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Does Narrative Writing Instruction Enhance the Benefits of Expressive Writing?

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Abstract

We examined whether instructing participants to write in a narrative fashion about stressful life events would produce superior physical and psychological health benefits relative to standard expressive writing instructions that do not specify the essay's structure. Undergraduates ($N = 101$) were randomly assigned to engage in two, 20-minute narrative writing, standard expressive writing, or control writing tasks. Follow-up data were obtained one month later. The essays of the narrative writing group evidenced higher levels of narrative structure than did those of the expressive writing group. Greater narrative structure was associated with mental health gains, and self-rated emotionality of the essays was associated with less perceived stress at follow-up. In addition, the narrative and expressive writing groups reported lower levels of perceived stress and depressive symptoms relative to controls but did not differ from each other with regard to these outcomes. Health care utilization at follow-up did not vary by group assignment. Findings suggest that both emotional expression and narrative structure may be key factors underlying expressive writing's mental health benefits. Results also suggest that, among college students, instruction in narrative formation does not increase the positive effects of expressive writing relative to standard expressive writing instructions.

Keywords

expressive writing; emotional disclosure; narrative; health; stress; psychological adjustment

Does Narrative Writing Instruction Enhance the Benefits of Expressive Writing?

Extensive research has documented links between expressive writing and improvement in physical and mental health, when participants writing about personal stressors or traumatic

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experiences have been compared to control participants assigned to write about more perfunctory topics (see Frattaroli, 2006, for a meta-analytic review). These studies have been conducted with college student samples (see Smyth, 1998, for a meta-analytic review), community-residing adults (Francis & Pennebaker, 1992; Spera, Buhrfeind, & Pennebaker, 1994), survivors of child sexual abuse (Batten, Follette, Hall, & Palm, 2002) and rape (Brown & Heimberg, 2001), and medical patients (e.g., Danoff-Burg, Agee, Romanoff, Kremer, & Strosberg, 2006; Norman, Lumley, Dooley, & Diamond, 2004; O' Cleirigh, Ironson, Fletcher, & Schneiderman, 2008; Petrie, Fontanilla, Thomas, Booth, & Pennebaker, 2004; Smyth, Stone, Hurewitz, & Kaell, 1999; Stanton et al., 2002). Despite the proliferation of expressive writing research, the mechanisms underlying its therapeutic effect are not yet clear (Low, Stanton, & Danoff-Burg, 2006). In attempting to explain mechanisms by which expressive writing produces benefits, researchers have emphasized the importance of creating a narrative (Pennebaker & Seagal, 1999; Ramírez-Esparza & Pennebaker, 2006; Smyth & Pennebaker, 1999). Although numerous theories exist regarding what constitutes a narrative (e.g., Gergen & Gergen, 1997; McAdams, 1996), definitions often emphasize story-telling qualities such as coherence and a clear beginning, middle, and end (Ramírez-Esparza & Pennebaker, 2006).

Forming a coherent, meaningful narrative may adaptively transform and organize memory representations of stressful events, which may in turn reduce distress and improve health (Klein & Boals, 2001; Pennebaker, Mayne, & Francis, 1997). According to cognitive change theory, traumatic memories that are not simplified into a narrative structure may be stored as sensory perceptions, obsessional ruminations, or behavioral reenactments, as in the case of posttraumatic stress disorder (Smyth, Hockemeyer, & Tulloch, 2008; Smyth & Pennebaker, 1999; Smyth, True, & Souto, 2001). Although fragmented images and emotions associated with trauma may be highly intrusive, organized and coherent narratives of these events may gradually subside from conscious thought, allowing the individual to regain a sense of control and to reap health benefits (Klein, 2002; Pennebaker & Seagal, 1999). For example, Pennebaker et al. (1997) found that word use patterns indicating the creation of meaningful stories were associated with health improvement. Specifically, increased use of insightful words (e.g., realize, understand, see) and words specifying causal relationships (e.g., because, reason, why) was correlated with physical health gains. Interestingly, individuals who began the study with a coherent narrative that explained a prior event did not benefit from writing (Pennebaker et al., 1997; Pennebaker & Seagal, 1999). It is therefore thought to be the process of forming narratives that has salutary effects (Kaufman & Sexton, 2006; Niederhoffer & Pennebaker, 2002).

Researchers have made a number of modifications to the standard emotional disclosure instructions in order to increase word use patterns associated with narrative formation (e.g., words indicating insight, causal relationships, or a sense of meaning). In general, instructing participants to focus on cognitive restructuring of personal stress or trauma has produced increases in insight and/or causal word use relative to control groups (e.g., Batten et al., 2002; Kovac & Range, 2002; van Middendorp, Sorbi, van Doornen, Bijlsma, & Geenen, 2007). The effect of these manipulations on physical and psychological health, however, has been mixed. For example, writing about stressful life events in a chronological fashion resulted in reduced clinic visits and physical symptoms among frequent clinic attenders relative to controls (Gidron et al., 2002) and reduced traumatic stress symptoms among college students when compared to students assigned to unstructured, benefit-finding, or control writing tasks (Guastella & Dadds, 2008). Other writing instructions designed to facilitate different aspects of narrative formation (e.g., meaning making or reinterpretation of the stressful life event) have not produced physical and mental health gains compared to controls in both healthy and clinical populations (Batten et al., 2002; Broderick, Stone, Smyth, & Kaell, 2004; Kovac & Range, 2002; Ullrich & Lutgendorf, 2002).

Smyth and colleagues (2001) directly tested whether narrative structure is necessary for writing to produce health benefits among college students. Two expressive writing protocols were compared with a control writing task; one experimental group was asked to write about past traumas or stressors using narrative structure, whereas the other experimental group was asked to write in a fragmented way. The latter group listed their thoughts, feelings, and sensations associated with the trauma or stressor without forming paragraphs. At follow-up, those who wrote in a narrative fashion reported significantly less illness-related restriction of activities than either of the other two groups (Smyth et al., 2001). To our knowledge, only one other published study within the expressive writing literature has explicitly examined narrative formation, finding that “story-making” within participants’ writing samples was not related to physical health outcomes (Graybeal, Sexton, & Pennebaker, 2002).

The design of the aforementioned study by Smyth and colleagues (2001) included a narrative writing group, a non-narrative writing (fragmented) group, and a control writing group, but it did not include a standard expressive writing group in which participants were instructed to disclose their deepest thoughts and feelings about trauma or stress without being told how to structure their writing. In the present study we sought to extend the work of Smyth et al. (2001) by comparing a narrative writing group with a standard expressive writing group and a control writing group. Although it has already been established that standard expressive writing instructions based on those developed by Pennebaker (1989) produce health benefits (Frattaroli, 2006), we reasoned that it may be possible to increase the positive effects of expressive writing by explicitly instructing participants to maximize the narrative structure of their essays. In contrast, standard expressive writing protocols typically designate an amount of time for writing and may specify particular topics but do not instruct participants to structure their essays in a particular format.

The present study included an experimental group that was instructed to create written narratives about past trauma or stress, another experimental group that wrote about past trauma or stress using a standard emotionally expressive writing protocol, and a control group that wrote about a neutral topic. Our narrative writing instructions focused on the story-telling, organizational aspect of narrative formation, which has been thought to produce health benefits (Pennebaker & Seagal, 1999; Smyth et al., 2001). We hypothesized that at follow-up, the narrative writing group would show superior health and psychological adjustment relative to the standard expressive writing group, which would demonstrate superior health and psychological adjustment relative to the control group. In addition, we explored whether the essays’ degree of narrative structure, emotion, and personal meaning was correlated with health and psychological adjustment at follow-up.

Method

Participants

During the fall semester, 101 undergraduate students (48 male and 53 female) were recruited from the psychology department research participant pool at a state university in the northeastern United States. To be eligible for enrollment in the study, participants had to be able to write by hand, in English, for up to 20 minutes. Participants were primarily 18 to 21 years of age (92.1%) and reported the following racial/ethnic backgrounds: Caucasian/White, 72.3%; Latino/a/Hispanic, 11.9%; Asian/Pacific Islander, 5.0%; African-American/Black, 3.0%; other, 7.9%.

Attrition occurred during data collection such that of the original 101 students who consented to participate, three elected not to complete the second writing session. Of the 98 who completed both writing sessions, 95.9% ($n = 94$) returned to the laboratory to complete the 1-month follow-up questionnaire. Completion of the follow-up questionnaire did not vary as a

function of group assignment, gender, or baseline values of the dependent variables. Students received course credit for their participation in this study.

Procedure

After providing written informed consent and completing a baseline questionnaire, participants received envelopes containing instructions that randomly assigned them to one of three conditions: narrative writing ($n = 33$), standard expressive writing ($n = 33$), or control writing ($n = 35$). Participants were instructed to write continuously for 20 minutes in accordance with their assigned instructions and were asked to return two days later to complete another 20-minute writing session. These procedures all took place within the laboratory in small groups ($n_s = 15-22$), spaced adequately within the room so that privacy during the experiment was protected.

Instructions for the standard expressive writing group were based on those of Pennebaker (1989) and encouraged participants to “let go and express [their] deepest thoughts and feelings” relating to a personally stressful or traumatic event. Instructions for the narrative writing group included the same content as the standard expressive writing instructions, but in addition defined a narrative as “a story told about a specific event, or sequence of events, that the storyteller, or narrator, experienced. The narrator paints a picture for the reader, describing the circumstances (who, when, what, where, why, and how) of the story as a foundation for connections to be made.” Participants in this group were instructed to “tell your story by (a) including the events leading up to what happened; (b) describing what actually occurred and how it made you feel; and (c) describing the outcome of the event or how it turned out.” Participants in the control group were asked to write a detailed, factual description of the inside of an apartment or house in which they had lived; similar control group instructions have been used successfully in previous expressive writing studies (e.g., Gidron et al., 2002).

During the second writing session, participants in the narrative and standard expressive writing conditions received the same instructions as in the initial writing session. Instructions for both conditions also stated that “You could continue to write about the thoughts and feelings you expressed last time or you could explore different aspects of the same experience.” Control writing instructions were identical across the writing sessions. At the end of each writing period, participants anonymously returned their essays in envelopes to the experimenter and then completed essay evaluation items. One month after the second writing session, participants completed a follow-up questionnaire in the laboratory. The follow-up questionnaire repeated the dependent measures that had been assessed at baseline. At both time points, the order of the measures was as follows: perceived stress, depressive symptoms, and University Health Center visits.

Measures

Essay ratings—Immediately following writing, participants rated their own essays as to how emotional and how personally meaningful they were, on 5-point scales from (1) *not at all* to (5) *extremely*.

Center for Epidemiological Studies Depression Scale—Participants completed the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) at baseline and follow-up. Participants rated the frequency of 20 symptoms (e.g., “I had crying spells”) during the past week on a 4-point scale from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Roberts (1980) has demonstrated the validity and reliability of the CES-D in a multi-ethnic sample. Internal consistency reliability for the CES-D was .92 at baseline and .92 at follow-up.

Perceived Stress Scale—At baseline and follow-up, participants completed the 4-item Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), designed to assess subjective levels of stress. Participants rated the frequency of occurrence of their thoughts and feelings of stress during the past month on a 5-point scale from 0 (*never*) to 4 (*very often*). A sample item is, “In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?” Internal consistency reliability for the PSS was .79 at baseline and .73 at follow-up.

University Health Center visits—The following item was administered at baseline and follow-up: “In the past month, how many times have you visited the University Health Center for illness/injury?” Self-reported health care utilization and health care utilization data collected from records have been shown to be highly correlated (Harris, 2006).

Results

Essay Characteristics

The essay characteristics examined were word count (obtained using computer software), degree of emotion and personal meaning (rated by participants immediately following writing), and degree of narrative structure (rated by independent judges). Following the methodology used by Smyth et al. (2001), three trained raters evaluated essays for degree of narrative structure on a 7-point scale from 0 (*none at all*) to 3 (*moderate*) to 6 (*extreme*). Raters were unaware of essay writers’ group assignment. Criteria for narrative structure included a clear beginning, middle, and end, sufficient explanation of details and background information, and a coherent framework of characters with their interrelations explained to the reader. Interrater reliability was satisfactory (.91 and .89 for writing Sessions 1 and 2, respectively). Narrative structure ratings were averaged across raters to create a final set of scores for the statistical analyses.

Repeated measures ANOVA was used to examine the effects of group assignment and writing session on the following essay characteristics: narrative structure, personal meaningfulness, level of emotion, and word count. Means and standard errors are shown in Table 1. A significant group effect was found for narrative structure, $F(2, 95) = 172.68, p < .001, \eta^2 = .78$. Using the Tukey’s Honestly Significant Differences (HSD) method, pairwise comparisons revealed that the narrative writing group had a higher mean narrative structure rating than did the standard expressive writing group ($d = 1.04$), which, in turn, had a higher mean narrative structure rating than did the control group ($d = 3.29$). A significant session effect was qualified by an interaction with group assignment, $F(2, 95) = 12.63, p < .001, \eta^2 = .21$. Narrative structure ratings declined significantly across sessions for the narrative writing group ($M_s = 4.34$ vs. 3.53), $t(31) = 3.19, p < .01, d = 0.65$, and the standard expressive writing group ($M_s = 3.90$ vs. 2.27), $t(30) = 6.12, p < .001, d = 1.38$, but were comparable across sessions for the control group ($M_s = 0.47$ vs. 0.36).

Group assignment also predicted participants’ ratings of how personally meaningful their writing had been, $F(2, 93) = 20.84, p < .001, \eta^2 = .31$. Tukey’s HSD comparisons revealed that participants in the standard expressive writing group rated their essays as significantly more personally meaningful than did those in the narrative writing group ($d = 0.76$) who, in turn, rated their essays as significantly more meaningful than did those in the control group ($d = 0.86$). A significant session effect, $F(1, 93) = 10.42, p < .01, \eta^2 = .10$, revealed that participants rated their essays for Session 1 as more meaningful than their essays for Session 2 ($M_s = 3.86$ vs. 3.42). The group \times session interaction was not significant. In addition, group assignment predicted participants’ ratings of how emotional their writing had been, $F(2, 93) = 28.10, p < .001, \eta^2 = .38$. Tukey’s HSD comparisons revealed that participants in the standard expressive writing group rated their essays as significantly more emotional than did those in

the narrative writing group ($d = 0.67$) who, in turn, rated their essays as significantly more emotional than did those in the control group ($d = 1.17$). The session effect and the group \times session effect were not significant.

Word count did not vary as a function of group assignment, $F(2, 95) = 1.86, p > .10$ (see Table 1). However, there was a significant session effect, such that the word count was greater for Session 1 than Session 2 ($M_s = 459$ vs. 424), $F(1, 95) = 14.20, p < .001, \eta^2 = .13$. The group \times session effect was not significant.

Follow-up Outcomes

Impact of writing group assignment on outcomes—The two experimental groups and the control group did not differ significantly with regard to gender and baseline values of the dependent variables. The correlation between psychological outcomes (depressive symptoms and perceived stress) was .70 at baseline and .77 at follow-up. ANOCOVAs were conducted to determine the effects of the different types of writing on depressive symptoms and perceived stress at the one-month follow-up, controlling for baseline values of those dependent variables. Preliminary analyses evaluating the homogeneity-of-slopes assumption were conducted prior to ANCOVA, indicating that the relationship between the covariate and the dependent variable did not vary as a function of the independent variable. In addition, a Poisson regression analysis (Cameron & Trivedi, 1998) was conducted to examine the effect of writing condition on reports of illness-related University Health Center visits at the one-month follow-up, controlling for baseline visits. One-tailed follow-up tests were conducted to test our hypothesis that the narrative writing group would show superior outcomes relative to the standard expressive writing group, which would demonstrate superior outcomes relative to the control group.

Writing group assignment predicted depressive symptoms at follow-up, $F(2, 90) = 3.32, p < .05, \eta^2 = .07$. Both the narrative and expressive writing groups reported lower depressive symptoms than the control group ($d_s = -0.60$ and -0.48 , respectively; see Table 1). A significant effect of group assignment was also found on the dependent variable of perceived stress, $F(2, 90) = 4.21, p < .05, \eta^2 = .09$. Although perceived stress did not differ between the two experimental groups, both means were significantly lower than the mean of the control group ($d_s = -0.62$). Finally, reports of illness-related University Health Center visits did not vary as a function of group assignment.

Impact of essay characteristics on outcomes—Ordinary least squares (OLS) regression analyses were performed to explore whether the essays' degree of narrative structure and level of emotion and personal meaning were associated with psychological outcomes. Poisson regression analyses were conducted to explore the relations between essay characteristics and reports of illness-related University Health Center visits. Baseline values of the dependent variables were included as covariates in all analyses. Change in narrative structure, emotionality, and meaningfulness across the two writing sessions was not associated with study outcomes (all $p_s > .10$), and, thus, these variables were averaged across the two writing sessions for the analyses.

Greater narrative structure was associated with reduced depressive symptoms, $R^2 = .46, \beta = -.15, t(91) = -1.96, p < .05$, and less perceived stress, $R^2 = .43, \beta = -.20, t(91) = -2.48, p < .05$. Narrative structure was not associated with reports of illness-related University Health Center visits ($p > .10$). Greater emotionality of the essays was associated with less perceived stress, $R^2 = .51, \beta = -.29, t(89) = -3.92, p < .001$, but was not significantly associated with depressive symptoms or reports of illness-related University Health Center visits ($p_s > .05$). Finally, the essays' level of personal meaning was not associated with any outcome variables ($p_s > .10$).

Discussion

If narrative formation is required for expressive writing to produce health benefits as previous research suggests (Smyth et al., 2001), then should participants be explicitly instructed to create narratives? Typically, expressive writing protocols encourage participants to write freely, focusing on content (e.g., expression of deepest thoughts and feelings) rather than structure (e.g., grammar). But if narrative structure is a key ingredient in expressive writing, should people be given the recipe? Alternatively, could imposing structure on expressive writing interfere with the cognitive processes that produce benefits? The present experiment addressed these questions by comparing two groups instructed to write about their deepest thoughts and feelings regarding personal stressors or traumas; one group was instructed to write in a narrative fashion, and the other group followed standard instructions in which no attempt was made to manipulate essay structure. Subsequent psychological adjustment and health care utilization of these groups were compared with a control group that wrote about a neutral topic. In addition, process outcomes (e.g., self-rated emotionality of the essays, judges' narrative structure ratings) served as manipulation checks and indicators of participants' perceptions of the writing tasks.

An interesting pattern of findings emerged with regard to process outcomes. The standard expressive writing group rated their own essays as more personally meaningful and emotional than did the narrative writing group, which, in turn, rated their essays as more meaningful and emotional than did the control group. Experimenters' ratings of narrative structure significantly varied across the writing conditions, such that essays from the narrative writing group evidenced greater narrative structure than did those from the standard expressive writing group. In addition, essays from both of these groups evidenced greater narrative structure than did those from the control group. Results suggest that the narrative writing instructions may have enhanced the essays' narrative structure and may have resulted in greater focus on factual details relative to emotions.

Although the degree of narrative structure and perceived emotionality and meaningfulness of the essays varied between the two experimental conditions, health and psychological adjustment outcomes did not significantly differ between these groups at follow-up. Both groups showed significantly less perceived stress and depressive symptoms at follow-up relative to controls. In addition, reports of illness-related University Health Center visits did not vary as a function of group assignment. Thus, we did not obtain evidence that explicitly instructing participants to maximize the narrative structure of their essays increases the positive effects of expressive writing.

Some evidence, however, did support the notion that higher levels of narrative structure predict better mental health. Specifically, greater narrative structure was correlated with reduced depressive symptoms and perceived stress. Narrative structure was not associated with reports of illness-related University Health Center visits. Similarly, Graybeal and colleagues (2002) found that judges' ratings of "story-making" also were not associated with health center visits, but were associated with judges' perceptions of the participants' mental health. The present study extends this work by providing evidence that narrative formation is associated with self-reported mental health outcomes.

Conversely, change in the essays' narrative structure and perceived emotionality and meaningfulness across the writing sessions was not correlated with study outcomes. Narrative structure and word count declined across the writing sessions for the two experimental groups, suggesting that participants may have included more details of the story in their first essay. Research to date has yielded mixed findings regarding changes in word usage associated with

narrative formation across writing sessions and their correlations with health outcomes (Batten et al., 2002; Kovac & Range, 2002; Ullrich & Lutgendorf, 2002).

Several alternative explanations for our pattern of findings deserve consideration. First, our results and prior research suggest that both narrative structure and emotional expression may be key mechanisms underlying expressive writing's health benefits (Danoff-Burg et al., 2006; Smyth et al., 2001; Stanton et al., 2002). Although the narrative group's essays evidenced greater narrative structure, individuals in the standard expressive writing group rated their essays as more emotional than did the other two groups. Greater narrative structure and perceived emotionality of the essays predicted less stress at follow-up, suggesting that multiple mechanisms may have contributed to equivalent outcomes across experimental groups. Second, individual difference variables might moderate the effects of the different types of writing on health outcomes. For instance, matching theory would suggest that narrative formation may be most beneficial for individuals with fewer outlets for disclosure and greater openness to cognitive restructuring of intrusive memories (Chorpita, Daleiden, & Weisz, 2005). In addition, narrative formation may be easier for individuals with less stressful or traumatic experiences. Further research with larger samples is needed to test these hypotheses. A third explanation for our findings is that the magnitude of the manipulation was not sufficient to elicit differences in narrative formation between the experimental groups that might have contributed to variation in health outcomes. Indeed, the essays of the both narrative and standard expressive writing groups evidenced moderate narrative structure.

One limitation of this study is the use of a college student sample. Future research should examine the possibility that individuals with lower levels of literacy than college students may benefit from instruction on creating a narrative when engaging in expressive writing. Although expressive writing studies exist in which participants had lower levels of education than college students, the authors of these studies did not explicitly examine narrative formation (Klapow et al., 2001; Reynolds, Brewin, & Saxton, 2000; Richards, Beal, Seagal, & Pennebaker, 2000). Gidron et al. (2002) modified the expressive writing protocol for frequent outpatient community clinic attenders in Israel with an average of 13 years of education. Patients who were guided to disclose upsetting experiences chronologically made fewer clinic visits during follow-up than patients who wrote about neutral topics; however, there was no comparison group of patients engaging in non-guided expressive writing. Researchers should continue to explore other ways to modify the standard expressive writing protocol in order to maximize its effectiveness. For instance, studies comparing positively-focused writing with standard expressive writing have yielded promising results, both with college students (King & Miner, 2000; Mosher & Danoff-Burg, 2006) and cancer patients (Stanton et al., 2002).

The present research relied on self-report measures and examined a limited range of outcome variables. Future research should include data from medical records regarding clinical status as well as physiological indicators of health (e.g., immune system markers). In addition, future studies should include multiple follow-ups over a longer time frame. Regarding the present research, it may be that the short period of time (one month) between writing and follow-up were not of adequate length for differences in University Health Center visits to emerge. A recent expressive writing study with college students, however, found no changes in physical health and stress and anxiety symptoms at 2, 4, and 6-month follow-ups (Sloan, Feinstein, & Marx, in press). Among healthy young adults, there may be little room for improvement in health outcomes. Furthermore, the relatively small sample sizes in the current study may have limited the statistical power for detecting group differences in outcomes. Finally, writing in fairly large groups may have influenced the findings, as meta-analytic evidence indicates that disclosure in a private room has a larger impact on psychological well-being than disclosure in a public room (Fratzeroli, 2006).

Despite limitations, results have implications for research and clinical practice. Our findings in combination with prior research (Fratteroli, 2006; Smyth et al., 2001) suggest that forming a coherent and emotional narrative regarding personal stressors has beneficial effects on mental health. Identifying subgroups of individuals who derive the greatest benefit from expressive writing would further inform clinical practice. Another interesting extension of the current research would be to incorporate practice and feedback into the narrative writing protocol. As mentioned above, this might be particularly useful when conducting research with participants who have less education and therefore are likely to be less experienced in narrative writing in order to increase the likelihood that these individuals would benefit from the writing task. In addition, incorporating feedback into the writing protocol may be particularly important for individuals who have experienced very severe trauma (Brown & Heimberg, 2001; Lange et al., 2003).

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Table 1
Means and Standard Errors for Outcome Variables by Writing Group Assignment

| Outcome Variable | Narrative (n = 33) | | | Standard (n = 33) | | | Writing Group Assignment | | |
|---------------------------------|--------------------|------|--|--------------------|------|--|--------------------------|------|------------------|
| | M | SE | | M | SE | | M | SE | Control (n = 35) |
| Narrative structure | 3.94 _a | 0.18 | | 3.09 _b | 0.17 | | 0.41 _c | 0.07 | |
| Word count | 411 _a | 18 | | 451 _a | 24 | | 458 _a | 14 | |
| Personal meaning | 3.72 _a | 0.17 | | 4.43 _b | 0.16 | | 2.91 _c | 0.17 | |
| Emotional disclosure | 3.42 _a | 0.17 | | 4.03 _b | 0.14 | | 2.37 _c | 0.16 | |
| Depressive symptoms | 15.57 _a | 1.59 | | 16.56 _a | 1.55 | | 20.60 _b | 1.41 | |
| Perceived stress | 5.89 _a | 0.35 | | 5.87 _a | 0.34 | | 7.03 _b | 0.31 | |
| University Health Center visits | 0.35 _a | 0.15 | | 0.27 _a | 0.15 | | 0.59 _a | 0.12 | |

Note. Narrative structure was rated by independent judges on a 7-point scale from 0 (*none at all*) to 6 (*extreme*). Personal meaning and emotional disclosure were rated by participants immediately after writing on a 5-point scale from 1 (*not at all*) to 5 (*extremely*). Depressive symptoms, perceived stress, and reports of University Health Center visits were assessed at follow-up. Means for depressive symptoms, perceived stress, and University Health Center visits were adjusted for baseline values of these variables. Means in a row with different subscripts are significantly different at $p < .05$.