The Role of Narrative Structure in Expressive Writing for Mental Well-Being

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Abstract

Actively refraining from disclosing accounts of distressing experiences is one of many general stressors that affect the mind and body; the harder people work at hiding their thoughts and feelings, the greater the stress on their bodies (Pennebaker & Smyth, 2016). Writing about a distressing event in a narrative way (i.e., a temporally ordered sequence) has been shown to improve both mental well-being and physical health more than writing about the event in a fragmented or piecemeal style (Smyth, True, & Souto, 2001). The present study further investigates whether writing about why a negative event happened the way it did (i.e., in a causal narrative) can improve people’s well-being over and above the positive effects of writing about the event in temporal order. Seventy-six undergraduate students at Northeastern University were given instructions to write about a personally experienced negative event in either a causal narrative, temporal narrative, or fragmented style. Their positive and negative affects were assessed using standard questionnaires before, after, and two weeks following the writing prompt. The findings showed no evidence that writing in a causal narrative format was superior to writing in a fragmented or temporally ordered narrative format in driving positive changes in mood. However, follow-up linguistic analyses suggested that people spontaneously engaged in some causal narrative thinking in all three conditions; that is, even when not instructed to do so. Implications for future research on text analysis and writing therapy are discussed.
The Role of Narrative Structure in Expressive Writing for Mental Well-Being

Explanations are essential to our sense of understanding. They are often characterized by feelings of recognition and satisfaction, and it is well established that simple explanations are both resilient and unlikely to be abandoned (Dawes, 1999; Gopnik, 1998). History is filled with examples of flawed theories that nonetheless proved extremely difficult to overhaul (Kuhn, 1962). This indicates that simpler explanations are not only easier to grasp, but are also more powerful than complex explanations: “Like machinery, the fewer the moving parts, the less likely it is that our explanation will break down…or require constant maintenance” (p. 240; Dey, 2003).

Simple explanations are typically assumed to be more likely to be true because they are more likely to reflect and describe the general belief that is held. In turn, simple explanations are also considered more probable because they are judged to be more explanatory (Lombrozo, 2007). Furthermore, people are more willing to believe in and accept coherent and probable explanations over complex ones (Simon, Snow, & Read, 2004). Hence, simple, coherent, and probable explanations are both useful and effective instruments of change.

Cognitive research shows that we feel especially satisfied by causal explanation. Explanation can be considered a “theory drive,” argued to be as powerful a drive as any basic human instinct (Gopnik, 1998). Lombrozo has identified that generating and reasoning about explanations is “spontaneous, ubiquitous and fundamental to our sense of understanding” (p. 464; Lombrozo, 2006). Human cognition impels us to uncover the underlying causal structure of the world; the phenomenology of explanation is integrated into our cognitive processing systems.
Cogent explanations can empower individuals to change their behavior. Weisman and Markman (2017) have shown that theory-based explanations lends individuals the motivation and confidence to act on their new understanding, to the extent that the explanations established coherent, reasonably accurate frameworks. Theory-based explanations guide individuals’ reasoning and behavior not only immediately after an intervention, but also well into the future. These fundamental empirical findings similarly underlie the application of expressive writing therapy.

The benefits of written disclosure are well cataloged (Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994; Hemenover, 2003; Lepore, 1997; Pennebaker, 1989; Pennebaker & Francis, 1996; Smyth, 1998), and researchers have postulated a variety of methods as to why and how these benefits may occur. Esterling et al. (1994) found that both writing and speaking about stressful events have a beneficial effect on the immune system, and also evoke improvements in cognitive change, self-esteem, and adaptive coping strategies. Esterling et al. (1994) claim that this may be due to a “deeper awareness” that is achieved through the disclosure of emotional issues.

Hemenover (2003) explained related findings through a positive psychology lens: that “cultivating the best in human nature may require living through (and making sense of) the worst of human experiences (p. 1242).” Hemenover (2003) demonstrated that trauma disclosure both reduces distress (e.g., depression, interpersonal sensitivity, anxiety, and somatization) and enhances positive self-perceptions (e.g., mastery, personal growth, and self-acceptance), when comparing writing about a traumatic experience from pretest to posttest.
Smyth demonstrated that written emotional expression produces health benefits in individuals in his (1998) study. His explanation of these findings is consistent with Pennebaker’s *cognitive processing model*, in that writing about traumatic events aids in converting the traumatic memories from sensory-affective components into an organized, linguistic format (Pennebaker, Mayne, & Francis, 1997). Similarly, Lepore (1997) saw that expressive writing reduced the impact of intrusive thoughts on depressive symptoms in participants. On the basis of these findings, Lepore (1997) argued that “sharing stress-related thoughts and feelings with supportive others…may facilitate cognitive assimilation and emotional adjustment by lowering arousal (p. 1035),” which is also accordant with Pennebaker's (1989) *inhibition model*.

Pennebaker, a leader in research on the positive effects of expressive writing, has proposed two main theories of its efficacy: the inhibition model and the cognitive processing model (Pennebaker, 1989; Pennebaker & Beall, 1986).

**The Inhibition Model**

The inhibition model states that individuals tend to cope with distressing events by suppressing their thoughts and feelings about those events (Pennebaker, 1989). Constraining thoughts or feelings can immediately impact the human body; for example, by increasing perspiration or heart rate. Over time, these impacts act as a cumulative stressor on the body that can increase the likelihood of stress-related physical and mental problems (Pennebaker & Smyth, 2016).

Thoughts and feelings are affected by a variety of factors—social, cultural, and psychological—as well as by physical health and behavior (Horwitz, 2010). Mental health and illness can be regarded as aspects of social circumstance. That is, social
conditions, such as negative life events or ongoing stressful circumstances, affect levels of mental health and illness. Taking this into consideration, thoughts and feelings, especially aversive and intrusive ones, should be taken seriously.

According to Pennebaker (1989), disclosure of thoughts and feelings alleviates the biological stress of harboring secrets. Confronting and resolving emotionally negative experiences lowers overall stress levels. By writing about a distressing experience, the event is translated from thought to language, thereby allowing a deeper understanding and an ultimate assimilation of the distressing or traumatic experience.

**Task-Completion.** “The human mind naturally tries to understand the world around it. One reason we often obsess about a disturbing experience is that we are trying to understand it…We are driven to complete tasks and understand our worlds (p. 11; Pennebaker & Smyth, 2016).” Pennebaker and Smyth claim that “understanding the world” is a need closely related to that of task-completion; essentially, individuals have a basic drive for completing and resolving tasks. A distressing event is often the equivalent of an “interruption” of one’s life, which helps explain the behavior exhibited by those affected by a major life “interruption.” For example, it makes sense that someone in the midst of a breakup would ruminate, talk, and dream about the many aspects of their lives impacted by the end of a relationship. Keeping with Pennebaker and Smyth’s analogy, part of the process of “completing a task” is accepting the occurrence of the “interruption,” or distressing event, seeking understanding of why the event occurred, and even attempting to find meaning in the occurrence of the event.

**Cognitive Processing Model**

According to Pennebaker’s second major theory on why expressive writing
produces health benefits (i.e., cognitive processing model), writing about traumatic or distressing events can lead individuals to organize their thoughts and emotions associated with those events, which affects cognitive processing on multiple levels (1989; Pennebaker & Beall, 1986; Smyth et al., 2001). Traumatic memories are more emotional in nature and are not integrated into a personal narrative as ordinary memories are (van der Kolk, 1994). Traumatic memories are also stored as sensory perceptions, obsessional ruminations, or behavioral reenactments, often unlike ordinary memory (van der Kolk & van der Hart, 1995).

It is this persistence of intrusive and distressing symptoms, avoidance, and hyperarousal that results in outwardly observed psychological and biological dysfunction (Creamer, Burgess, & Pattison, 1992; McFarlane, 1992). Researchers using the cognitive processing model posit that, through expressive writing, participants can transition from lower levels of processing (i.e., focusing on the perceived objective features of an event) to higher levels of processing (i.e., ascribing the meaning and personal significance of an event; Pennebaker & Francis, 1996). Once the thoughts and emotions associated with a negative experience are made coherent through writing, the memory can be summarized, stored, and assimilated in a way that allows individuals to create meaning out of the event. This reduces the memory’s distressing impact and thus reduces the level of stress that retrieval of the memory may cause (Smyth et al., 2001).

**Narrative Structuring: Smyth, True, and Souto (2001)**

In Smyth, True, and Souto’s (2001) study on narrative structuring, researchers tested if narrative structure in expressive writing helped to produce health benefits through manipulating narrative formation during expressive writing about “the most
traumatic event of [the participant’s] life.” Participants were asked to either (a) write about the event in a fragmented format (i.e., listing them in a telegraphic, unintegrated fashion) or to (b) construct a narrative. A third group was asked to write about neutral topics as a control. Only the narrative group showed improvements in self-report mental well-being and physical health, suggesting that just “the mere expression of thoughts and feelings surrounding a traumatic experience may not be sufficient” (i.e., writing in a fragmented format; p. 170; Smyth et al., 2001). Conclusively, Smyth et al’s (2001) findings suggest that narrative formation is necessary to produce health benefits during emotional writing.

**Current Study**

Findings from previous studies demonstrate that writing about traumatic or distressing events can yield a variety of both physical and mental health benefits. However, few studies had shown how these benefits are produced. The degree to which individuals form narrative structure when writing has been shown to predict health improvements (Smyth et al., 2001). However, writing about a negative event in a specifically causal framework has not yet been analyzed. This study will implement a causal narrative condition to test if writing about why a negative event happened enables expressive writing to be relatively more beneficial than writing about it in temporal narrative order or in fragmented, piecemeal fashion.

**Hypotheses**

**Narrative writing hypothesis.** I hypothesize that when individuals are asked to write about a distressing event in a temporal order or in a fragmented style, those in the
temporal narrative condition will show more affect improvement than those in the
fragmented condition, replicating the past finding of Smyth et al. (2001).

Causal narrative hypothesis. I hypothesize that asking participants to write a
story narrative about a distressing event with an emphasis on thinking about why things
happened the way they did will show a greater level of affect improvements and overall
better mental well-being than writing about an event in simply a temporal narrative
format or a piecemeal format. This would be a new finding, previously untested in the
literature.

Qualitative analyses. Exploratory qualitative analyses were conducted, for which
I did not have a priori hypotheses. I explored change-in-affect and whether frequencies of
word-category-usage differed by condition using the Linguistic Inquiry and Word Count
(LIWC; Pennebaker, Booth, Boyd, & Francis, 2015).

Method

Participants

Participants were 76 college students from a wide range of majors between the
ages of 18 and 21, with a mean age of 19.0 years ($SD = 1.0$). All students were enrolled
in an introductory psychology course at Northeastern University. This is a fairly
representative sample of the Northeastern University undergraduate population at large
due to the fact that many students in this course are not psychology majors and come
from across the University. Participants were recruited through PsyLink, Northeastern
University's online system for recruiting psychology study participants (see Table 1 for a
complete report of participant demographics).
Setting and Materials

All trials were conducted in the laboratory rooms of the Causal Cognition Laboratory in Nightingale Hall, Northeastern University. Qualtrics surveys were presented to participants on a computer screen, contained within the laboratory. Research assistants were present throughout the entire duration of the trial, and conducted routine attention checks of each participant to ensure procedural integrity.

Health Questionnaire. A health questionnaire consisting of a self-report measure of common symptoms over the past two weeks was administered to all participants in a yes/no format. Examples include: headache, fever, cough, congestion, and sinus pain (see Appendix C for a complete list of symptoms). For each symptom that participants reported, they also indicated if the symptom caused them to reduce any activities. This question was included to measure the behavioral response to symptoms. The health questionnaire was adapted from previous research on the health effects of writing in a student sample (Greenberg, Wortman, & Stone, 1996).

Positive and Negative Affect Schedule. Affect was assessed immediately before, after, and two weeks following the writing prompt through the Positive and Negative Affect Schedule (PANAS), adapted from Watson, Clark, and Tellegen (1988; see Appendix D). The order of the positive and negative adjectives was randomized for each participant. Examples of adjectives used were interested, distressed, excited, upset, and strong. Adjectives were rated on a 5-point scale with scores ranging from 0 (not at all) to 5 (extremely), and were identical to those used in previous research (Watson et. al, 1988; Smyth et. al, 2001).
Impact of Event Scale. Smyth et al. (2001) used the Impact of Event Scale (IES) to assess the “measure of subjective distress caused by a traumatic event” (p. 164; Horowitz, Wilner, & Alvarez, 1979; see Appendix E). The IES measures current subjective distress related to a specific event through a scale of commonly reported experiences of intrusion and avoidance, and has been used as a process measure in past trauma disclosure studies (Lutgendorf & Antoni, 1999). In the present study, the IES was used to assess the extent of intrusive thoughts, avoidant thoughts, and distress related to a single negative event identified by participants. Examples of a few IES items are: “I had waves of strong feelings about it;” “I had dreams about it;” and, “I stayed away from reminders of it.” All items had a four-point response key, “not at all,” “rarely,” “sometimes,” or “often.” A fifth option, “not applicable,” was also included; answers coded as such were scored as 0.

Distressing Events

In this study, distressing events refer to both major and minor emotional upheavals. Examples include witnessing or being a victim of violence, surviving a natural disaster, experiencing the death of a loved one, experiencing an interpersonal conflict with a friend or family member, performing poorly in an academic course, etc. These types of events may be insidious because individuals are often unable or unwilling to disclose thoughts and feelings about them.

Procedure

Participants voluntarily self-selected to participate in the study via PsyLink, Northeastern University’s internal program for psychological studies. The study was presented on Qualtrics survey software. After informed consent was obtained,
participants’ physical well-being and affect were assessed using the previously noted health questionnaire and PANAS (see Appendices C&D). Participants were given the following instructions: “Please take a moment to recall a personal experience that happened within the past year that has negatively affected you. This experience should be one you remember experiencing firsthand, not an experience that someone told you about but that you cannot personally remember (because, for example, you were unconscious).”

Participants were then presented with the IES.

The current study employed a between-subjects design. Participants were randomly assigned to receive one of three writing prompts, and were instructed to write about the distressing event using thoughts, feelings, and sensations (fragmented condition), as a story with a beginning, middle, and end (temporal narrative condition), or as a causal sequence or web of events that attempts to make sense of what happened (causal narrative condition). To check their comprehension of the instructions, participants were first asked to explain to the experimenter what they were instructed to write about.

Participants each wrote for 15 minutes and for one session. Although most expressive writing research uses multiple (typically three) writing sessions, I agreed with Smyth et al.’s (2001) reasoning that more than one session would increase the likelihood that the fragmented experimental group would form a narrative, despite not receiving instructions to do so. Additionally, investigators have previously produced strong health effects of writing using a single session (Greenberg et al., 1996).

Participants in the temporal narrative condition were given the following instructions:
You were just asked to answer some questions about an experience that has negatively affected you. We would now like you to please write briefly about that experience. Don’t worry about grammar, spelling, or sentence structure. The important thing is that you write about your deepest thoughts, feelings, and sensations about the experience.

Try to form a narrative about the experience by describing a beginning, middle, and end. Start by describing the circumstances that led up to the experience, then describe what happened during the experience. Next, write about the consequences of the experience: what happened and what you were thinking and feeling at each point in time. Conclude by describing how the experience turned out; how did it end, or what did you do to end the experience?

Most importantly, write about the sequence in which you believe this experience happened (what happened at each point in time).

In other words, tell a story about this experience, how the experience unfolded, and how it made you feel.

Participants in the causal narrative condition were provided with the following instructions:

You were just asked to answer some questions about an experience that has negatively affected you. We would now like you to please write briefly about that experience. Don’t worry about grammar, spelling, or sentence structure. The important thing is that you write about your deepest thoughts, feelings, and sensations about the experience.
Try to form a causal explanation of the experience by describing how and why you believe it came about. Start by describing the circumstances that ultimately caused the experience, and then describe what happened during the experience and what caused it to unfold that way. Next, write about the consequences of the experience: what happened and what you were thinking and feeling because of the experience. Conclude by describing how the event turned out: How did it resolve, or what did you do to resolve the experience?

Most importantly, write about why you believe this experience happened (what caused it and what caused it to become resolved).

In other words, give a causal explanation for this experience, why you think it happened, and how it made you feel.

Finally, participants in the fragmented condition were given the following instructions:

You were just asked to answer some questions about an experience that has negatively affected you. We would now like you to please write briefly about that experience. Don’t worry about grammar, spelling, or sentence structure. The important thing is that you write about your deepest thoughts, feelings, and sensations about the experience.

Three aspects of the experience that you must write about are your:

(1) thoughts, (2) feelings, and (3) sensations in regard to the experience.

All participants were debriefed about the purpose of the study for their educational benefit with an explanation of the research question and how this was tested.
Participants were also provided with a list of mental health resources at the end of the study for participants to utilize if they felt emotionally triggered by writing about their selected event (see Appendix G). Demographic information was collected from participants including age, gender, race, ethnicity, and education level (see Appendix B).

Two weeks after their session date, participants were emailed a survey consisting of another set of questionnaires—the PANAS and IES—and were compensated with course credit.

**Results**

**Main Analyses**

**Change-in-affect.** To determine the change in affect, I calculated two sets of composite scores for each participant: a change from affect pretest to affect two weeks later, and a change from affect pretest to affect posttest. Separate composite scores were calculated for both positive and negative affect for the two aforementioned categories. A total of four different composite scores were thereby calculated for each participant: positive affect pretest to two weeks later, negative affect pretest to two weeks later, positive affect pretest to posttest, and negative affect pretest to posttest.

To recap, our narrative writing hypothesis was to replicate the past finding of Smyth et al. (2001) that participants in the temporal narrative condition would show a greater increase in positive affect and a greater decrease in negative affect than participants in the fragmented condition from before writing versus two weeks later. Our causal narrative hypothesis was that participants’ affect would improve the most when
writing about a distressing event in a causal narrative format as opposed to writing in a temporal narrative or fragmented format.

I ran four one-way analyses of variance (Condition: Fragmented, Temporal Narrative, Causal Narrative) corresponding to each of the categorical composite scores noted above. The ANOVA conducted on the change-in-positive-affect scores from pretest to posttest revealed no main effect of Condition ($F[2, 75] = 1.83, MSE = 76.25, p < .17$). The ANOVA conducted on the change-in-positive-affect scores from pretest to two weeks later also revealed no main effect of Condition ($F[2, 75] = .46, MSE = 23.63, p < .63$). The ANOVA on the change-in-negative-affect scores from pretest to posttest similarly revealed no main effect of Condition ($F[2, 75] = .31, MSE = 16.73, p < .73$). Finally, the ANOVA on change-in-negative-affect scores from pretest to two weeks later revealed no main effect of Condition ($F[2, 75] = .66, MSE = 45.44, p < .52$). Thus, I did not find support for either hypothesis (see Table 2 for means, SDs, and ranges).

**Change-in-IES scores.** A one-way ANOVA conducted on the change-in-IES scores, pretest to two weeks later, yielded no main effect of Condition ($F[2,75] = 1.50, MSE = 330.015, p < .23; M = -6.1, SD = 14.9, R = [-49_{\text{max}}, 30_{\text{min}}]$).

**Correlational analyses.** Pearson correlations were conducted on the aforementioned four composite change-in-affect scores with LIWC word categories (*Cognitive processes* [Causation, Insight]; Anger; Anxiety; *Affect processes*; Positive emotion; Negative emotion; see Table 4). Only one Pearson correlation indicated that there was a significant association between two variables: A positive association between change-in-negative-affect from pretest to two weeks later and *Anxiety* category words,
Specifically, a greater percentage of Anxiety words in essays predicted a greater increase in negative affect over two weeks.

**Exploratory Essay Analyses**

**LIWC.** Pennebaker and colleagues developed a computer program, the Linguistic Inquiry and Word Count (LIWC), to measure emotional and cognitive categories of word usage in essays. Using this program, an analysis of essays per condition was conducted in order to obtain the frequencies of words used by participants in their written accounts of selected distressing events. Specifically, I examined whether the frequencies of word-category-usage differed by condition.

Words in the Anxiety subcategory include 116 different words, such as worried and fearful, and are part of the overall category of Affect words, which denote several psychological constructs and affect processes. Words coded as Social are under the category of Social processes, a group of 756 words that denote social processes including all non-first-person-singular personal pronouns as well as verbs that suggest human interaction, such as mate, talk, and they (Pennebaker, Boyd, Jordan, & Blackburn, 2015). The Risk category is inclusive of 103 different words that reference dangers, concerns, or things to avoid, like danger or doubt, for example (Pennebaker, Booth, Boyd, & Francis, 2015). The Affiliation category is comprehensive of 248 words including reference to others, such as ally, friend, and social (Pennebaker, Booth, Boyd et al., 2015).

One-way ANOVAs (Condition: Fragmented, Temporal Narrative, Causal Narrative) on the percentages of select LIWC subcategory words were individually run and some significant differences were found between conditions. Higher percentages of Affiliation words were used in the causal narrative ($M = 2.9, SD = 1.7$) and temporal
narrative ($M = 2.9, SD = 1.6$) groups than in the fragmented group ($M = 1.7, SD = 1.3$) as shown by a one-way ANOVA and post-hoc Tukey test ($F[2,73] = 5.437, p < .01$). A one-way ANOVA and post-hoc Tukey test revealed that higher percentages of Risk words were used in the causal narrative ($M = 0.9, SD = 0.5$) and fragmented ($M = 0.9, SD = 0.5$) groups than in the temporal narrative group ($M = 0.5, SD = 0.4; F[2,73] = 5.113, p < .01$). A one-way ANOVA on Social category words showed a significant difference ($F[2,73] = 3.181, p < .05$) between groups. A post hoc Tukey test revealed a marginally significant ($p < .07$) difference between the fragmented and causal narrative groups, such that a higher percentage of Social words was used by the causal narrative group ($M = 10.2, SD = 5.0$) than by the fragmented group ($M = 7.6, SD = 4.0$).

*Causation* category words include 135 different words such as *because* and *effect*, and constitute a subcategory of the *Cognitive processes* label. However, there was no main effect of Condition for Causation words ($F[2,73] = .116, p = .88$). The causal narrative condition, per the hypothesis, should have yielded the highest mean percentage of causation words used. When initially comparing the frequency means per condition for the percentage of Causation words used in essays, I noted a higher percentage in the fragmented condition (2.51%), than in the causal narrative condition (1.72%) or the temporal narrative condition (1.54%), although again, there was no significant difference between conditions.

**Summary.** Contrary to my hypotheses, the analyses did not yield evidence of change in affect from before writing to two weeks later, or from before writing to immediately post-writing. However, some significant findings were revealed in secondary analyses of both LIWC word categories and change-in-affect scores. A greater
percentage of Anxiety words used in essays predicted a greater increase in negative affect over two weeks. In my analyses of essays by condition, I found that higher percentages of Affiliation words were used in the causal narrative and temporal narrative groups than in the fragmented group; higher percentages of Risk words were used in the causal narrative and fragmented groups than in the temporal narrative group; and that higher amounts of Social words were used in the causal narrative group than in the fragmented group.

Discussion

When participants were asked to construct either type of narrative (i.e., causal or temporal), a higher percentage of Affiliation words was used than when not. In other words, when people construct any story narrative of a distressing event, they tend to use more words that reference others. Perhaps this is because when recounting a story, people often use cues outside themselves to describe the scenarios in play. Participants also used a higher percentage of Risk words when specifically asked to write about why a distressing event may have occurred and when recounting thoughts and sensations associated with a distressing event (i.e., causal narrative and fragmented conditions).

When participants were asked to explain why a distressing event may have happened to them (i.e., causal narrative writing), they used a higher percentage of Social words than when not. In other words: when people construct a causal narrative of a distressing event, a greater proportion of words are used that denote human interaction. This finding may have meaningful implications for mental health practitioners. As previously discussed, writing therapy has been found to improve both physical and psychological health in both non-clinical and clinical populations (Baikie & Wilhelm, 2005). Writing about stressful or emotional topics has also been shown to have an
immediate positive impact upon the subsequent social interactions of those “who write with others in their community” (p. 15; Pennebaker, 2000). So, for example, if a counselor would like their client to focus on social interactions in deconstructing and processing a distressing experience, then that counselor may wish to instruct their client to write about the distressing experience at hand in a causal narrative format, as opposed to as a simple story narrative.

The higher percentage of Social words in the narrative conditions suggests more attention to human interaction, and perhaps more reasoning about the significance of these interactions. It also may suggest that a degree of causal reasoning has already taken place for participants in processing the distressing event prior to participating in this study, which was not previously accounted for. Talking to others about personal experiences alerts those others to our own psychological state and, ultimately, allows us to remain socially connected with them. Conversely, people who have distressing experiences and do not tell others are more likely to feel isolated (Pennebaker & Graybeal, 2001). In addition, people who score high on extraversion use more Social words, according to Pennebaker and King (1999), again suggesting that some degree of talking to others about the distressing event may have already taken place before writing.

Perhaps when constructing a basic narrative (i.e., temporal narrative) of certain distressing events, participants’ hindsight bias minimizes their focus on risk factors. Hindsight bias has been shown to cause memory distortion, where the recollection and reconstruction of content can lead to recounting an event as having been predictable, despite there having been little or no objective basis for predicting it (Fischhoff & Beyth, 1975). This could explain participants’ low use of Risk words in the temporal narrative
group, as opposed to their high usage of these words in the causal narrative and fragmented groups.

A greater percentage of Anxiety words used in essays predicted a greater increase in negative affect from before writing to after two weeks for participants. Negative events evoke strong and rapid physiological, cognitive, emotional, and social responses, including feelings of anxiety (Taylor, 1991). Although I found no significant changes in IES scores before writing and two weeks later, it is possible that Anxiety correlation still indicate a high level of intrusive and adverse thoughts surrounding or evoked by the distressing event. Writing about a stressful event has been shown to increase short-term negative emotions and reduce positive emotions in the past, and in the short-term, confronting upsetting experiences is expected to be psychologically taxing (Esterling, L’Abate, Murray, & Pennebaker, 1999).

In an exploratory qualitative analysis of each essay, I also found that most participants wrote about one of the following types of topics: interpersonal conflict (e.g., a romantic breakup), internal conflict (e.g., choosing a college, weighted decision-making, personal failure), death, family problems or loss, and sexual harassment. Most people in the causal narrative condition wrote about breakups, which makes sense given the previously noted finding of a higher percentage of Social category words used in participants’ essays in this condition. Smyth et al.’s (2001) results showed similar proportions of emotion and personal topics during writing between the narrative and fragmented groups.

In the present study, participants were asked to simply recall a distressing experience, as opposed to recalling a specific traumatic event, as was done in the Smyth
et al. (2001) study. This aspect was altered for practical reasons. If, for example, a participant was considerably emotionally upset from recalling a traumatic memory, a licensed counselor would need to be on call to respond (which was not feasible in the current study). However, I still expected to replicate the past findings of Smyth et al. (2001), per my hypothesis. A major surprise of this study was the inability to replicate these findings, despite these methodological alterations.

Another reason for the non-replication of Smyth et al. (2001) may be the design of the writing instructions in the current study. In my analysis using LIWC, I found no evidence that the percentage of *Causation* words used was higher in the causal narrative condition than in any other condition. In fact, the means ran in the opposite direction, such that they were (non-significantly) highest in the fragmented condition. This was surprising, given that the goal of a narrative is to generally form a causal chain of events. In the future, instructions for the fragmented condition should be more directly related to the type of thinking experimenters are attempting to evoke from participants (i.e., using disappearing ink, bullet points, short-answer questions; or a free-association style of writing). As noted by previous research, it is natural for people to think or write in a causal way; narrative formation is crucial for organization of traumatic or distressing memory, making it easier to integrate into existing memory and less likely to be stored as “sensory perceptions, affective states, or behavioral reenactments” (p. 160; van der Kolk et al., 1995). In other words, people are naturally narrative thinkers and generally not used to writing in a fragmented style, so a more explicit instructional method should be implemented.
This study used a minimal intervention of one writing session. It is possible that the single writing session may serve a sensitizing function, as I found no effects of change in positive or negative affect. Participants may have actively tried to avoid thinking about the distressing content associated with the event they recalled. Multiple writing sessions may not produce this avoidance response, as participants would have the opportunity to acclimatize to the distressing memories over several days (Smyth & Pennebaker, 1999). However, the role of intrusive and avoidant thinking in written disclosure is not clear and needs clarification through additional research.

It is also unclear if increasing the number of sessions would work to increase group differences by condition, because, regardless of instruction, all participants imposed narrative structure in their writing. Differentiating groups by condition may also be made clearer by instructional differences, as noted above. Instructions delivered to form a type of narrative may be beneficial, while written instructions to form a fragmented style response may be detrimental. Additional research should be conducted on the responses of how an experimental group is given instructions.

The application of a word-use approach to the analysis of naturally occurring written language (i.e., LIWC) faces a number of problems. Almost all text analysis programs that rely on word counts are unable to measure context, irony, sarcasm, or even the problem of multiple meanings of words (Pennebaker, Mehl, & Niederhoffer, 2003). Although there has been research on co-variation between word count and meaning, there has not yet been a widely accepted psychological theory of word usage. Additionally, given that most research on LIWC has been undertaken with studies of healthy
undergraduates, additional research on the construct validity of LIWC in individuals in other populations is warranted.

Although expressive writing studies in the past, as well as this one, have often concluded their research with no significant differences of narrative use among gender or race, the question still remains: does gender, race, or even cultural upbringing play a role in narrative writing style? Do women and men prefer or benefit from different narratives? Does culture play a role in the narratives we create?

In past research, findings have shown that there are lexical and syntactic differences between male and female authors; female authors use more pronouns and male authors use more specifiers (p. 321; Argamon, Koppel, Fine, & Shimoni, 2003; Schler, Koppel, Argamon, & Pennebaker, 2006). Is it possible that these findings could extend to expressive writing research? Further examination of the existence, or lack thereof, of gender, racial, or cultural differences in forming narratives, specifically in the context of expressive writing, is needed. These findings could have major implications for both counselors and patients.

Writing may serve as a useful and simple way to help individuals heal from harboring thoughts and feelings surrounding negative experiences (Pennebaker & Smyth, 2016). Although writing about thoughts and feelings associated with negative events has been shown to produce an improvement in mental well-being, little is known about how writing produces these benefits. This study originally aimed to further investigate why expressive writing about a negative event can improve well-being. Our analyses yielded noteworthy findings on the subject focus of and word-use in participants' expressive writing.
References


health outcomes. Clinical psychology review, 19(1), 79-96. doi:10.1016/S0272-7358(98)00015-4


Table 1

*Participant Demographics*

<table>
<thead>
<tr>
<th>Variable Group</th>
<th>N</th>
<th>Percentage*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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</tr>
<tr>
<td>Male</td>
<td>18</td>
<td>23.7</td>
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<tr>
<td>Female</td>
<td>58</td>
<td>76.3</td>
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<tr>
<td><strong>Age</strong></td>
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<td></td>
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<tr>
<td>18</td>
<td>44</td>
<td>57.9</td>
</tr>
<tr>
<td>19</td>
<td>22</td>
<td>28.9</td>
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<tr>
<td>20</td>
<td>4</td>
<td>5.3</td>
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<tr>
<td>21</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td><strong>Race</strong></td>
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<td></td>
</tr>
<tr>
<td>White</td>
<td>48</td>
<td>63.2</td>
</tr>
<tr>
<td>Reported Latino or Hispanic</td>
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<td></td>
</tr>
<tr>
<td>Black or African American</td>
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<td>7.9</td>
</tr>
<tr>
<td>Reported Latino or Hispanic</td>
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<td></td>
</tr>
<tr>
<td>Native American or Alaskan</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Native American or Alaskan</td>
<td>1</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>Not Provided</td>
<td>1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*Note.* Percentages may not sum to 100 due to rounding.
Table 2

*Descriptive Statistics for Change in Positive and Negative Affect*

<table>
<thead>
<tr>
<th>PANAS</th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Posttest – Pretest</td>
<td>76</td>
<td>-16</td>
<td>16</td>
<td>-3.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Positive Follow-Up – Pretest</td>
<td>76</td>
<td>-21</td>
<td>19</td>
<td>0.3</td>
<td>7.1</td>
</tr>
<tr>
<td>Negative Posttest – Pretest</td>
<td>76</td>
<td>-16</td>
<td>20</td>
<td>4.9</td>
<td>7.3</td>
</tr>
<tr>
<td>Negative Follow-Up – Pretest</td>
<td>76</td>
<td>-14</td>
<td>26</td>
<td>4.1</td>
<td>7.9</td>
</tr>
</tbody>
</table>
Table 3

Descriptive Statistics Positive and Negative Affect Scores

<table>
<thead>
<tr>
<th>PANAS</th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Pretest</td>
<td>76</td>
<td>10</td>
<td>43</td>
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<td>10</td>
<td>44</td>
<td>19.9</td>
<td>8.2</td>
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<tr>
<td>Positive Follow-Up</td>
<td>76</td>
<td>10</td>
<td>45</td>
<td>24.1</td>
<td>8.2</td>
</tr>
<tr>
<td>Negative Pretest</td>
<td>76</td>
<td>10</td>
<td>31</td>
<td>14.9</td>
<td>5.7</td>
</tr>
<tr>
<td>Negative Postest</td>
<td>76</td>
<td>10</td>
<td>44</td>
<td>19.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Negative Follow-Up</td>
<td>76</td>
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<td>42</td>
<td>18.7</td>
<td>8.4</td>
</tr>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>2. Negative Posttest – Pretest</td>
<td>.201</td>
<td>.65</td>
<td>.008</td>
<td>.31</td>
<td>.2</td>
</tr>
<tr>
<td>3. Positive Follow-Up – Pretest</td>
<td>.021</td>
<td>.65</td>
<td>.587</td>
<td>.596</td>
<td>.547</td>
</tr>
<tr>
<td>4. Negative Follow-Up – Pretest</td>
<td>.258</td>
<td>.008</td>
<td>.587</td>
<td>.573</td>
<td>.3</td>
</tr>
<tr>
<td>5. Cognitive processes</td>
<td>.788</td>
<td>.31</td>
<td>.596</td>
<td>.573</td>
<td>0</td>
</tr>
<tr>
<td>6. Causation</td>
<td>.432</td>
<td>.2</td>
<td>.547</td>
<td>0</td>
<td>.772</td>
</tr>
<tr>
<td>7. Insight</td>
<td>.407</td>
<td>.565</td>
<td>.918</td>
<td>0</td>
<td>.772</td>
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<tr>
<td>8. Anger</td>
<td>.206</td>
<td>.924</td>
<td>.293</td>
<td>.5</td>
<td>.872</td>
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<td>9. Anxiety</td>
<td>.474</td>
<td>.133</td>
<td>.829</td>
<td>.035</td>
<td>.143</td>
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<tr>
<td>10. Affect Processes</td>
<td>.665</td>
<td>.59</td>
<td>.889</td>
<td>.946</td>
<td>.329</td>
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<tr>
<td>11. Positive emotion</td>
<td>.387</td>
<td>.155</td>
<td>.365</td>
<td>.673</td>
<td>.195</td>
</tr>
<tr>
<td>12. Negative emotion</td>
<td>.844</td>
<td>.685</td>
<td>.314</td>
<td>.766</td>
<td>.966</td>
</tr>
</tbody>
</table>

$r_s \geq .243, p < .05$. $r_s \geq .302, p < .01$.  

*Pearson’s rank-order correlations (rs) between change-in-affect scores and LIWC categories*
Appendix A: Undergraduate PsyLink Informed Consent Form

Northeastern University, Department of Psychology, Causal Cognition Lab
Names of Investigators: Nancy Kim, Ph.D., and Alexandra Peterson
Title of Project: Expressive Writing and Narrative Structure

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY
You are invited to participate in a web-based research study. This page will tell you about the study, but one of the researchers or their designee will explain it to you first. You may ask this person any questions that you have. When you are ready to make a decision, you may decide whether or not you want to participate. You do not have to participate if you do not want to. If you decide to participate, the researcher will ask you to sign this statement and will give you a copy to keep.

WHY AM I BEING ASKED TO TAKE PART IN THIS RESEARCH STUDY?
We are inviting you to participate, as you are an undergraduate student at Northeastern University enrolled in Foundations of Psychology. To be in this study, you must be at least 18 years of age. If you have ever been formally diagnosed with post-traumatic stress disorder, you are not eligible for participation in this study.

WHY IS THIS RESEARCH BEING DONE?
The purpose of this study is to learn about the effects of writing expressively about a personal negative experience.

WHAT WILL I BE ASKED TO DO?
We will ask you to complete some questionnaires, provide demographic information and certain medical information. We will also ask you to think about a specific personal experience that elicits strong feelings, and to answer a writing prompt regarding this experience.

WHERE WILL THIS TAKE PLACE AND HOW MUCH OF MY TIME WILL IT TAKE?
The study will take place in 170 Nightingale Hall on the campus of Northeastern University, with the exception of a 5-minute follow up symptom report that will be emailed to participants 2 weeks following their session date, and completed online. It will take approximately 25 minutes to complete this study in total.

WILL THERE BE ANY RISK OF DISCOMFORT TO ME?
During the study, you will be asked to write about a personal experience and your thoughts and feelings about it, but this information will be kept completely confidential. It is possible that you may feel distressed, nervous, and/or upset. If you feel distressed at any point during the study, please do not hesitate to let us know, and the session will end. You can discontinue the study or choose not to answer certain questions at any time without penalty. Should you feel distressed following the study procedure, a list of resources for people and agencies to contact is provided.
WILL I BENEFIT BY BEING IN THIS RESEARCH?
This study might contribute to better scientific understanding of how disclosing information about negative events may be linked to improved mental well-being. This information could have implications for improving therapeutic coping practices when dealing with negative life events, and potentially direct benefits to you by taking part in this study. All participants who ask to hear about the final results of the study will be emailed a report when data analysis is complete.

WHO WILL SEE THE INFORMATION ABOUT ME?
Your identity as a participant in this study will not be known. That means no one, not even the researchers, will know that the answers you give are from you. Your data will be identified by a sequential code. Data will be stored on a password-protected computer. In rare instances, authorized people may request to see research information about you and other people in this study. This is done only to be sure that the research is done properly. We would only permit people who are authorized by organizations such as the Northeastern University Institutional Review Board to see this information.

The only record we will have of your participation is your PsyLink ID and PsyLink Username, but these will be gathered and stored separately from your responses, and will not be revealed to anyone except the investigators listed above.

WHAT WILL HAPPEN IF I SUFFER HARM FROM THIS RESEARCH?
No special arrangements will be made for compensation or for payment for treatment solely because of your participation in this research.

CAN I STOP MY PARTICIPATION IN THIS STUDY?
Your participation in this research is completely voluntary. You do not have to participate if you do not want to and you can refuse to answer any question. Even if you begin the study, you may stop at any time. If you discontinue taking the study, any information you have already provided will be kept confidential and you will still receive course credit. If you do not participate or if you decide to stop, you will not lose any rights, benefits, or services that you would otherwise have as a student.

WHO CAN I CONTACT IF I HAVE QUESTIONS OR PROBLEMS?
If you have any questions about this study, please feel free to contact Dr. Nancy Kim (617-373-3060; n.kim@northeastern.edu), the Principal Investigator, or Alexandra Peterson.

WHO CAN I CONTACT ABOUT MY RIGHTS AS A PARTICIPANT?
If you have any questions about your rights in this research, you may contact Nan C. Regina (617.373.4588, n.regina@northeastern.edu), Director, Human Subject Research Protection, 490 Renaissance Park, Northeastern University, Boston, MA 02115. You may call anonymously if you wish.
WILL I BE PAID FOR MY PARTICIPATION?
You will receive 1 course credit for your participation upon completion of the follow-up online report (approximately 5 minutes).

WILL IT COST ME ANYTHING TO PARTICIPATE?
There will be no cost to you.

I agree to take part in this research.

_________________________  _______________________
Signature of person agreeing to take part  Date _________

_________________________
Printed name of person above

_________________________  _______________________
Signature of person who explained the study to the participant above and obtained consent  Date _________

_________________________
Printed Name of Person above
Appendix B: Demographic Questionnaire

AGE
How old are you?

GENDER
Which gender do you consider yourself to be?
   _____ Male
   _____ Female
   _____ I do not wish to provide this answer

EDUCATION
What is your highest level of education completed?
   _____ Some high school
   _____ Completed High School/GED
   _____ Some College
   _____ College Degree
   _____ Post-College Degree
   _____ I do not wish to provide this information

ETHNICITY
Do you consider yourself to be Hispanic or Latino? (See U.S. National Institutes of Health definitions below.) Select one.
   Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American or other Spanish culture or origin, regardless of race.
   _____ Hispanic or Latino
   _____ Not Hispanic or Latino
   _____ I do not wish to provide this information

RACE
What race do you consider yourself to be? (See U.S. National Institutes of Health definitions below.) Select one or more of the following:
   _____ American Indian or Alaska Native. A person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliation or community attachment.
   _____ Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
   _____ Black or African American. A person having origins of any of the black racial groups of Africa.
   _____ Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islander.
   _____ White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
   _____ I do not wish to provide this information.
Appendix C: Health Questionnaire (adapted from Smyth, True, & Souto, 2001)

For each of the items below, please answer the following questions.
· Have you experienced any of these symptoms over the past two weeks? (Y/N)
· (If yes:) Did the symptom cause you to reduce other activities you had planned to do? (Y/N)

- Headache
- Fever
- Cough
- Congestion
- Sinus pain
- Sneezing
- Hoarseness
- Rash
- Muscle aches
- Muscle cramps
- Abdominal or stomach pain
- Indigestion
- Water retention
- Aching joints or bones
- Fainting
- Earache
Appendix D: The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

<table>
<thead>
<tr>
<th>Number</th>
<th>Emotion</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Very Slightly or Not at All</td>
<td>A Little</td>
<td>Moderately</td>
<td>Quite a Bit</td>
<td>Extremely</td>
</tr>
<tr>
<td>1</td>
<td>Interested</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Distressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Excited</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Upset</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Strong</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Scared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Hostile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Enthusiastic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Proud</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td>Irritable</td>
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<td></td>
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</tr>
<tr>
<td>12</td>
<td>Alert</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ashamed</td>
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<tr>
<td>14</td>
<td>Inspired</td>
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<tr>
<td>15</td>
<td>Nervous</td>
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<tr>
<td>16</td>
<td>Determined</td>
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<tr>
<td>17</td>
<td>Attentive</td>
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<tr>
<td>18</td>
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</tr>
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<td>19</td>
<td>Active</td>
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<tr>
<td>20</td>
<td>Afraid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix E: Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979)

Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you during the past two weeks with respect to the event that you just recalled. How much were you distressed or bothered by these difficulties?

Item Response Anchors are:
0 = Not at all; 1 = Rarely; 2 = Sometimes; 3 = Often

1. I thought about it when I didn’t mean to.
2. I avoided letting myself get upset when I thought about it or was reminded of it.
3. I tried to remove it from my memory.
4. I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind.
5. I had waves of strong feelings about it.
6. I had dreams about it.
7. I stayed away from reminders of it.
8. I felt as if it hadn’t happened or wasn’t real.
9. I tried not to talk about it.
10. Pictures about it popped into my mind.
11. Other things kept making me think about it.
12. I was aware that I still had a lot of feelings about it, but I didn’t deal with them.
13. I tried not to think about it.
14. Any reminder brought back feelings about it.
15. My feelings about it were kind of numb.
Appendix F: About the Study (presented at the end of the second emailed, online survey)

Thank you for participating in this experiment! Please do not disclose this information to other people who might be interested in participating in this study until after they have completed it.

The purpose of our study is to examine writing about why a negative event happened the way it did can improve a person’s well-being, over and above the positive effects of writing about the event in temporal order (how it happened). Disclosure of negative personal events through the use of expressive writing has been shown to offer both long-term physical and psychological benefits. Studies have shown that writing about both the facts and emotions of the event is more beneficial than writing about only the facts. In the current study, we consider causal narrative structure as another potential factor that may influence the effects of written disclosure. Previous research has found that when people integrate and, as a result, gain a greater understanding of a negative event, they have physical and psychological improvements. We remind you that your responses are fully confidential, but that you may choose to have your data removed from this study.

How was this tested?

In this study, you were asked to recall a negative event and were put in one of three conditions. One group was asked to form a fragmented recollection of the event, a second group was asked to form a story narrative with a beginning, middle, and end, and a third group was asked to form a causal narrative of the event (with an emphasis on why participants believed that the event happened). We will compare the frequency of causal words used when writing in each condition through a computer program. We will also compare any changes in participants’ well-being from before and after the writing session in relation to the number of causal words used in the writing session.

What are the hypotheses and main questions?

Our first hypothesis is that we expect to replicate the past finding that when people are asked to write about a traumatic event as a story narrative, those in the narrative condition will show the most health improvements (Smyth et al., 2001). Our second hypothesis is that asking people to write a causal narrative about a negative event with an emphasis on thinking about why things happened the way they did will show the strongest improvements in well-being.

This research will help further our understanding of exactly how writing expressively about a personal negative experience can improve people’s well-being. Thank you again for participating!
Appendix G: Resources for Northeastern Students

If at any point during or after this experiment, you experienced any psychological discomfort, please contact Northeastern University Health and Counseling Services at (617) 373-2772.

Other resources available to the general public:

Call 1-800-821-HELP (4357) to speak to a counselor or visit Wellspace (http://wellspacehealth.org/suicide_prevention.htm) to chat online with a counselor.

For an extensive list of 24/7 hotlines visit http://brokenbelievers.com/247-crisis-lines/

To find in-person mental health services near you, visit http://findtreatment.samhsa.gov/MHTreatm