excluded; two expressive writing participants recalled more than one distressing event and three participants (one expressive writing and two thinking participants) skipped one of their experimental manipulation sessions. Finally, two participants (one expressive writing and one control writing) whose baseline BDI-II scores exceeded the clinical cut off for severe depression (30 or higher) were excluded from all analyses. This left 67 participants with analyzable data (45 women; $M_{\text{age}} = 18.98$, $SD_{\text{age}} = .92$; 21 in the expressive writing condition, 24 in the control writing condition, and 22 in the thinking condition). Attrition and exclusions were independent of condition, $\chi^2(2, N = 84) = .77, p = .68, W = .10$.

Preliminary analyses. Participants did not differ on gender, $\chi^2(2, N = 67) = 1.98, p = .37, W = .17$, age, $F(2, 63) = 1.16, p = .32, \eta_p^2 = .04$, or memory age, $F(2, 64) = .78, p = .46, \eta_p^2 = .02$. However, there was a marginal effect of condition on baseline BDI-II scores, $F(2, 64) = 2.68, p = .08, \eta_p^2 = .08$. Pairwise analyses showed that expressive writing participants were less depressed ($M = 8.00, SE = 1.19, 95\% \text{ CI } [5.63, 10.37]$) than thinking participants ($M = 11.82, SE = 1.16, 95\% \text{ CI } [9.50, 14.14]$), $F(1, 64) = 5.28, p = .03, \eta_p^2 = .08$. Control writing participants ($M = 10.33, SE = 1.11, 95\% \text{ CI } [8.11, 12.55]$) were not different from those in the other two conditions ($F_s < 2.06, p_s > .15, \eta_p^2_s < .03$).

Overview of data analyses. We predicted that expressive writing participants would self-distance more and experience emotional reactivity less compared with both control writing and thinking participants. As expected, the two control conditions (control writing and thinking) did not differ significantly on any of our outcome variables ($F_s < .74, p_s > .40, \eta_p^2_s < .02$). We thus tested our prediction by performing repeated measures GLMs with a planned contrast on expressive writing (+2) versus control writing and thinking (both -1), and follow-up time (1 day vs. 1 month vs. 6 months) as a within-participants factor, with the same set of covariates used in Study 1 (i.e., participants' baseline levels for the dependent measure being analyzed, BDI-II scores, and memory age).⁴

Does expressive writing promote self-distancing? As expected, expressive writing participants self-distanced more when they reflected over their experience during the follow-up sessions ($M = 4.66, SE = .25, 95\% \text{ CI } [4.15, 5.16]$) compared with those in the other two conditions (control writing: $M = 3.81, SE = .23, 95\% \text{ CI } [3.35, 4.28]$; thinking: $M = 3.69, SE = .25, 95\% \text{ CI } [3.20, 4.19]$), $F(1, 61) = 8.57, p = .005, \eta_p^2 = .12$ (see Figure 3). The latter two conditions did not differ, $F(1, 61) = .13, p = .72, \eta_p^2 = .002$.

The effect of follow-up time was also significant, $F(2, 122) = 4.55, p = .01, \eta_p^2 = .07$, suggesting that participants self-distanced more during the 6-month follow-up ($M = 4.47, SE = .18, 95\% \text{ CI } [4.10, 4.83]$) compared with the 1-day follow-up ($M = 3.53, SE = .17, 95\% \text{ CI } [3.19, 3.87]$), $F(1, 61) = 7.16, p = .01, \eta_p^2 = .11$, and the 1-month follow-up ($M = 4.17, SE = .19, 95\% \text{ CI } [3.78, 4.55]$), $F(1, 61) = 3.68, p = .06, \eta_p^2 = .06$. There was no interaction effect between condition and follow-up time, $F(4, 122) = .31, p = .87, \eta_p^2 = .01$.

Does expressive writing buffer against future emotional reactivity? Participants in the expressive writing condition experienced less emotional reactivity ($M = -.24, SE = .14, 95\% \text{ CI } [-.52, .03]$) than those in the other two conditions (control writing:

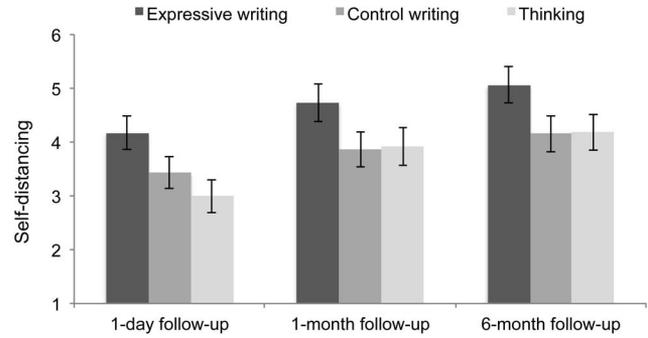


Figure 3. Self-distancing assessed during the three follow-up sessions (1 day, 1 month, 6 month) for expressive writing, control writing, and thinking participants in Study 2. Baseline self-distancing, memory age, and BDI-II scores are controlled. Error bars indicate standard errors.

$M = .12, SE = .13, 95\% \text{ CI } [-.13, .37]$; thinking: $M = .13, SE = .13, 95\% \text{ CI } [-.13, .40]$), $F(1, 61) = 4.80, p = .03, \eta_p^2 = .07$. Participants in the control writing and thinking groups did not differ on this dimension, $F(1, 61) = .01, p = .94, \eta_p^2 < .001$. There was no effect of follow-up time or its interaction with condition ($F_s < .65, p_s > .52, \eta_p^2_s < .02$).

We next examined whether participants' tendency to self-distance 1 day following the experimental manipulation mediated the effects of condition (expressive writing vs. control writing & thinking combined) on emotional reactivity during the 1-month and 6-month follow-ups (for similar approach, see Becker & Wright, 2011; S. J. Schwartz et al., 2013; Wohl, Hornsey, & Bennett, 2012).

We performed two separate mediation analyses with emotional reactivity during the 1-month and 6-month follow-ups as a dependent variable. First, condition (0 = combined controls, 1 = expressive writing) was positively related to self-distancing during the 1-day follow-up, $b = .94, 95\% \text{ CI } [.18, 1.70], t(62) = 2.48, p = .02, d = .63$, and negatively related to emotional reactivity during the 1-month follow-up, $b = -.47, 95\% \text{ CI } [-.91, -.04], t(62) = -2.19, p = .03, d = .56$. When both condition and self-distancing during the 1-day follow-up were entered as joint predictors of emotional reactivity during the 1-month follow-up, the relationship between condition and emotional reactivity became nonsignificant, $b = -.33, 95\% \text{ CI } [-.78, .11], t(61) = -1.51, p = .14, d = .39$. Importantly, the relationship between self-distancing and emotional reactivity remained significant, $b = -.15, 95\% \text{ CI } [-.29, -.01], t(61) = -2.12, p = .04, d = .54$. The mediated path from condition to emotional reactivity during the 1-month follow-up through self-distancing during the 1-day follow-up was statistically significant (95% bias-corrected CI = $[-.43, -.01]$; see Panel B of Figure 2).

A similar pattern of significant results emerged for the 6-month follow-up emotional reactivity variable. Condition was a significant predictor of emotional reactivity during the 6-month follow-up, $b = -.58, 95\% \text{ CI } [-.97, -.18], t(62) = -2.93, p = .005, d =$

⁴ The effect of condition was significant on self-distancing, $F(2, 61) = 4.30, p = .02, \eta_p^2 = .12$, and marginal on emotional reactivity, $F(2, 61) = 2.40, p = .10, \eta_p^2 = .07$, when we examined the three groups simultaneously (i.e., without performing a planned comparison).

.74. When both condition and self-distancing during the 1-day follow-up were included as predictors of emotional reactivity during the 6-month follow-up, the effect of condition was attenuated, $b = -.43$, 95% CI $[-.82, -.03]$, $t(61) = -2.15$, $p = .04$, $d = .55$, whereas the effect of self-distancing remained significant, $b = -.16$, 95% CI $[-.29, -.04]$, $t(61) = -2.57$, $p = .01$, $d = .66$. A bootstrapping test confirmed that the effect of condition on emotional reactivity during the 6-month follow-up was mediated by self-distancing during the 1-day follow-up (95% bias-corrected CI = $[-.45, -.02]$; see Panel C of Figure 2). A subsequent analysis that examined whether self-distancing during the 1-month follow-up mediated the effect of condition on emotional reactivity during the 6-month follow-up also showed significant results (95% bias-corrected CI = $[-.37, -.01]$).

Two additional analyses that examined whether emotional reactivity during the 1-day follow-up mediated the effects of condition on self-distancing during the 1-month and 6-month follow-ups, respectively, were not significant (95% bias-corrected CI = $[-.11, .97]$ and $[-.11, .52]$, respectively).

Does expressive writing promote physical health? Neither the effect of condition nor the interaction between condition and follow-up time was significant for physical symptoms ($F_s < .70$, $p_s > .50$, $\eta_p^2 < .02$), general health ($F_s < 1.43$, $p_s > .25$, $\eta_p^2 < .05$), or the number of UHS visits participants made during the 6-month period following the final experimental manipulation session, $F(1, 61) = .19$, $p = .67$, $\eta_p^2 = .003$.

Although the effect of expressive writing was negligible on all three measures of physical health, we observed similar patterns of relationships between self-distancing, emotional reactivity, and physical health as in Study 1 (see Table 1 for statistics). Specifically, self-distancing during the 1-day follow-up period was negatively associated with physical symptoms during both the 1-month and 6-month follow-up periods. In addition, a number of significant correlations involving emotional reactivity and physical health emerged, all in the expected direction—that is, those who experienced greater levels of emotional reactivity 1 day or 1 month following the intervention experienced greater physical symptoms and displayed poorer general health both 1 month and 6 months following the intervention and also visited UHS more 6 months following the intervention.

Summary and Discussion

Study 2 replicated the findings from Study 1 and extended them in two ways. First, we replicated the effects of expressive writing on self-distancing and emotional reactivity against two control conditions: control writing and thinking. Compared with control writing and thinking participants, expressive writing participants self-distanced more and experienced less emotional reactivity during the three follow-up sessions. The fact that the expressive writing group differed from both control conditions suggests that expressive writing participants showed these effects not simply because they had more time to process their memories over the course of the writing sessions compared with control writing participants.

Second, we replicated the mediational effect demonstrated in Study 1, and further showed that this mediation extends up to 6 months. Specifically, self-distancing 1 day following the intervention mediated the effects of expressive writing (vs. combined

controls) on emotional reactivity both during the 1-month and 6-month follow-ups.

In contrast, the effects of expressive writing were negligible on all three physical health measures we administered in Study 2 during both the 1-month and 6-month follow-ups. This finding suggests that the null effect of condition we observed in Study 1 was in all likelihood not because our measure of physical symptoms was less sensitive than other health outcomes such as health center visit records or general health perceptions. Despite the null effect of condition on physical health, self-distancing and emotional reactivity predicted health outcomes in the expected directions as in Study 1, raising the possibility that expressive writing might *indirectly* predict physical health through its effects on self-distancing and emotional reactivity—an issue that we explored in Study 3.

Study 3: Combined Analyses Across Studies 1 and 2

In Study 3 we performed two sets of combined analyses to address two issues. First, we pooled data across Studies 1 and 2 on all of the outcome variables that were assessed in both studies to obtain more accurate estimates of the true effect sizes characterizing the impact of expressive writing on each variable. Using this combined data, we also explored the possibility that expressive writing might influence physical health through an indirect pathway by enhancing self-distancing and reducing emotional reactivity over time.

Second, although Studies 1 and 2 demonstrate that expressive writing promotes self-distancing over time, they do not address *how* expressive writing brings about these effects. To address this issue, we pooled data from expressive writing participants across Studies 1 and 2 to examine whether specific patterns of word use during expressive writing explain how this process enhances self-distancing.

Combined Analyses I: Effect Size Estimation & Test of an Indirect Effect of Condition on Physical Health

Method. The present analyses focused on outcome variables that were available in both studies to utilize all data from Studies 1 and 2. Thus, only data from the 1-day and 1-month follow-ups were examined here, because Study 1 did not include a 6-month follow-up session. Similarly, our analysis on physical health focused on physical symptoms we assessed during the 1-month follow-up because this was the only physical health variable available in both studies. Because the control writing and thinking groups did not differ (as expected) on any of the variables, we collapsed across these groups to create a single comparison group for these analyses. Finally, we controlled for the same set of covariates used in Studies 1 and 2 in all analyses (e.g., participants' baseline measure of each outcome variable, BDI-II scores, memory age). Preliminary analyses indicated that Study (1 vs. 2) did not interact with condition to predict any of the results and controlling for it did not substantively alter any of the results.

Results. The combined analyses indicate that the effects of condition on self-distancing and emotional reactivity were both in the medium range, $F(1, 106) = 10.59$, $p = .002$, $\eta_p^2 = .09$, and $F(1, 106) = 5.58$, $p = .02$, $\eta_p^2 = .05$, respectively. As shown in Studies 1 and 2, expressive writing participants self-distanced more ($M =$

4.44, $SE = .21$, 95% CI [4.02, 4.85]) and experienced less emotional reactivity ($M = -.18$, $SE = .10$, 95% CI [-.37, .02]) during the follow-ups compared with control group participants (self-distancing: $M = 3.57$, $SE = .16$, 95% CI [3.26, 3.89]; emotional reactivity: $M = .12$, $SE = .07$, 95% CI [-.03, .26]). A mediational analysis based on the combined data also confirmed that self-distancing during the 1-day follow-up mediated the effect of condition on emotional reactivity during the 1-month follow-up (95% bias-corrected CI = [-.41, -.06]).

In contrast, pooling data on physical symptoms across the two studies did not reveal a significant effect of condition on this variable, $F(1, 104) = .04$, $p = .85$, $\eta_p^2 < .001$. As noted earlier, however, we did observe significant correlations between self-distancing, emotional reactivity, and physical health across both studies. Building on these findings, we next explored the possibility that expressive writing *indirectly* predicts physical health through its effects on self-distancing and emotional reactivity by performing a path analysis among the four variables—that is, Condition (combined controls vs. expressive writing) \rightarrow 1-day follow-up self-distancing \rightarrow 1-day follow-up emotional reactivity \rightarrow 1-month follow-up physical symptoms.⁵ This path model provided a good fit to the data, $\chi^2(14, N = 111) = 21.02$, comparative fit index (CFI) = .972, normed fit index (NFI) = .924, goodness-of-fit index (GFI) = .955, root-mean-square error of approximation (RMSEA) = .067. Specifically, condition was significantly related to self-distancing during the 1-day follow-up, $b = .97$, 95% CI [.39, 1.54], $t(99) = 3.60$, $p = .002$, $d = .72$, which in turn, predicted emotional reactivity during the 1-day follow-up, $b = -.22$, 95% CI [-.30, -.15], $t(99) = -6.13$, $p = .001$, $d = 1.23$. The dampened emotional reactivity caused by self-distancing, in turn, led to fewer physical symptoms during the 1-month follow-up, $b = 3.98$, 95% CI [1.33, 6.65], $t(99) = 2.59$, $p = .003$, $d = .52$. Finally, a bootstrapping test confirmed that the mediated path from condition to physical symptoms during the 1-month follow-up through the link from self-distancing to emotional reactivity during the 1-day follow-up was statistically significant (95% bias-corrected bootstrapping CI = [-2.16, -.27]; see Figure 4A).

When we tested emotional reactivity we assessed during the 1-month follow-up as the second mediator in the model (i.e., Condition \rightarrow 1-day follow-up self-distancing \rightarrow 1-month follow-up emotional reactivity \rightarrow 1-month follow-up physical symptoms), we again observed a significant indirect effect of condition on physical symptoms via the pathway of self-distancing and emotional reactivity (95% bias-corrected bootstrapping CI = [-2.25, -.20]; see Figure 4B).⁶

Combined Analyses II: Linguistic Mechanism Analyses

As noted earlier, we hypothesized that the process of constructing a coherent story, which requires adopting other people's perspectives (Labov & Fanshel, 1977), focusing on broader contexts (Meier, 2002), and separating the present self as a narrator from the past self as a protagonist (Apgar, 1997), should facilitate self-distancing. Consequently, we expected that the degree to which people constructed a coherent narrative during the expressive writing phase of the study would predict the degree to which they self-distanced when reflecting over their distressing experiences later on. Converging evidence suggests that the increased

use of causation-related (e.g., *because*, *why*) and insight-related (e.g., *realize*, *understand*) words over the course of expressive writing reflects the building of a meaningful narrative (Graybeal et al., 2002). These linguistic dimensions have also been linked with a variety of benefits associated with expressive writing (Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994; Klein & Boals, 2001; Pennebaker et al., 1997; Ullrich & Lutgendorf, 2002). We thus explored whether this pattern of language use would also predict self-distancing. In addressing this issue, we examined the use of causation and insight words separately because previous studies suggest that their effects often do not converge (e.g., Arntz, Hawke, Bamelis, Spinhoven, & Molendijk, 2012; Rew, Wong, Torres, & Howell, 2007).

We also examined two additional plausible linguistic predictors of self-distancing: emotion words (positive and negative) and pronoun usage. Prior studies suggest that people who use positive emotion words more during expressive writing display greater health improvements (Pennebaker & Francis, 1996; Pennebaker et al., 1997). On the other hand, previous studies also suggest that the decreased use of negative emotion words over the course of writing is associated with health improvements (Arntz et al., 2012; L. Schwartz & Drotar, 2004).⁷ We thus explored whether these patterns of emotion word usage predict self-distancing over time.

Finally, we focused on the role that pronoun usage during expressive writing plays in promoting self-distancing because a number of recent studies indicate that the pronouns people use to refer to the self during introspection influences their ability to regulate their feelings and thoughts under stress. Specifically, the greater focus on the self during introspection, indexed by the use of first-person singular pronouns, has been shown to undermine adaptive self-reflection (Grossmann & Kross, 2014; Kross et al., 2014). Similarly, the use of first-person singular pronouns is also associated with maladaptive health outcomes, such as depressive symptoms (Bucci & Freedman, 1981; Rude, Gortner, & Pennebaker, 2004). Thus, we examined whether this pattern of pronoun use also relates to self-distancing.

We examined the role that each of the aforementioned linguistic dimensions plays in promoting self-distancing by pooling data from participants in the expressive writing condition from Studies 1 and 2 and then content analyzing their essays. We examined whether each of these mechanisms predicted self-distancing immediately following the intervention (i.e., 1-day follow-up self-

⁵ Because mediation can exist even if there is no significant relationship between independent and dependent variables (Judd & Kenny, 1981; Kenny, Kashy, & Bolger, 1998), we proceeded to test whether the null effect of condition (combined controls vs. expressive writing) on physical symptoms was still explained by the pathway of self-distancing and emotional reactivity.

⁶ See the online supplementary materials for additional analyses that examined whether this indirect pathway captures the effect of expressive writing on clinical measures we included for exploratory purposes.

⁷ Other work suggests that it is a moderate use of negative emotion words—not too high or not too low rate of negative emotion words use—that is linked with greater benefits of expressive writing (Pennebaker et al., 1997). However, we did not find such a curvilinear relationship between the use of negative emotion words and self-distancing in our study.

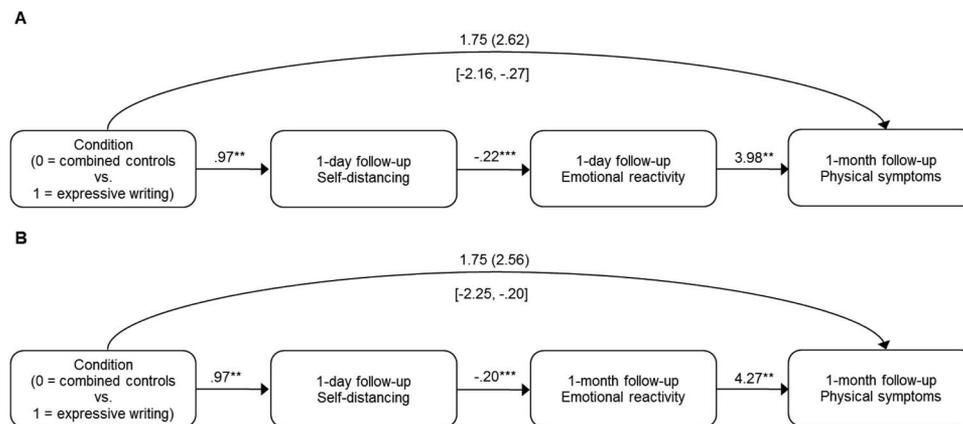


Figure 4. Results of path analyses examining the role of self-distancing 1 day (Panel A) and 1 month (Panel B) following the intervention and emotional reactivity 1 day (Panel A) and 1 month (Panel B) following the intervention in mediating the effect of condition on physical symptoms 1 month following the intervention in Study 3. Both path models provided a good fit to the data; Panel A— $\chi^2(14, N = 111) = 21.02$, comparative fit index (CFI) = .972, normed fit index (NFI) = .924, goodness-of-fit index (GFI) = .955, root-mean-square error of approximation (RMSEA) = .067—and Panel B— $\chi^2(14, N = 111) = 18.87$, CFI = .979, NFI = .927, GFI = .960, RMSEA = .056. Unstandardized coefficients are shown. The values in parentheses show the relationship between condition and physical symptoms after controlling for self-distancing and emotional reactivity. The values in square brackets are 95% bias-corrected confidence intervals from a bootstrap test with 2,000 replications; the mediation is significant if the confidence interval does not include zero. Baseline self-distancing, baseline physical symptoms, memory age, and BDI-II scores are controlled. ** $p \leq .01$. *** $p \leq .001$.

distancing).⁸ Following prior expressive writing research (e.g., Pennebaker & Francis, 1996; Pennebaker et al., 1997; Rivkin, Gustafson, Weingarten, & Chin, 2006; L. Schwartz & Drotar, 2004), we restricted our analyses to expressive writing participants because there is no a priori reason why the same linguistic mechanisms that lead expressive writing participants to feel better about their negative experiences should predict similar benefits among control writing participants who were asked to write about emotionally neutral everyday experiences.⁹

Method. The present analyses included the essays of 41 expressive writing participants pooled across Study 1 ($n = 20$) and Study 2 ($n = 21$). The essays from the three writing sessions for each participant were analyzed with the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, & Francis, 2007). Over the course of three days of writing, participants wrote approximately 349.55 words daily ($SD = 84.48$; Study 1: $M = 328.77$, $SD = 74.66$; Study 2: $M = 369.35$, $SD = 90.19$). Five dimensions of participants' language use were examined: (a) causation (e.g., *because, why*), (b) insight (e.g., *realize, understand*), (c) positive emotion (e.g., *happy, joy*), (d) negative emotion (e.g., *sad, upset*), and (e) first-person singular pronoun (e.g., *I, me*).

Whereas some research suggests that the average amount of word usage over the course of the entire expressive writing period predicts the benefits of expressive writing (Low, Stanton, & Danoff-Burg, 2006), other research suggests that it is the change in language use over the course of expressive writing sessions that predicts its benefits (Klein & Boals, 2001; Petrie, Booth, & Pennebaker, 1998). Therefore, we created both mean and change scores for each language dimension and examined the role that each variable plays in predicting self-distancing (see also Pennebaker et al., 1997). For each participant, mean scores were created

by averaging the scores on each linguistic dimension across the three writing sessions; change scores were computed by subtracting the first writing session's scores from the third writing session's scores. Each language index was standardized within each study to control for the effect of study (Pennebaker et al., 1997).

Results. To examine the independent role that each linguistic index plays in predicting self-distancing, we entered five linguistic indices—that is, causation, insight, positive emotion, negative emotion, and first-person singular pronoun—as predictors of self-distancing in a multiple regression analysis. We performed two sets of analyses; one focused on mean scores, and another focused on change scores.¹⁰ All analyses additionally controlled for memory age, BDI-II scores, and baseline self-distancing—the same covariates that were used in Studies 1 and 2. We found one outlier, whose pronoun use change score exceeded three standard deviations from its mean, and thus excluded this participant's data from

⁸ We restricted our analyses to self-distancing during the 1-day follow-up because the shifts in self-distancing in later stages (i.e., 1-month and 6-month follow-ups) are also likely influenced by other factors than linguistic mechanisms (e.g., time). Consistent with this assumption, when we conducted the same set of analyses on 1-month and 6-month follow-up self-distancing scores, none of the linguistic indicators was significantly associated with them ($ts < -1.80$, $ps > .08$, $ds < .65$).

⁹ When we examined how the linguistic variables relate to self-distancing among control writing participants pooled across Study 1 ($n = 24$) and Study 2 ($n = 24$), we found that none of the linguistic variables was associated with self-distancing during the 1-day follow-up ($ts < | -1.10|$, $ps > .28$, $ds < .35$).

¹⁰ Entering both the mean and change scores as simultaneous predictors of self-distancing did not change the results substantially.

all analyses.¹¹ Descriptive statistics and intercorrelations for the linguistic dimensions are presented in Table 2.

We first examined whether any of the mean linguistic mechanism scores predicted self-distancing and none did, $t(31)s < .99$, $ps > .33$, $ds < .34$. Three significant relationships emerged, however, when we analyzed participants' change scores. The increased use of causal words positively predicted self-distancing, $b = .50$, 95% CI [.04, .96], $t(31) = 2.23$, $p = .03$, $d = .80$, suggesting that the more people increased their use of causation words over the course of writing, the more they self-distanced 1 day following their writing intervention. In addition, two additional linguistic mechanisms—negative emotion words and pronoun usage—also predicted self-distancing. The increased use of both negative emotion words and first-person singular pronouns over the course of writing was negatively associated with self-distancing, $b = -.63$, 95% CI [-1.13, -.12], $t(31) = -2.54$, $p = .02$, $d = .91$, and $b = -.71$, 95% CI [-1.37, -.05], $t(31) = -2.20$, $p = .04$, $d = .79$, respectively. This finding indicates that those who decreased their use of negative emotion words and first-person singular pronouns more from their first writing session to their third writing session self-distanced more 1 day following the writing exercise. There was no effect of insight-related words, $b = .01$, 95% CI [-.48, .50], $t(31) = .05$, $p = .96$, $d = .02$, or positive emotion words, $b = .16$, 95% CI [-.31, .62], $t(31) = .68$, $p = .50$, $d = .24$.¹²

Summary and Discussion

In this section, we presented results from two sets of combined analyses. First, we examined the overall effects of expressive writing on each of our outcome variables using the combined data from Studies 1 and 2. Specifically, we found that expressive writing had medium sized effects on both self-distancing and emotional reactivity, $\eta_p^2 = .09$ and $.05$, respectively. In contrast, we found no reliable effect of expressive writing on physical health. And yet, the path analysis we performed provided preliminary evidence indicating that the relationship between expressive writing and physical symptoms might be indirectly explained by self-distancing and its subsequent effect of dampening emotional reactivity over time.

In our second set of analyses, we examined the linguistic mechanisms that underlie how expressive writing promotes self-distancing. These analyses generated three key findings. First, consistent with prior research indicating that creating coherent narratives is critical to the success of expressive writing (Graybeal et al., 2002; Meichenbaum & Fong, 1993; Smyth et al., 2001), we found a positive association between the increased use of causation words over the course of writing and self-distancing during the 1-day follow-up. However, there was no such relationship between the use of insight words and self-distancing. The use of causal principles is considered the most fundamental characteristic of coherent stories (Mar, 2004). Our finding then suggests that this causal reasoning process may be more consequential in promoting self-distancing compared with the process of gaining insight into one's negative experiences.

Second, the decreased use of negative emotion words was also a reliable predictor of self-distancing. This finding is consistent with emerging evidence, which suggests that the regulation of negative emotional expression, reflected in the reduced use of

negative emotion words over the course of writing, is responsible for health improvements associated with expressive writing (Arntz et al., 2012; L. Schwartz & Drotar, 2004). Unexpectedly, the use of positive emotion words was not linked to self-distancing. This finding may suggest that the reduction of negative emotionality is more tightly linked to the shifts in self-distancing compared with positive emotional expression during the writing phase.

Finally, pronoun usage was also associated with self-distancing. The decreased use of first-person singular pronouns over the course of writing positively predicted self-distancing. This finding suggests that the reduction in self-focus, which facilitates adaptive self-reflection (Bucci & Freedman, 1981; Kross et al., 2014; Rude et al., 2004), is also responsible for the shift in self-distancing over time via expressive writing.

General Discussion

In their review of why expressive writing works, Pennebaker and Chung (2007) noted,

Occasionally, most of us benefit from standing back and examining our lives. This requires a perspective shift and the ability to detach ourselves from our surroundings. If we are still in the midst of a massive upheaval, it is virtually impossible to make these corrections. (p. 432).

They further suggested that expressive writing promotes this type of perspective shift, but acknowledged that this idea has not been tested empirically. The present work provides direct evidence to support this prediction. Specifically, it generated four key results.

First, Study 1 showed that expressive writing (vs. control writing) leads people to self-distance more when they reflect over their distressing experiences in the future—both 1 day and 1 month following the writing intervention. These findings were replicated and extended in Study 2 in which the effects of expressive writing were compared against the effects of both control writing and thinking during the three follow-ups (i.e., 1 day, 1 month, 6 month).

Second, it is important to note that we also found that expressive writing altered people's representation of their negative experience in ways that reduced its negativity—a process referred to as “emotional processing” (Foa & Kozak, 1986; Rachman, 1980) or adaptive “meaning-making” (Kross & Ayduk, 2011)—by enhancing self-distance. These self-distancing-mediated effects of expressive writing on emotional reactivity were robust—they replicated across two studies and were observed up to 6 months following the

¹¹ Including this participant's data made the relationship between the change in the use of first-person singular pronoun and self-distancing nonsignificant, $b = -.40$, 95% CI [-.90, .11], $t(32) = -1.61$, $p = .12$, $d = .57$.

¹² We conducted additional analyses to examine how these linguistic mechanisms relate to other outcome variables. Emotional reactivity during the 1-day follow-up was not predicted by any of these linguistic variables ($ts < 1.80$, $ps > .08$, $ds < .65$). However, two significant relationships emerged for physical health outcomes. The greater use of positive emotion words was negatively related to physical symptoms during the 1-month follow-up, $b = -5.12$, 95% CI [-9.90, -.34], $t(31) = -2.19$, $p = .04$, $d = .79$, and the increased use of first-person singular pronouns was negatively related to general health ratings during the 6-month follow-up, $b = -10.38$, 95% CI [-19.06, -1.70], $t(11) = -2.63$, $p = .02$, $d = 1.59$.

Table 2
Descriptive Statistics and Intercorrelations for Self-Distancing and Linguistic Dimensions in Study 3

Self-distancing and linguistic dimensions	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1-day follow-up self-distancing	3.96	1.72	.29 [†]	-.08	.00	-.00	-.03	.16	-.15	.11	-.39*	-.42**
Mean												
1. Causation	4.08	1.23		.03	-.25	.20	.23	.22	-.25	-.09	-.09	.11
2. Insight	2.17	.57			.08	.12	.02	-.31 [†]	.08	.20	-.28 [†]	-.55***
3. Positive emotion	2.97	1.02				-.22	-.28 [†]	-.28 [†]	-.04	.08	.17	.18
4. Negative emotion	3.26	.85					.11	.14	.22	.13	-.09	-.17
5. First-person singular pronoun	11.01	1.80						.24	-.02	-.06	.17	-.11
Change												
6. Causation	.42	1.55							.01	-.05	.00	.24
7. Insight	.23	1.52								.11	.27 [†]	.14
8. Positive emotion	.42	1.8									-.12	.20
9. Negative emotion	-.55	1.76										.27 [†]
10. First-person singular pronoun	-.77	2.44										

Note. $N = 40$. *Linguistic dimensions* refers to the percentage of words that belong to each category. Mean scores were created for each linguistic dimension by averaging the scores of three writing sessions, and change scores were computed by subtracting the first writing session's scores from the third writing session's scores. One Study 2 participant whose pronoun use change score exceeded three standard deviation from its mean was excluded. Intercorrelations were computed based on the scores standardized within each study. Zero-order correlations are reported.

[†] $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

initial experimental manipulation. These findings are the first, to our knowledge, to demonstrate that expressive writing promotes effective “meaning-making” and to illustrate how it does so. They are particularly noteworthy from a clinical perspective, as multiple schools of thought highlight the importance of identifying ways of changing the way people cognitively represent aversive past experiences that can reduce how distressed they become each time they think about those negative events in the future (e.g., Foa & Kozak, 1986; Kross & Ayduk, 2008; Rachman, 1980; Resick, Monson, & Chard, 2007).

Third, the current results identified three linguistic mechanisms that explain how expressive writing promotes self-distancing. In this vein, the results reported in Study 3 demonstrated that the *increase* of causation words use and the *decrease* of both negative emotion words and first-person singular pronoun use over the course of writing significantly predicted self-distancing 1 day following the intervention. As noted earlier, these findings are consistent with previous research indicating that creating coherent stories out of disorganized emotional memories, indexed by the increased use of cognitive processing words, is critical to the success of expressive writing (Graybeal et al., 2002; Meichenbaum & Fong, 1993; Smyth et al., 2001). They are also consistent with emerging evidence indicating that the regulation of negative emotional expression and the reduction in self-focus, reflected in the decreased use of negative emotion words and first-person singular pronouns, respectively, are associated with adaptive self-reflection outcomes (Arntz et al., 2012; Kross et al., 2014; L. Schwartz & Drotar, 2004). Our work extends this literature in an important way by showing that these three linguistic mechanisms also underlie the shifts in self-distancing via expressive writing. Thus, they begin to illuminate the cascade of mediating processes that may partly explain how expressive writing helps people cope with negative experiences.

Finally, our results suggest that the therapeutic implications of expressive writing do not occur only during the 3-day writing period—expressive writing promotes benefits through a more dynamic process that carries forward with time by changing the way people reflect over the same negative experience in the future,

after the writing intervention is completed. Future research is needed to examine whether expressive writing leads people to self-distance in response to additional negative experiences (other than the one they wrote about). To the extent that expressive writing promotes such transfer effects, they may help further explain how this intervention promotes health benefits over time.

What About Physical Health?

One of the goals of this work was to examine whether the health-promoting effects of expressive writing are explained in part by self-distancing. Although the effect of expressive writing on emotional reactivity was robust across all follow-up sessions in both studies, we failed to observe corresponding effects on physical health in either study. This was true regardless of whether we focused on relatively short-term (i.e., 1 month following the intervention) or long-term (i.e., 6 months following the intervention) physical health or whether we assessed physical health using subjective (i.e., self-reported physical symptoms and general health) or objective (i.e., health center visit record) measures. And yet, we observed several predicted beneficial effects of this writing intervention on consequential variables (e.g., self-distancing, emotional reactivity), which suggest that our expressive writing manipulation was effective. So, why did we not observe an effect of expressive writing on physical health?

One interpretation of this null finding is that the health benefits of expressive writing were obscured by certain moderating variables such as severity of negative experiences (Greenberg & Stone, 1992; Lutgendorf et al., 1994). For example, Greenberg and Stone (1992) found that among expressive writing participants, only those who wrote about severe traumatic experiences showed physical health improvements (i.e., fewer physician visits and fewer self-reported physical symptoms). Those who wrote about relatively mild experiences did not obtain any health benefits as did control writing participants. Future research should explore this issue further by using large samples to examine the potential personality and contextual factors that moderate the link between

self-distancing and long-term health benefits associated with expressive writing.

These null effects notwithstanding, we did observe significant associations between physical health, self-distancing, and emotional reactivity in both studies. Moreover, the path analyses we performed in Study 3 hint at the possibility that an indirect effect may characterize the relationship between expressive writing and physical health such that writing expressively leads to more self-distancing, which leads to less emotional reactivity, which leads to better physical health. However, because this analysis was post hoc, future research is needed to replicate and extend this result.

Caveats and Future Directions

Four caveats are in order before concluding. First, although we conceptualized emotional and physical health as two intertwined elements of well-being (Eisenberger, 2012; Kross et al., 2011; MacDonald & Leary, 2005; Prince et al., 2007), the asymmetry we found between these measures suggests that different mechanisms may mediate the effects of expressive writing on each type of health variables (e.g., Wager et al., 2013; Woo et al., 2014). Future research is needed to explore this issue further.

Second, although our linguistic analyses provide initial evidence that the analytic processing of emotional experiences may facilitate self-distancing, more research is needed to examine the specific pathways (e.g., reflecting on the self as a character in a story, perspective-taking, focusing on the big picture, writing in the past tense), through which expressive writing enhances self-distancing. Future research should also examine the role that these processes play—either in tandem or independently—in explaining the expressive writing-self-distancing relationship by experimentally manipulating them.

Third, our findings should not be misconstrued as suggesting that the only way of facilitating adaptive coping with negative events is to reduce emotional reactivity via self-distancing and expressive writing. Indeed, a number of studies suggest that there are alternative ways of enhancing coping, some of which may even involve enhancing (positive) emotional reactivity (e.g., Beltzer, Nock, Peters, & Jamieson, 2014; Brooks, 2014; Crum, Salovey, & Achor, 2013). Future research is needed to examine situational contexts in which each of these different coping strategies is more or less effective than the others.

Finally, although the sample sizes we used in these studies were consistent with conventions in the field at the time that this research was performed, it is important to acknowledge that they are small by current standards.

Concluding Remarks

The current research highlights the role that self-distancing plays in facilitating meaning-making during expressive writing. It also raises a number of questions for future study that need to be addressed to refine our knowledge concerning how expressive writing and self-distancing operate together to promote well-being.

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