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# The Health Benefits of Writing About Life Goals

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*In a variation on Pennebaker's writing paradigm, a sample of 81 undergraduates wrote about one of four topics for 20 minutes each day for 4 consecutive days. Participants were randomly assigned to write about their most traumatic life event, their best possible future self, both of these topics, or a nonemotional control topic. Mood was measured before and after writing and health center data for illness were obtained with participant consent. Three weeks later, measures of subjective well-being were obtained. Writing about life goals was significantly less upsetting than writing about trauma and was associated with a significant increase in subjective well-being. Five months after writing, a significant interaction emerged such that writing about trauma, one's best possible self, or both were associated with decreased illness compared with controls. Results indicate that writing about self-regulatory topics can be associated with the same health benefits as writing about trauma.*

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**T**he health benefits associated with disclosive writing have been demonstrated in a number of studies by a variety of investigators (Smyth, 1998). Typically, these studies have involved asking participants to write about emotionally upsetting life events over the course of a few days. Such writing has been shown to relate to superior immune function (Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994; Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Petrie, Booth, Pennebaker, & Davison, 1995), reduced health problems (e.g., Greenberg & Stone, 1992; Pennebaker & Beall, 1986), lower skin conductance levels (Pennebaker, Hughes, & O'Heeron, 1987), better adjustment to college (Cameron & Nicholls, 1998; Pennebaker, Colder, & Sharp, 1990), and more quickly finding employment after being laid off (Spera, Buhrfeind, & Pennebaker, 1994). Recently, studies have begun to incorporate different writing instructions, obtaining similarly salubrious effects. For instance, Greenberg, Wortman, and Stone (1996) found that even writing about an imagined

trauma once for 20 minutes provided health benefits. King and Miner (2000) demonstrated that participants who wrote only about the positive aspects of their traumatic experience showed the same health benefits as those who wrote about the trauma itself. Based on these results, King and Miner suggested that any writing that might be thought to enhance self-regulation ought to lead to health benefits. Writing about topics that allow an individual to gain insight into his or her priorities and to understand better what his or her emotional reactions mean may facilitate physical health. The purpose of the present investigation was to examine whether writing about a self-regulatory topic (but one that is not intensely emotional) might lead to the physical health benefits of writing.

## SELF-REGULATION AND DISCLOSIVE WRITING

A variety of explanatory mechanisms have been suggested for the health benefits of writing. Initially, catharsis and insight were considered possibilities. The role of emotional expression was thought to be demonstrated in research showing that individuals who had confided in others about a trauma were better off physically than others. For instance, Pennebaker and O'Heeron (1984) reported that among spouses of individuals who had committed suicide or who had died of accidental causes, differing health status 1 year later was accounted for by degree of confiding. Pennebaker, Barger, and Tiebout (1989) found that survivors of the Holocaust who openly disclosed about their traumas in an interview were

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**Author's Note:** I thank Tom Scollon, Christie Napa, and Teresa Williams for their contributions to this project and article. This research was supported by National Institute of Mental Health Grant No. MH54142. Correspondence concerning this article should be sent to Laura A. King, who is now at the Department of Psychological Sciences, McAlester Hall, University of Missouri, Columbia, MO 65211.

*PSPB*, Vol. 27 No. 7, July 2001 798-807

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healthier 14 months later compared with more reticent survivors.

The role that releasing pent-up emotion might play in the benefits of writing is also demonstrated in the typical instructions used in the writing studies—"to really let go . . . and write as much as you can about the experience" (e.g., Pennebaker & Beall, 1986). Having individuals write about traumatic life events in this way has been shown to lead to fewer physical illnesses over time (e.g., Pennebaker & Beall, 1986; Pennebaker & Susman, 1988). Furthermore, the importance of the emotional release was demonstrated in research showing that having participants avoid emotional content showed no positive effects (Pennebaker & Beall, 1986). These kinds of results seemed to indicate that emotional release was a crucial part of the benefits of writing.

Placing these results in a theoretical context, Pennebaker (1988, 1989, 1992) proposed a theory of active inhibition to account for the healing power of writing. This active inhibition model posited that individuals who held back from talking about traumatic life events tended to experience chronic autonomic arousal and immune function deterioration. Writing about previously undisclosed traumatic life events allowed the individual to halt this vicious cycle.

More recently, Pennebaker (1997) suggested that emotional catharsis might not be the most important factor in these writing results. Analyzing the essays written by participants in the trauma group of a typical writing study, Pennebaker (1993) found that independent of emotional expression in the essays, increasing use of insight words, causal words, and words associated with cognitive activity were associated with health improvements. These results were also found in a sample of bereaved men (Pennebaker, Mayne, & Francis, 1997). Thus, the health benefits of writing appear to be tied to constructing a sensible story rather than releasing pent-up negative emotion. Indeed, Pennebaker and Francis (1996) and Pennebaker, Mayne, and Francis (1997) found that the use of positive emotion words (relative to negative emotion words) was associated with health benefits. Pennebaker (1997) asserted that although a reduction in inhibition might play a role in obtaining health benefits from writing, the cognitive changes manifested in these word use differences more strongly predict physical health.

The evolution that has occurred in the conceptualization of the mechanisms underlying the benefits of the writing paradigm demonstrates a movement away from the mechanism of catharsis toward a more insight-driven explanation. The body of evidence that supports the effectiveness of the writing paradigm is unquestionably remarkable. And the refinement of the theory away from emotional catharsis toward insight is certainly an impor-

tant improvement. However, even the argument that it is insight about a past trauma that drives this effect might be questioned.

It is notable that all of these studies have started with a particular bias—that benefiting from writing must involve encountering and coping with a traumatic event from the past. This assumption, along with the joint notions of catharsis and insight, that some past trauma is driving current health echoes a Freudian notion of past experiences driving current behavior. Thus far, explanations of the healing power of writing have been predicated on the notion that individuals must revisit, reexperience, or reevaluate past traumas.

These explanations cannot fully account for the remarkable finding that writing about someone else's trauma can provide health benefits (Greenberg et al., 1996). Greenberg et al.'s finding that writing about someone else's trauma led to health benefits challenges the belief that somehow writing facilitates the reintegration of experience—because the experience written about is not one's own. In attempting to explain the benefits of writing these traumatic fictions, Greenberg and her colleagues postulated that the traumatic event itself was relatively unimportant in producing health benefits; rather, the simple act of confronting a negative emotion, whether real or imaginary, and being able to control it led to increased affective regulation, which in turn led to health benefits. In other words, through emotional writing about any trauma, individuals come to see themselves as capable of handling intense and challenging emotional experiences.

The idea that writing might improve self-regulation has led to research examining whether writing topics that promote self-regulation might enhance physical health. For instance, Cameron and Nicholls (1998) found health benefits from writing about one's plans for coping with coming to college—an instruction that was intended as a self-regulation task. King and Miner (2000) sought to spur effective self-regulation by instructing participants to focus only on the positive aspects of a life trauma—to explore the ways they had grown as a person and become more able to cope in the future. In this study, health benefits were obtained for individuals who focused only on the positive and who experienced relatively little of the emotional distress that is typically associated with writing.

Studies demonstrating health benefits for self-regulatory writing expand on previous assumptions about the health benefits of writing, but they also demonstrate a bias in this body of work: focus on negative life events. Given psychologists' original speculation that catharsis and insight were the mechanisms behind the healing power of writing, it is no surprise that examinations of positive or neutral writings have been largely

ignored. If delving deeply into traumatic life events is necessary for healing, positive or neutral topics would be considered inherently uninteresting and unimportant. Note that even in their study, Cameron and Nicholls (1998) asked about plans for coping with a potentially traumatic event: coming to college. King and Miner (2000) asked participants to first think about a trauma and then focus on the positive aspects. Thus, research has tended to focus on negative life events as the source of the health benefits of writing without considering other possible starting points.

The purpose of this study was to test whether writing that promoted self-regulatory processes that was not at all related to past trauma might produce health benefits even in the absence of experiencing (Greenberg et al., 1996) or reexperiencing (Pennebaker, 1993) intense negative emotions. In this study, I selected writing about one's life goals as an appropriate self-regulatory topic—yet one that might not conjure intense negative emotion.

The goals that individuals espouse for themselves have been seen as a window into self-regulatory processes (Austin & Vancouver, 1996). A variety of ways to study goals have been presented in the past two decades in personality psychology (cf. Pervin, 1989). These approaches have typically investigated goals by asking people to list the goals they are seeking in their everyday behavior (e.g., Emmons, 1986; Klinger, Barta, & Maxeiner, 1980). Such an activity might well have benefits per se. However, in this study, the concept of best possible future selves was used as the goal measure.

Possible selves are personalized representations of goals (Markus & Nurius, 1986). Possible selves have been described as an essential link between the self-concept and motivation (Markus & Nurius, 1986; Niedenthal, Setterlund, & Wherry, 1992). Possible selves encompass all of our imaginable futures for ourselves. Possible selves and aspects of possible selves have been found to relate to a variety of outcomes, such as memory, self-esteem, and delinquency (e.g., Markus & Nurius, 1986; Markus & Ruvolo, 1989; Oyserman & Markus, 1990). A number of methodologies have been employed to assess possible selves, including having people rate the likelihood of certain outcomes in their lives (Markus & Nurius, 1986) and the use of open-ended items (Oyserman & Markus, 1990). Possible selves were deemed more suitable to the current investigation because they might lend themselves to a session of focused writing comparable with the trauma writing employed in other studies. That is, constructing a goal list might not involve the kind of narrative construction that traumatic writing does. Therefore, in the present study, participants were asked to write narrative descriptions of their best possible future selves. In addition, pos-

sible selves might be seen as occupying a high level in a motivational hierarchy. These high levels might be less likely to be chronically in people's minds as they go about their daily life pursuits. Therefore, asking people to consider these high-level life goals might allow them to examine a previously unexamined part of their motivational lives.

Like writing about a past trauma (Pennebaker, 1997), writing about one's life goals might be considered a therapeutic activity. Writing about life goals might involve bringing awareness and clarity to one's life goals, reorganizing priorities, deciding on values—the types of processes that might be part of cognitive-behavioral treatment. Having clear and valued goals has certainly been shown to relate to positive psychological functioning (e.g., Emmons, 1986; Little, 1989; Omodei & Wearing, 1990). In addition, writing about life goals might also serve to reduce goal conflict. Pennebaker (1998) noted that having individuals write about unresolved conflict is associated with long-term health benefits. The concept of conflict here was used to refer to the conflictful situation of wanting to talk about a trauma but being prevented from doing so or about unresolved personal traumas in which individuals had not gained a sense of closure. Conflict, in the sense of goal conflict, has also been shown to relate to physical illness (Emmons & King, 1988). It may be that writing about one's life goals will allow individuals to recognize and resolve such conflicts.

Finally, research on mental simulation would indicate that imagining success at one's life goals might have implications for self-regulation. Pham and Taylor (1999) found that individuals who mentally simulated the process of doing well on a test actually did perform better. Such simulation increased the relationship between thought and action. In addition, Rivkin and Taylor (1999) found that individuals who mentally simulated a stressful life event were better off psychologically than others. Thus, this type of simulation may be operating in disclosive writing—whether about life goals or stressful events.

#### OVERVIEW AND PREDICTIONS

Participants were instructed to write about one of four topics: their best possible selves (BPS) in the future, their most traumatic life experiences, both of these, or a control topic over 4 days. For individuals in the combination cell, instructions were given to write about a trauma on the first 2 days and then were switched to writing about future BPS on the 3rd and 4th days. King and Miner (2000) found that individuals who changed topics midsession tended to show lowered benefits from writing. It was posited that individuals who switched topics after 2 days might enjoy the benefits of both types of

writing—the emotional disclosure of the trauma and the self-regulatory benefits of writing about goals. Mood, subjective well-being, and health center visits for illness were also measured.

It was predicted that writing about traumatic life events would relate to more negative mood, whereas writing about BPS would have either no effect or the opposite effect on mood. It was predicted that writing about BPS would be judged as less upsetting by participants than writing about trauma, although writing about BPS might still be rated as quite important. It was predicted that writing about goals would relate to heightened subjective well-being, whereas writing about trauma would result in short-term distress. Finally, it was predicted that participants in the BPS, trauma, and combination groups would show lowered health center visits for illness relative to controls.

## METHOD

### Participants

Participants were 81 psychology students ages 18 to 42 ( $M = 21.04$ ,  $SD = 3.15$ ) from Southern Methodist University (69 women, 14 men, 2 not reporting). All individuals were given extra credit in their psychology courses (introductory and upper level) in exchange for participation in the study. Participants were primarily drawn from 3rd- and 4th-year students (83%) and were largely European American (87%); 7% were Hispanic, 3% were African American, and 3% were Asian.

### Materials and Procedure

Participants were randomly assigned to one of four conditions in a 2 (trauma vs. no trauma)  $\times$  2 (BPS vs. no BPS) design. The  $n$ s for the cells are shown in Table 1. Participants were taken individually to a room and were told that over 4 days, they would be writing about different experiences and topics. Participants signed a consent form and completed their first mood ratings. Each participant was then given an envelope containing a writing topic. Participants wrote for 20 minutes each day over 4 consecutive days. At the end of each writing session, participants again completed the measure of positive and negative affect and rated the essay-writing experience on a variety of dimensions.

Three types of writing instructions were used. For the participants in the trauma-only condition, the following instructions were used:

For the next few minutes we would like you to write about some traumatic event or traumatic loss that you have experienced in your life. Write about the experience in as much detail as you can. Really get into it and freely express any and all emotions or thoughts that you

**TABLE 1: Means and Standard Deviations of Net Positive Mood After Writing**

	<i>Best Possible Self</i>	
	<i>No</i>	<i>Yes</i>
Trauma		
No	1.37 <sub>b</sub> (.95) $n = 16$	1.26 <sub>b</sub> (1.48) $n = 19$
Yes	0.16 <sub>a</sub> (1.61) $n = 22$	1.86 <sub>b</sub> (.95) $n = 22$

NOTE: Means with differing subscripts significantly differ ( $p < .05$ , using Tukey's HSD test).

have about the experience. As you write do not worry about punctuation or grammar just really let go and write as much as you can about the experience.

For the BPS condition, participants read the following:

Think about your life in the future. Imagine that everything has gone as well as it possibly could. You have worked hard and succeeded at accomplishing all of your life goals. Think of this as the realization of all of your life dreams. Now, write about what you imagined.

In the combination condition, participants were given the trauma-only instructions on the first 2 days and were given the BPS instructions on the 3rd and 4th days. For the control condition, participants were asked each day to write about their plans for the day in as much detail as possible (after Pennebaker et al., 1996).

Participants were told that they were free to leave once they had completed the questionnaire and that the experimenter would pick up their materials after the participant had left the room. Information about counseling services on campus was made available to all participants.

**Mood ratings.** Before and after each writing session, participants completed ratings of their positive and negative mood (Diener & Emmons, 1984). This scale asked respondents to rate from 1 (*not at all*) to 6 (*extremely much*) the extent to which each of 17 adjectives described their current mood. Ten of the adjectives measured positive affect (happy, pleased, self-confident, enjoyment/fun, joyful, aroused/active, anticipating, excited, sociable/friendly, satisfied), and 7 measured negative affect (depressed/blue, bored, worried, tired, frustrated, unhappy, angry/hostile).

**Participant ratings of essay content.** After each writing session, participants made ratings on a scale from 1 (*not*

at all) to 5 (*extremely much*) of how important (grand  $M = 2.89$ ,  $SD = .66$ ), emotional (grand  $M = 2.89$ ,  $SD = .67$ ), difficult (grand  $M = 2.87$ ,  $SD = .66$ ), and upsetting (grand  $M = 2.44$ ,  $SD = 1.58$ ) the writing experience was.

*Psychological well-being measures.* Three weeks after participation, participants were given a questionnaire packet containing psychological well-being measures. Participants completed the Satisfaction With Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985;  $M = 3.43$  on a 5-point scale,  $SD = .66$ ). The SWLS is a five-item measure that includes items such as "My life is close to my ideal" and "If I could live my life over again, I would change almost nothing." In addition, participants completed the Life Orientation Test (LOT) (Scheier & Carver, 1985), an eight-item instrument measuring dispositional optimism—the extent to which individuals expect favorable outcomes. Each item was rated on a 5-point scale from *disagree* on the low end to *agree* on the high end. The LOT includes items such as "Every cloud has a silver lining" and "I'm always optimistic about my future" ( $M = 3.68$  and  $SD = .67$ ). These two measures were highly correlated ( $r = .56$ ,  $p < .001$ ). Therefore, a subjective well-being composite was computed by averaging the standard scores for the two scales.

*Physical illness measure.* On the last day of writing, participants signed a release form giving the experimenter access to their health center information. Physician visit information was obtained from the Southern Methodist University Health Center for the semester prior to the study as well as for 5 months after writing. Records were stripped of all identifying information and a rater, blind to condition, simply counted the number of visits to the health center that each participant had made for illness (discounting regular checkups, accidents, etc.). These counts were made with the help of a health center nurse who verified intake codes. Health records were available for 89% of the participants ( $n = 72$ ). Data were unavailable for 3 participants in the trauma-only and combination groups and for 1 and 2 participants in the BPS and control conditions, respectively ( $\chi^2$  n.s.).

*Content analysis.* To examine the characteristics of the essays themselves, two independent judges read and rated the essays from the three experimental groups on dimensions, including how emotional, negative, positive, optimistic, and insightful the essay was. Ratings were also made with regard to the extent that participants attributed responsibility to themselves or to others. All ratings were made on a scale from 1 (*not at all*) to 5 (*extremely much*). Interrater correlations were all greater than .67. These ratings were not completed for the control essays because the task was nonsensical to the raters.

## RESULTS

### *Sample Essays*

Before presenting the analyses of the results of this study, it might be helpful to examine a few representative examples of essays written in each of the writing conditions. An informal inspection of the trauma essays indicated that participants indeed wrote about a variety of quite negative experiences, including death of a parent or loved one, romantic breakups, parental divorce, accidents, death of a pet, and victimization. Some representative examples from these essays follow.

This summer my grandmother past away. It was completely unexpected. . . . I was very close to her as was everyone in my family. She was so full of energy all the time and was the type who could hardly sit still. We loved to shop together, go to antique stores, have lunch, go on vacations, etc. She was up for anything, in fact, she always planned everything. The hardest part about losing her is that we had no time to prepare and my grandfather was left behind in shock. . . . I worry about him all the time because I now if I feel so sad about her being gone, I can't imagine how devastating it must be from day to day to lose the woman you've loved for 50 years. I try to remember all of the wonderful, positive qualities about her and apply them to my own life. She would not want anyone moping around missing her. I just wish she were still here, I'd like to see her one last time, and tell her I love her.

My grandfather died on my 17th birthday. That certainly wasn't fun. We only found out the day before that he was in the hospital, even though he'd been there for 4 days. My senile grandmother forgets where he was—and forgot to tell anyone else. . . . My first thoughts were of how I'd never hear my grandfather's voice again reciting his favorite poem. I could hear it in my head. I thought of my grandmother, who probably wouldn't even understand exactly (until she died, she continued to ask about my grandfather's whereabouts).

The BPS essays included a variety of topics, focusing on desired states for the future. Common themes were job success, self-improvement, marriage and family, travel, home ownership, and so forth. The following are examples from the BPS writing condition:

I have learned to love as fully and selflessly as possible. I have learned to be humble without losing and confidence, esteem, or being fake. I have touched the life of at least one other soul in a significant way and helped them learn to love more greatly. If I have achieved this then I know that I have also achieved happiness, peace, and worldly success. By this last I refer to career accomplishment, and enough material wealth to keep me satisfied. . . . I have learned to relinquish all fear.

I guess . . . I want a pretty normal middle class life. I want just a medium-size house—no mansions even if I could afford it. . . . My main goal is to keep experiencing as much as I can even when it seems there isn't anything else, there always is. Really, I just want a good marriage, where we are both confident together and compliment each other's personalities. Once we are happy together we could be happy in lots of different situations—even if it means some sacrifice. My ideal would be for us both to love, or at least be proud of, our jobs, but also always strive for more.

I hope my life allows me to travel. I have this passion to spend extended amounts of time in countries that are drastically different from my own. I'd love to visit India, China, Israel, Nepal, Africa again. So, somehow . . . I want to travel. I also envision being the associate pastor of a moderately sized church in Arizona working with adult education programming and cross-cultural awareness. Hopefully somewhere along the line I will find someone that I want to commit to sharing my life with. I would like to have 3 children. I really wouldn't mind living in another country! I certainly don't want to be in the military, but I'd love to do medical missions in third world countries or something like that. I also would like to teach Religion courses at the college level someday, or maybe even at graduate school! Maybe I could be a religious archeologist! Then I could travel and learn amazing things all at the same time! Life is just full of possibilities. See, there is all this stuff I want to do with part of my life, but I also really do desire a home and family.

As these examples illustrate, although the BPS writing was clearly more positive than the trauma writing, it was an engaging task for participants.

#### *Statistical Analyses*

Analyses first examined the effects of writing topic on mood, differences in the participants' ratings of the writing experience, and rated differences in essay characteristics. Then, the main predictions regarding psychological well-being and physical illness effects were examined.

*Effect of writing topic on mood.* Recall that it had been predicted that writing about trauma would relate to more negative mood, whereas writing about BPS was predicted to have no effect or a positive effect on mood. Positive and negative mood ratings at the beginning and end of each writing condition were averaged over the 4 days of writing. The net positive affect (PA) experienced was calculated by subtracting negative affect (NA) from PA. Prior to writing, the mean net PA was 1.21 ( $SD = 1.49$ ). After writing, the net PA was 1.48 ( $SD = 1.18$ ). There were no differences among the groups on net PA before writing ( $F < 0.2$ ). To examine the effects of writing topic on mood, a 2 (trauma vs. no trauma)  $\times$  2 (BPS vs. no BPS) analysis of covariance (ANCOVA) was performed on net PA ratings after writing, controlling for

net PA before writing. Means are shown in Table 1. Results demonstrated that controlling for mood before writing, the main effect of writing about one's BPS was significant,  $F_{(1, 74)} = 22.95$ ,  $p < .001$ . Writing about one's BPS was associated with a significant increase in net positive mood. This main effect and a marginally significant main effect for writing about trauma,  $F_{(1, 74)} = 3.45$ ,  $p < .07$ , indicating lowered net PA for writing about trauma, were qualified by a significant interaction. The means in Table 1 show that the control group, those who wrote about their BPS, and the combination group were all significantly happier than those who wrote about trauma only.

*Participant ratings of essay content.* It had been predicted that writing about BPS would be rated as less upsetting than writing about traumatic life events. ANOVAs were performed on participants' ratings of writing as important, emotional, difficult, and upsetting. With regard to importance ratings, a significant main effect for trauma,  $F(1, 76) = 6.73$ ,  $p < .02$ , was qualified by a significant interaction of trauma and BPS writing,  $F(1, 76) = 12.23$ ,  $p < .001$ . Post hoc examination of the means for this interaction indicated that all three of the experimental groups differed significantly from the control group (Tukey's HSD  $p < .05$ ;  $M$ s for the trauma only, BPS only, and combination groups = 3.23, 2.96, and 2.89, respectively, vs.  $M$  for control = 2.34). With regard to how difficult the writing process was, a significant main effect for trauma,  $F(1, 76) = 5.60$ ,  $p < .02$ , was qualified by a significant two-way interaction,  $F(1, 76) = 12.15$ ,  $p = .001$ . Post hoc comparison of the means (using Tukey's HSD,  $p < .05$ ) indicated that the trauma-only ( $M = 3.20$ ) and BPS-only ( $M = 2.95$ ) groups rated writing as more difficult than the control group ( $M = 2.34$ ). The combination group did not significantly differ from any groups ( $M = 2.85$ ). For ratings of how emotional writing was, again main effects for trauma,  $F(1, 76) = 2.35$ ,  $p < .02$ , were qualified by a two-way interaction,  $F(1, 76) = 12.84$ ,  $p = .001$ . Post hoc comparisons of the cell means demonstrated that the trauma-only ( $M = 3.23$ ) and BPS-only ( $M = 2.97$ ) groups differed significantly from the control group ( $M = 2.34$ ), whereas the combination group did not differ from the other groups ( $M = 2.87$ ). Finally, for ratings of how upsetting the writing experience was, significant main effects for trauma,  $F(1, 76) = 26.05$ , and BPS,  $F(1, 76) = 19.87$ , both  $ps < .001$ , emerged. For trauma, this main effect was in the direction of traumatic writing being more upsetting ( $M$ s = 1.86 vs. 2.95), whereas for BPS, writing was less traumatic than the control topic ( $M$ s = 2.97 vs. 2.01). These main effects were qualified by a significant two-way interaction,  $F(1, 76) = 118.99$ ,  $p < .0001$ . In this case, writing about trauma only ( $M = 4.39$ ) was significantly more upsetting than writing about the

control topic ( $M = 1.01$ ), the BPS-only topic ( $M = 2.55$ ), and the combination topic ( $M = 1.51$ ).

*Essay content.* Next, analyses examined differences in the content of the essays as judged by raters. Table 2 shows the results. Essays that pertained to trauma (whether alone or in the combination condition) were generally rated as more emotional, negative, more attributing responsibility to others, less positive, less optimistic, and less attributing of responsibility to self. The only rating in which no significant difference emerged was for insightfulness.

To summarize, analyses thus far indicate that writing about one's future BPS and writing about a trauma are similar in some ways. Both tasks are engaging—participants rate them as important, emotional, and challenging activities. However, as expected, writing about one's BPS was significantly less upsetting than writing about trauma. With regard to raters' content ratings of the essays, the trauma-only essays emerged as more emotional and negative and less positive and optimistic than writing about one's BPS. In addition, individuals writing about trauma were more likely to attribute responsibility to others, whereas individuals writing about their life goals were more likely to attribute responsibility to themselves. Thus, the writing instructions seemed to have worked: The trauma writers tended to really get into writing about negative emotional events, whereas the BPS writers tended to be more positive, optimistic, and less emotional. It is also noteworthy that with regard to mood, writing about BPS was actually related to increased net positive mood—and that writing about trauma was related to the lowest net PA of all groups. Analyses next considered the main predictions of this study—the potential benefits of writing about one's life goals for psychological and physical well-being.

*Psychological well-being.* A 2 (trauma vs. no trauma)  $\times$  2 (BPS vs. no BPS) ANOVA was performed on the composite psychological well-being measure. A main effect for writing about BPS emerged,  $F(1, 77) = 3.93, p = .05$ . Means for this effect indicated that individuals who wrote about their BPS were higher in psychological well-being than others ( $M_s = .22$  vs.  $-.26$ ).<sup>1</sup>

*Physical illness.*<sup>2</sup> No significant differences were present among the four groups 3 months prior to writing,  $F(3, 68) = 0.95, p > .90$ . A 2 (trauma vs. no trauma)  $\times$  2 (BPS vs. no BPS) ANCOVA was performed on health center visits at 5 months controlling for illness visits for the 3 months prior to writing. A significant interaction emerged,  $F(1, 67) = 4.62, p < .04$ . The means for illness visits for all groups for the pretest and 5-month measures are shown in Table 3 and Figure 1. Protected  $t$  tests indicated that the BPS-only and trauma-only groups were significantly lower than controls in illness visits at posttest,

TABLE 2: Content Ratings for Essays

Content Dimension	Writing Condition			F(2, 53)
	Trauma Only	BPS Only	Combination	
Emotional	2.56 <sub>a</sub>	1.47 <sub>b</sub>	1.83 <sub>b</sub>	23.33**
Negative	2.96 <sub>a</sub>	1.22 <sub>b</sub>	1.94 <sub>c</sub>	80.71**
Positive	1.31 <sub>a</sub>	2.80 <sub>b</sub>	2.25 <sub>c</sub>	62.57**
Optimistic	1.23 <sub>a</sub>	2.50 <sub>b</sub>	1.86 <sub>c</sub>	24.24**
Insightful	1.80	2.02	1.60	2.42
Responsibility to self	1.98 <sub>a</sub>	2.42 <sub>b</sub>	1.75 <sub>a</sub>	6.09*
Responsibility to others	2.10 <sub>a</sub>	1.46 <sub>b</sub>	1.61 <sub>b</sub>	7.54*

NOTE: BPS = best possible self. Means with different subscripts within rows are significantly different using Scheffe's test ( $p < .05$ ).

\* $p < .01$ . \*\* $p < .001$ .

$t(30) = 2.60, p < .01$ , for BPS and  $t(30) = 2.18, p < .04$ , for trauma.

It might be noted from examining Figure 1 that the control group tended to increase in illness diagnoses over the course of the study. This difference between pretest and posttest means was not significant,  $t(14) < 1.0$ . The difference from pretest to posttest was significant for the BPS-only group,  $t(18) = 2.19, p < .05$ , and was marginally significant for the trauma-only group,  $t(17) = 1.84, p < .09$ . In any case, the pattern shown in Figure 1 is typical of past writing studies.

Finally, analyses were conducted to examine whether the emotional experience of writing about trauma or goals interacted with the conditions to produce health effects. A hierarchical regression equation was computed predicting illnesses at the 5-month follow-up from the main effects of trauma, BPS, and net PA after writing (converted to a mean deviation score), entered on the first step, and all of the two-way interactions of these variables, entered on the second step (Aiken & West, 1993). Only the main effect of writing about BPS contributed significantly to the equation ( $\beta = -.47, p < .02$ ). The main effect for writing about trauma was marginally significant ( $\beta = -.32, p < .10$ ). The interaction of trauma and BPS was also marginally significant ( $\beta = .42, p < .09$ ). No significant main effects or interactions were found for mood after writing. Similar analyses were performed for participant ratings of the essay writing as important and upsetting. Results were essentially the same as for mood. Neither the importance nor the upsetting nature of the task related to illness.

## DISCUSSION

Results indicate that writing about life goals is another way to enjoy the health benefits of writing without the emotional costs. Indeed, writing about one's life goals

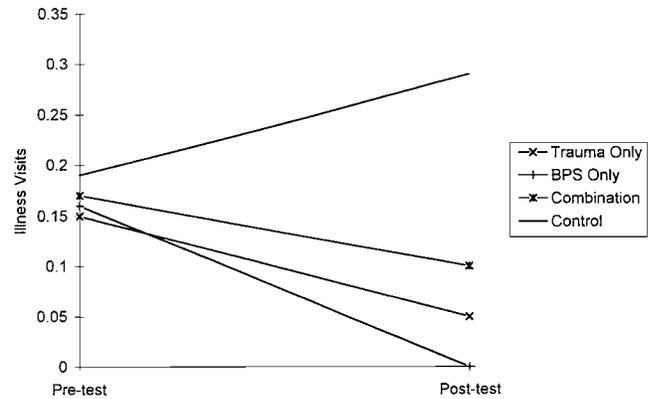
**TABLE 3: Means and Standard Deviations for Health Center Illness Visits After Writing by Writing Topic, Controlling for Previous Illness Visits**

	5 Months	
	Best Possible Self	
	No	Yes
Trauma		
No	.29 (.72)	.00 (.01)
Yes	.05 (.23)	.10 (.22)

was associated with feeling less upset, more happy, and getting sick less often. It is important to note that the physical benefits of writing about one's BPS were equal to or better than writing about trauma, whereas writing about a traumatic life event also entailed feeling upset and experiencing lowered mood. Obviously, these results require replication, but they do suggest a provocative extension on the traditional writing paradigm. It may be possible to enjoy the benefits of writing without necessarily writing about trauma at all.

The distress caused by writing about trauma was short term. No prolonged effects were found in terms of the subjective well-being measures given 2 to 3 weeks after the writing intervention. It is notable, however, that writing about life goals was, in fact, associated with a small increase in subjective well-being over the 3-week follow-up. Thus, writing about life goals is not only physically beneficial but may have psychological benefits as well. The mechanisms that underlie this result are not clear; however, it might be that individuals who actively focus on and write about their best possible futures actually are able to more effectively pursue these goals. Research on visualization has shown that individuals who can imagine themselves accomplishing tasks are often better able to do them (e.g., Pham & Taylor, 1999; Ruvalo & Markus, 1992; Sherman, Skov, Hertz, & Stock, 1981). Perhaps the 4 days of writing served as an imaginative exercise in which participants were able to visualize themselves successful at their valued goal. Interestingly, Taylor and her colleagues (e.g., Pham & Taylor, 1999; Rivkin & Taylor, 1999) have shown that process, not outcome, simulations are associated with superior coping and goal progress. Yet, the present manipulation would seem to be an outcome-focused manipulation. Further research might include variations on the BPS instructions to examine the health effects of these different orientations.

One problem of this study is that no goal-related dependent measures were given to participants to examine the mechanisms of the change promoted by writing.

**Figure 1** Residualized health center visits for illness as a function of writing topic.

NOTE: BPS = best possible self.

It would be interesting to track whether this kind of writing actually leads to a clearer sense of one's goals, less conflict, and so forth. Certainly, future research might examine the motivational consequences of writing about goals.

The results of this study beg the question of what other topics might be posed to individuals to examine through writing. Obviously, one possibility would be to look at intensely positive experiences. Another might be to ask questions about individuals' most meaningful life experiences and their philosophies of life. It is important to remember that writing about one's life goals was shown here to be a somewhat dispassionate experience. Thus, writing that is not emotional but that promotes awareness of one's goals, priorities, and so forth might be used to foster self-regulation.

It is worth mentioning, of course, that the control group did not show any health benefits from their quite unemotional writing. Yet, the control assignment, to write about one's plans for the day, might be seen as remarkably close to the life goal topic used. It may be that writing about very low level goals does not provide the same opportunity for integration that is provided by considering higher level concerns. In addition, it may be that asking participants to write about their future BPS accessed fantasies that would not be mentioned in the mundane to-do lists produced by control participants. Obviously, future work might explore the parameters of this effect by examining different kinds of motivationally relevant writing topics. It is important to note also that participants in the BPS condition judged the task as difficult, emotional, and important—it was simply not upsetting. Thus, it may be that to benefit from writing, the assigned topic must be meaningful, engaging, and even challenging. The topic must be one that can capture and

maintain the individual's attention for a considerable amount of time.

What is it about engaging writing that promotes physical health? A possible candidate seems to be the influence of such writing on self-awareness and self-regulation. The activities of writing about extremely negative emotional events as well as somewhat unemotional life goals share, for the writer, the opportunity to learn about the self. These activities may serve to integrate life experience into a larger, more sensible framework. They may allow the person to gain a feeling of control over his or her emotional life or valued outcomes. Words may limit experience and transform the world into a more comprehensible whole. Importantly, this translation of chaotic experience into comprehensible text does not require that one be writing about a personally devastating experience. Apparently, thinking seriously about an important topic is essential to the health benefits of writing, but emotional anguish is not.

A peculiar result that warrants some discussion is the lack of strong results for the combination writing group. King and Miner (2000) found that individuals in their combination group—participants who wrote about a trauma and then about the positive benefits of that trauma—did not benefit from writing. In the present study, the combination group showed lowered illness visits, but these benefits were not significantly different from controls. Although this finding replicates the null results of King and Miner, it is no less puzzling. It seems logical that if two types of writing are beneficial, then combining them should be at least as beneficial. One possible explanation is that the switching of topics interrupted the flow of participants' disclosure. When individuals in the trauma-only group begin to come to a sense of closure about the topic, they do so naturally and in their own time. In our combination group, participants have been forced to change horses in midstream and may therefore find the situation uncomfortably forced. In addition, it may be that participants gauge themselves in the course of any writing study to peak at a particular time. Participants in this study knew the study would last 4 days because they signed up for 4 days at the initial meeting. It may be that individuals expected to write about trauma over the course of those days and had paced themselves accordingly. It would be interesting to examine this possibility in participants led to expect varied numbers of days of writing.

A limitation of this study is that it relied completely on an undergraduate sample. Students are a particularly convenient group in that they are available for the writing portion of the study and they use the student health center—allowing relatively easy access to health data. However, it is important to note that the college sample presents some problems as well. First, students tend to be

in relatively good health. It might be interesting to examine these interventions in a group of individuals who are more at risk for serious illness. In addition, the life goal instructions we used might have very different meaning in the context of an individual in middle or old age. Finally, young, healthy individuals enrolled in a private university may be more optimistic about their futures than individuals in less advantaged situations. Thus, writing about the future may be more upsetting or less uplifting for individuals in less hope-filled life situations. Future research should examine the benefits of writing about goals in a more diverse population.

To conclude, it is not difficult to see why the earliest studies of the benefits of writing focused on very negative events. In terms of compelling topics that warrant examination, these are probably the most obvious. The practice of examining negative events from the past seems to resonate with a view of psychology that might even appeal to participants—as if dwelling on the negatives of the past is what psychologists ought to do. Forcing individuals to delve deeply into extremely negative life experiences is certainly one way to harness attention and foster self-regulation. An interesting implication of the present results is that past disclosive writing studies have been beneficial in spite of, not because of, the topics assigned. The act of writing down our deepest thoughts and feelings is key to the benefits of writing. However, and importantly, the contents of our deepest thoughts and feelings need not be traumatic or negative. Quite the contrary, examining the most hopeful aspects of our lives through writing—our best imagined futures, our “most cherished self-wishes” (Allport, 1961)—might also bestow on us the benefits of writing that have been long assumed to be tied only to our traumatic histories.

#### NOTES

1. Results for SWLS and LOT analyzed separately produced similar patterns. For the Satisfaction With Life Scale, the means were 3.3 vs. 3.5,  $t = 1.40$ ,  $p < .09$ ; for the Life Orientation Test, the means were 3.5 versus 3.8,  $t = 2.0$ ,  $p < .03$ . Given the high correlation between the measures, the difference for the composite would seem the most reliable measure available.

2. A 2 (trauma vs. no trauma)  $\times$  2 (BPS vs. no BPS)  $\times$  2 time (before and after writing) repeated measures ANOVA was significant  $F(1, 68) = 4.06$ ,  $p < .05$ .

#### REFERENCES

- Aiken, L. S., & West, S. G. (1993). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Allport, G. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart & Winston.
- Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process and content. *Psychological Bulletin*, *120*, 338-375.
- Cameron, L. D., & Nicholls, G. (1998). Expression of stressful experiences through writing: Effects of a self regulation manipulation for pessimists and optimists. *Health Psychology*, *17*, 84-92.

- Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology*, 47, 1105-1117.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, G. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology*, 51, 1058-1068.
- Emmons, R. A., & King, L. A. (1988). Conflict among personal strivings: Immediate and long-term implications for psychological and physical well-being. *Journal of Personality and Social Psychology*, 48, 1040-1048.
- Esterling, B. A., Antoni, M. H., Fletcher, M. A., Margulies, S., & Schneiderman (1994). Emotional disclosure through writing or speaking modulates latent Epstein-Barr virus antibody titers. *Journal of Consulting and Clinical Psychology*, 62, 130-140.
- Greenberg, M. A., & Stone, A. A. (1992). Emotional disclosure about traumas and its relation to health: Effects of previous disclosure and trauma severity. *Journal of Personality and Social Psychology*, 63, 75-84.
- Greenberg, M. A., Wortman, C. B., & Stone, A. A. (1996). Emotional expression and physical health: Revising traumatic memories or fostering self-regulation? *Journal of Personality and Social Psychology*, 71, 588-602.
- King, L. A., & Miner, K. N. (2000). Writing about the perceived benefits of traumatic events: Implications for physical health. *Personality and Social Psychology Bulletin*.
- Klinger, E., Barta, S. G., & Maxeiner, M. (1980). Motivational correlates of thought content, frequency, and commitment. *Journal of Personality and Social Psychology*, 39, 1222-1237.
- Little, B. R. (1989). Personal projects analysis: trivial pursuits, magnificent obsessions, and the search for coherence. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends, emerging directions* (pp. 15-31). New York: Springer-Verlag.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954-969.
- Markus, H., & Ruvolo, A. (1989). Possible selves: Personalized representations of goals. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 211-242). Hillsdale, NJ: Lawrence Erlbaum.
- Niedenthal, P. M., Setterlund, M. B., & Wherry, M. B. (1992). Possible self-complexity and affective reactions to goal-relevant evaluation. *Journal of Personality and Social Psychology*, 63, 5-16.
- Omodei, M. M., & Wearing, A. J. (1990). Need satisfaction and involvement in personal projects: Toward an integrative model of subjective well-being. *Journal of Personality and Social Psychology*, 59, 762-769.
- Oyserman, D., & Markus, H. (1990). Possible selves in balance: Implications for delinquency. *Journal of Social Issues*, 46(2), 141-157.
- Pennebaker, J. W. (1988). Traumatic experience and psychosomatic disease: Exploring the roles of behavioural inhibition, obsession, and confiding. *Canadian Psychology*, 26, 82-95.
- Pennebaker, J. W. (1989). Confession, inhibition, and disease. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 22, pp. 211-244). New York: Springer-Verlag.
- Pennebaker, J. W. (1992). Inhibition as the linchpin of health. In H. S. Friedman (Ed.), *Hostility, coping, and health* (pp. 127-139). Washington, DC: American Psychological Association.
- Pennebaker, J. W. (1993). Putting stress into words: Health, linguistic, and therapeutic implications. *Behavior Research and Therapy*, 31, 539-548.
- Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8, 162-166.
- Pennebaker, J. W. (1998). Conflict and canned meat. *Psychological Inquiry*, 9, 219-220.
- Pennebaker, J. W., Barger, S. D., & Tiebout, J. (1989). Disclosure of traumas and health among Holocaust survivors. *Psychosomatic Medicine*, 51, 577-587.
- Pennebaker, J. W., & Beall, S. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology*, 95, 274-281.
- Pennebaker, J. W., Colder, M., & Sharp, L. K. (1990). Accelerating the coping process. *Journal of Personality and Social Psychology*, 58, 528-537.
- Pennebaker, J. W., & Francis, M. E. (1996). Cognitive, emotional, and language processes in disclosure: Adjustment to college. *Cognition and Emotion*, 10, 601-626.
- Pennebaker, J. W., Hughes, C. F., & O'Heeron, R. (1987). The psychophysiology of confession: Linking inhibitory and psychosomatic processes. *Journal of Personality and Social Psychology*, 52, 781-793.
- Pennebaker, J. W., Kiecolt-Glaser, J. K., & Glaser, R. (1988). Disclosure of traumas and immune function: Health implications for psychotherapy. *Journal of Consulting and Clinical Psychology*, 56, 239-245.
- Pennebaker, J. W., Mayne, T. J., & Francis, M. (1997). Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, 72, 863-871.
- Pennebaker, J. W., & O'Heeron, R. C. (1984). Confiding in others and illness rate among spouses of suicide and accidental-death victims. *Journal of Abnormal Psychology*, 93, 473-476.
- Pennebaker, J. W., & Susman, J. R. (1988). Disclosure of traumas and psychosomatic processes. *Social Science and Medicine*, 26, 327-332.
- Pervin, L. A. (Ed.). (1989). *Goal concepts in personality and social psychology*. Hillsdale, NJ: Lawrence Erlbaum.
- Petrie, K. J., Booth, R. J., Pennebaker, J. W., & Davidson, K. P. (1995). Disclosure of trauma and immune response to a hepatitis B vaccination program. *Journal of Consulting and Clinical Psychology*, 63, 787-792.
- Pham, L. B., & Taylor, S. E. (1999). From thought to action: Effects of process- versus outcome-based mental simulations on performance. *Personality and Social Psychology Bulletin*, 25, 250-260.
- Rivkin, I. D., & Taylor, S. E. (1999). The effects of mental simulation on coping with controllable stressful events. *Personality and Social Psychology Bulletin*, 25, 1451-1462.
- Ruvolo, A. P., & Markus, H. R. (1992). Possible selves and performance: The power of self-relevant imagery. *Social Cognition*, 10, 95-124.
- Scheier, M., & Carver, C. S. (1985). Optimism, coping and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4, 219-247.
- Sherman, S. J., Skov, R. B., Hervitz, E. F., & Stock, C. B. (1981). The effects of explaining hypothetical future events: From possibility to actuality and beyond. *Journal of Experimental Social Psychology*, 17, 142-158.
- Smyth, J. M. (1998). Written emotional expression: Effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology*, 66, 174-184.
- Spera, S. P., Buhrfeind, E. D., & Pennebaker, J. W. (1994). Expressive writing and coping with job loss. *Academy of Management Journal*, 37, 722-733.

Received June 2, 1999

Revision accepted July 17, 2000