**220: Writing to Overcome Trauma and Improve Your Mental and Physical Health**

Emerald Norman, Liam Browning, David Puder, MD

# The Expressive Writing Paradigm

Libba Bray, New York Times bestselling author of the young adult novel, The Diviners, once wrote, “There is no greater power on this earth than story.” And right she is. Throughout history, the use of stories, narratives, and prose has played an integral role in the way humans relate to both the natural environment and intangible ideas. Today, storytelling continues to be a vehicle used to understand and utilize scientific paradigms and complex emotions. There are many examples of how pervasive storytelling is within our society, from the stories we print, publish, and film, to the stories we tell ourselves. Hollywood media narratives shape the popular cultural standards for art, beauty, and luxury. Arguments transform what should be objective news reports into rousing political attacks. Perhaps the simplest but most compelling case is one’s own private journaling, which allows for the processing of complex emotions experienced throughout the day and condenses hours of living, breathing, talking, and interacting into a single written perspective on a sheet of paper.

One of the ways we can use storytelling to understand the world, each other, and ourselves is through writing. Research is beginning to emerge that suggests writing, composing a story, may prove to be a therapeutic avenue by which we overcome trauma.

“The goal here is to put upsetting experiences into language.” - James Pennebaker, PhD

James Pennebaker, PhD, Professor Emeritus of Psychology at the University of Texas at Austin, is one of the pioneering voices on the topic of utilizing writing as a therapeutic tool for exploring and treating trauma. In an interview with Kim Mills, host of the podcast “Speaking of Psychology,” Pennebaker explains how his research began with looking at the connection between psychological stress and physical symptoms for his book, *The Psychology of Physical Symptoms* (1982). Through simple questionnaires he developed, his team found that participants with secret past traumatic experiences were more likely to be hospitalized for various physical illnesses. He then shifted his research to exploring the health benefits of disclosing traumatic events, specifically through expressive writing, as a form of trauma therapy.

## A Study on Disclosure vs. Non Disclosure of Traumatic Events

Pennebaker began his work with establishing the relationship between undisclosed traumas and long-term physical and mental health. His 1988 study included 384 employees of a large Texas-based corporation. Participants completed the SMU Illness Questionnaire, a 49-item checklist that assessed major (e.g., cancer, heart disease) and minor (e.g., colds, headaches) health problems that occurred within the past year. The participants were also asked about childhood (traumatic sexual experiences, divorce or separation of parents, death of a family member or very close friend, victim of violence, or other trauma) and recent (within the last three

years) traumas. They found that childhood traumas were much less likely to be confided than recent traumas, and that participants with childhood trauma were more likely to experience health problems within the past year compared to those without trauma, regardless of whether they disclosed the trauma. Additionally, those with undisclosed childhood trauma had significantly more physician visits within the past year compared to participants without trauma. In summary, while the study found that the illness scores for the trauma-non-confided group (mean = 8.60) were slightly larger than those for the trauma-confided group (mean = 7.57), the difference between these groups did not reach statistical significance. The significant impact on health

Disclosure of traumas and psychosomatic processes

Table 1. Percentages of individuals experiencing and disclosing childhood and recent traumas and means of illness indicators

| Variable | Childhood | | | Recent | | |
|---|---|---|---|---|---|---|
| | No trauma | Trauma—confided | Trauma—not confided | No trauma | Trauma—confided | Trauma—not confided |
| *Percentages experiencing:** | | | | | | |
| Death (family or close friend) | 74.5 | 11.5 | 14.0 | 77.0 | 17.0 | 6.0 |
| Divorce or separation | 86.5 | 1.5 | 12.0 | 85.0 | 10.0 | 5.0 |
| Sexual trauma | 92.0 | 2.5 | 5.5 | 98.0 | 0.5 | 1.5 |
| Violence | 95.0 | 1.0 | 4.0 | 94.0 | 3.0 | 3.0 |
| Other trauma | 79.5 | 5.5 | 15.0 | 82.0 | 14.5 | 3.5 |
| *Health means:†* | | | | | | |
| Total illness | $5.53^{a}$ | $7.57^{b}$ | $8.60^{b}$ | 6.26 | 7.35 | 7.64 |
| Physician visits for illness | $1.14^{a}$ | $1.75^{ab}$ | $2.00^{b}$ | $1.10^{a}$ | $1.91^{b}$ | $2.07^{ab}$ |
| *N*‡ | 107 | 28 | 65 | 106 | 66 | 28 |

*Percentages in the trauma groups are based on subjects who checked that the experience was extremely traumatic (6 or 7 on seven-point scale, where 7 = extremely traumatic). Assignment to trauma—confiding groups required subjects to endorse their degree of confiding about the trauma as 6 or 7, where 7 = confided a great deal.

†Means are based on three-group oneway ANOVAs. Means with different subscripts are significantly different at $P \leq 0.05$ using contrasts based on mean-square error term.

‡Group assignment for subsequent analyses was based on the following rules: no trauma subjects = those who had not experienced any major traumas; trauma—confide subjects = those who had confided all traumas that they had experienced; trauma—no confide subjects = those who had not confided at least one major trauma that they had experienced.

symptoms was primarily due to the experience of childhood trauma itself, regardless of whether the trauma was confided (Pennebaker et al., 1988).

Trauma disclosure is the foundation for expressive writing as therapy. Expressive writing provides a way for one to disclose their trauma, which is associated with decreased total illness.

## A Study on Expressive Writing for the Treatment of PTSD

Pennebaker's work, throughout the course of his career, found that expressive writing was useful for decreasing a number of physical and psychological pathologies (Pennebaker and Beall, 1986; Pennebaker et al., 1988). A common strategy he used involved having the participants write for 15-20 minutes over three to four days on their deepest thoughts and

feelings on emotionally disturbing events and traumatic experiences (Pennebaker and Beall, 1986; Pennebaker et al., 1988).

A 2010 study by Joshua Smyth focused on whether expressive writing could be used as an intervention for treating symptoms of PTSD. It was a randomized trial where subjects were assigned to an experimental expressive writing group or a control group in which they wrote about time management. The subject pool consisted of individuals with a diagnosis of PTSD either from war/combat or sexual assault.

Participants did baseline measurements (completing PSS-I [PTSD Symptoms Scale Interview], POMS [Profile of Mood States], and salivary cortisol testing) then completed three writing sessions (with three prompts) in one day. Writing sessions lasted for 20 minutes and were separated by 15-minute rest intervals. The experimental group was told to write about thoughts and feelings associated with their past trauma.

- The first prompt had participants identify and label the event along with thoughts and feelings associated.
- The second prompt instructed participants to tell a story about the event and how it affected them.
- The third prompt had participants reflect on what they had written in previous sessions and retell their story with any new insights. It also instructed them to examine the rationality of their negative beliefs.

The control group was instructed to write about time management and their daily plans for all three sessions. Writing was unstructured. Follow-up assessments were conducted at three months post-writing.

The study found that expressive writing did not worsen PTSD symptoms, and participants did not indicate being harmed by expressive writing interventions. Mood states such as anger, tension, and depression were decreased in the experimental group with (p-values <.05), (p-values <.05), and (p-values <.10) respectively (Figure 1). In addition, the experimental group showed lower cortisol levels when exposed to imagery of traumatic memories compared to controls (p <.01) (Figure 2).

Overall, they found that expressive writing about a trauma showed a decrease in anger and tension, but not PTSD symptoms.

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Figure 1

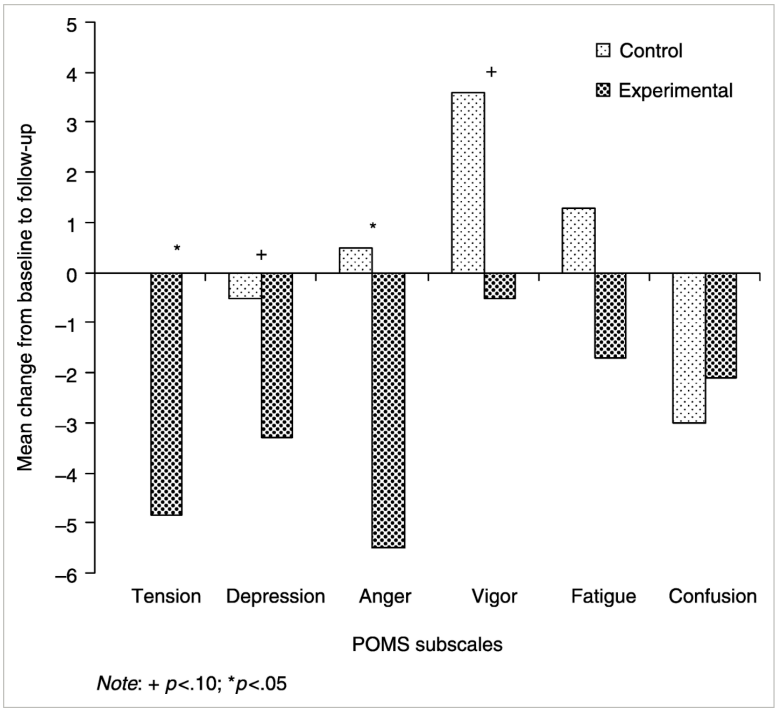
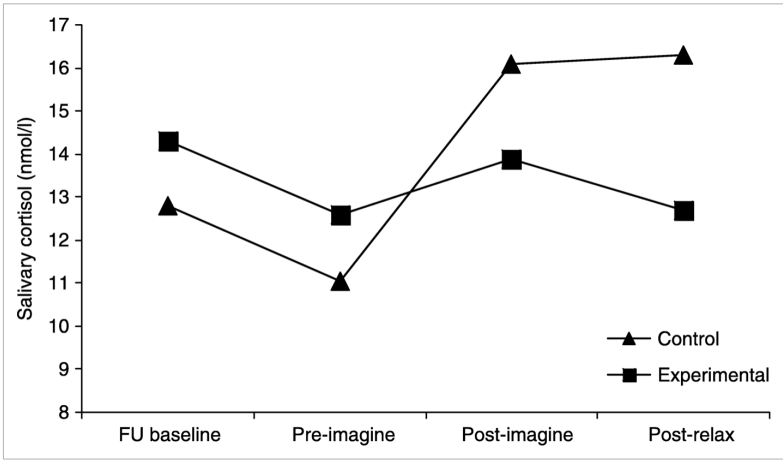



Figure 2




Limitations of this study include the lack of specific analysis of clinical significance. The researchers reported no decrease in the number of PTSD diagnoses or PTSD-related symptom severity as a result of the intervention. Therefore, we cannot say if this change in mood or neuroendocrine response is large enough to make a difference in the treatment of PTSD. However, we can conclude from this study that expressive writing mildly decreases dysphoric moods and stressful physiological responses in traumatized people, which could potentially facilitate positive adaptation and coping with distress.

It is also unclear if the POMS scores showed a clinically significant change (how many points would be noticeable). The total score for mood disturbance on the scale ranges between -32 to 200 because each item on the 65-item questionnaire can be scaled from 0 (not at all) to 5 (extremely). A lower score indicates a more stable mood profile because most of the items are negative emotion items.

The individual mood components are scored differently based on how many questions pertain to them within the scale. The highest possible score for anger is 48, confusion is 28, depression is 60, fatigue is 28, tension is 36, and vigor (a positive component therefore scored in the opposite direction) is -32. The graph shows that the anger domain had a mean change of approximately -6 ($p<0.05$) and the tension domain had a mean change of approximately -5 ($p<0.05$). In the context of the highest scores in each domain category, those small shifts cause a substantial change in the individual mood profile components of anger and tension. Although, again, the clinical significance needs to be judged by clinicians.

Regardless, it is important to note that positive changes in a self-reporting mood scale show that participants were at least perceiving their emotions as being more positive after the intervention. While it is hard to prove from this study that expressive writing makes a real positive difference clinically, we can at least draw the conclusion that a PTSD patient narrativizing their traumatic experience is not harmed by doing so. In fact, it can create more positive feelings and mood states, which we know is a step towards healing. Any low-stakes intervention that can decrease the perceived distress of a sufferer is worth pursuing or adding to other known things that decrease symptoms.

## A Study on CPT with Expressive Writing for the Treatment of PTSD

A 2012 study on PTSD treatment by Patricia Resick et al. also demonstrated that writing out an account of one's trauma along with cognitive processing therapy can increase the rate and overall amount of PTSD symptom change when compared to CPT therapy alone in patients with high levels of dissociation.

The researchers used the 30-item Multiscale Dissociation Inventory to determine levels of dissociation. This self-report test measures six types of dissociative response:

1. Disengagement
2. Depersonalization
3. Derealization
4. Emotional Constriction/Numbing
5. Memory Disturbance
6. Identity Dissociation

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Respondents indicate how frequently they experienced each item on a 5-point scale where 0 = never and 5 = very often. A higher score represents a higher degree of dissociation.

PTSD symptom severity was assessed using the Post-traumatic Stress Diagnostic Scale (PDS). The Post-traumatic Stress Diagnostic Scale is a 24-item self-reporting scale that evaluates the severity of PTSD symptoms within the last month according to DSM-5 criteria. Symptoms are computed on a 5-point scale of severity and frequency ranging from 0 (not at all) to 4 (6 or more times a week/severe) (Foa, 1997). There are items for each of the 20 DSM-5 diagnostic criteria and 4 items addressing duration, symptom onset, and effect on life. Again, a higher score represents more severe symptomatology, with 96 being the highest possible score.

The study used two interventions and one control (about 50 people in each group). The first two included CPT therapy with (CPT) and without (CPT-C) a written account of trauma. Patients were directed to write a detailed account of their trauma, which they were directed to read to themselves and to the therapist who assisted in processing emotions and challenging maladaptive thought patterns. After several sessions, patients were instructed to write about other topics related to safety, esteem, intimacy, etc. and to correct overgeneralized beliefs related to these themes. The control group wrote about the trauma and also read their account aloud to therapists, who provided supportive comments but without challenging cognitive distortions (WA). These interventions lasted six weeks. Measures (PDS, MDI, and others) were taken pre-intervention, during each week of the intervention, posttreatment, and at a six-month follow-up.

Here is an excerpt of the writing prompt from the CPT therapist and patient manual (veteran/military version):

“Please begin this assignment as soon as possible. Write a full account of the traumatic event and include as many sensory details (sights, sounds, smells, etc.) as possible. Also, include as many of your thoughts and feelings that you recall having during the event. Pick a time and place to write so you have privacy and enough time. Do not stop yourself from feeling your emotions. If you need to stop writing at some point, please draw a line on the paper where you stop. Begin writing again when you can, and continue to write the account even if it takes several occasions. Read the whole account to yourself every day until the next session. Allow yourself to feel your feelings. Bring your account to the next session” (Resick, 2014).

It is worth mentioning that both CPT and CPT-C protocol start off with having the patient write an impact statement, or an account on why they believe the traumatic account occurred, without going into details about the trauma.

Here is excerpt of this prompt from the CPT therapist and patient manual (veteran/military version):

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“Please write at least one page on why you think this traumatic event occurred. You are *not* being asked to write specifics about the traumatic event. Write about what you have been thinking about the cause of the worst event.

Also, consider the effects this traumatic event has had on your beliefs about yourself, others, and the world in the following areas: safety, trust, power/control, esteem, and intimacy. Bring this with you to the next session” (Resick, 2014)

Following that first session assignment, within the CPT format, patients discuss the event with the therapist. In session 2, they complete worksheets to identify connections between events, thoughts, and emotions. During session 3, the patients write a detailed account of their trauma and their emotions around it. This is the element that is not found in CPT-C (the intervention without writing). Sessions 4 and 5 consist of therapists challenging the patient’s thoughts and emotions around the meaning of the event. After session 5, the sessions become more focused on teaching tools that allow them to mitigate the effect of trauma on their lives and challenge negative beliefs. In Sessions 6-12, patients learn how to identify problematic life patterns and use worksheets that focus on different themes each week. The themes are esteem, intimacy, power-control, safety, and trust. During session 11, patients rewrite their impact statements from the first session and reflect with the therapist on how their beliefs change.

The study found that all groups significantly improved on the Post-traumatic Stress Diagnostic Scale and on measures of dissociation (TIS, MDI), with no significant differences between groups at posttreatment and six-month follow-up.

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**TABLE 1. Pretreatment sample characteristics by study condition ($N = 150$)**

| | CPT ($n = 53$) | WA ($n = 50$) | CPT-C ($n = 47$) | Statistical test $F$ or $\chi^2$ |
|---|---|---|---|---|
| Demographic characteristics | | | | |
| Age, mean (*SD*) | 36.25 (12.55) | 34.24 (12.47) | 35.83 (12.30) | $F$ (2, 146) = 0.36 |
| Education, mean (*SD*) | 13.57 (3.11) | 13.86 (2.89) | 14.04 (2.50) | $F$ (2, 147) = 0.37 |
| Race/ethnicity, percentage (*n*) | | | | $\chi^2(8) = 4.80$ |
| White | 60.4 (32) | 32.0 (31) | 63.8 (30) | |
| African American | 34.0 (18) | 34.0 (17) | 34.0 (16) | |
| Other | 5.6 (3) | 4.0 (2) | 2.1 (1) | |
| Household income, percentage (*n*) | | | | $\chi^2(10) = 26.68^{**}$ |
| Less than $5,000 | 28.8 (15) | 6.3 (3) | 17.4 (8) | |
| $5,000–$10,000 | 15.4 (8) | 8.3 (4) | 15.2 (7) | |
| $10,000–$20,000 | 34.6 (18) | 27.1 (13) | 13.0 (6) | |
| $20,000–$30,000 | 9.6 (5) | 16.7 (8) | 15.2 (7) | |
| $30,000–$50,000 | 9.6 (5) | 25.0 (12) | 15.2 (7) | |
| Greater than $50,000 | 1.9 (1) | 16.7 (8) | 23.9 (11) | |
| Years since index event, mean (*SD*) | 14.29 (13.98) | 14.59 (13.84) | 14.82 (15.57) | $F$ (2, 147) = 0.02 |
| On psychotropic medicine, percentage (*n*) | 32.1 (17) | 46.0 (23) | 46.8 (22) | $X^2(2) = 2.90$ |
| Interpersonal traumas, percentage (*n*) | | | | |
| Child physical abuse | 73.1 (38) | 71.7 (33) | 76.6 (36) | $\chi^2(2) = 0.31$ |
| Child sexual abuse | 73.1 (38) | 83.0 (39) | 78.7 (37) | $\chi^2(2) = 1.43$ |
| Adult physical assault | 84.6 (44) | 82.6 (38) | 85.1 (40) | $\chi^2(2) = 0.12$ |
| Adult sexual assault | 82.7 (43) | 80.4 (37) | 78.7 (37) | $\chi^2(2) = 0.25$ |
| Study variables | | | | |
| CAPS, mean (*SD*) | 70.19 (15.50) | 70.38 (18.65) | 73.87 (21.04) | $F$ (2, 147) = 0.61 |
| PDS, mean (*SD*) | 29.15 (9.54) | 29.35 (9.72) | 28.48 (9.51) | $F$ (2, 144) = 0.11 |
| BDI-II, mean (*SD*) | 27.51 (11.75) | 26.31 (10.99) | 25.72 (11.33) | $F$ (2, 144) = 0.32 |
| MDI dissociation[a], mean (*SD*) | 64.23 (20.79) | 65.81 (24.77) | 61.66 (24.10) | $F$ (2, 128) = 0.34 |
| MDI disengagement | 14.54 (4.14) | 14.95 (4.93) | 13.49 (4.42) | $F$ (2, 128) = 1.18 |
| MDI depersonalization | 8.90 (4.21) | 9.69 (4.91) | 8.85 (4.94) | $F$ (2, 128) = 0.43 |
| MDI derealization | 10.69 (4.60) | 11.43 (5.10) | 9.73 (4.85) | $F$ (2, 128) = 1.28 |
| MDI memory disturbance | 9.98 (4.33) | 10.26 (5.09) | 9.51 (4.35) | $F$ (2, 128) = 0.28 |
| MDI emotional constriction | 13.02 (5.61) | 12.48 (6.07) | 12.76 (5.86) | $F$ (2, 128) = 0.10 |
| MDI multiplicity | 7.10 (3.70) | 7.00 (2.78) | 7.32 (4.64) | $F$ (2, 128) = 0.08 |
| TSI dissociation, mean (*SD*) | 63.04 (11.99) | 64.56 (12.10) | 62.53 (12.43) | $F$ (2, 146) = 0.37 |
| Caseness for dissociation[b], percentage (*n*) | 48.1 (25) | 46.0 (23) | 40.4 (19) | $\chi^2(2) = 0.62$ |

*Note:* CAPS, Clinician Administered PTSD Scale; PDS, Posttraumatic Diagnostic Scale; BDI-II, Beck Depression Inventory, II; MDI, Multiscale Dissociation Inventory; TSI, Trauma Symptom Inventory. [a]MDI dissociation represents the mean score for trauma-specific dissociation on the MDI. [b]Caseness for dissociation was determined using the standard clinical cutoff (a T score of 65 or higher)[32] on the trauma-specific dissociation subscale of the MDI.
$^{**}P < .01$.

*Depression and Anxiety*

# Writing increases speed of symptom reduction for high dissociation

Figure 1: When looking at 2 SD above the mean for the whole dissociation score (TSI DIS 87.63), CPT (with writing) decreased faster than CPT-C (without writing) (note: difference was in rate of change, not overall change).

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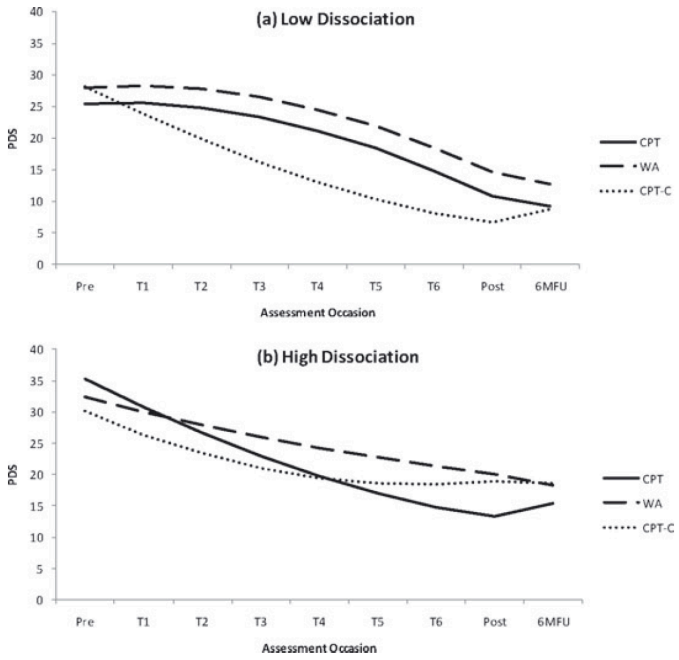


**Figure 1. Treatment condition × TSI DIS × time interaction. la depicts change over time on the PDS as a function of treatment condition at 1 *SD* below the mean level of TSI DIS. lb depicts change in PDS as a function of treatment condition at 1 *SD* above the mean level of TSI DIS.**

Interestingly, at two standard deviations above the mean on the MDI (score of 18.45), the study's regression equation predicted post treatment Post-traumatic Stress Diagnostic Scale values of 7.75 for those doing CPT with writing and 27.93 for those doing CPT without writing (a 1.12 SD difference!).

Figure 2: Comparing low depersonalization (1 SD below the mean= 6.81) vs. high (1 SD above the mean = 13.79).

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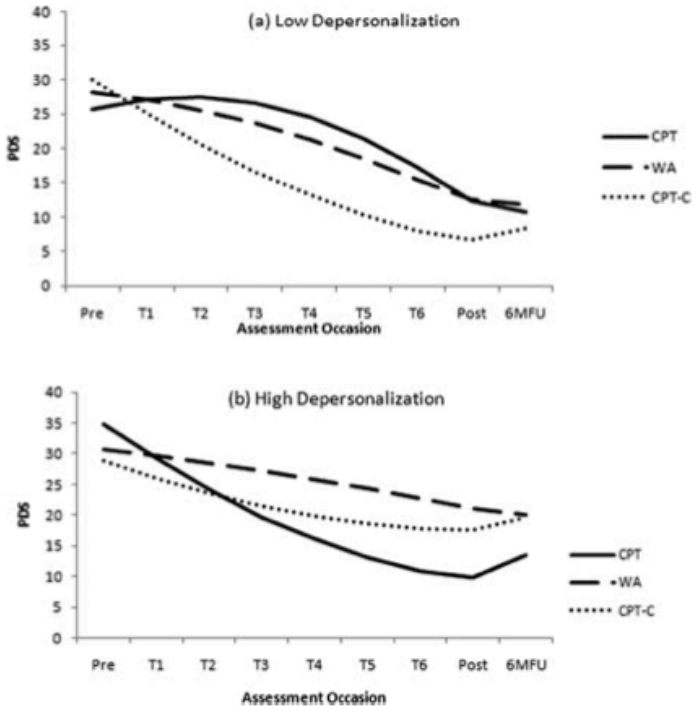


**Figure 2. Treatment condition × MDI depersonalization × time interaction. 2a depicts change over time on the PDS as a function of treatment condition at 1 *SD* below the mean level of MDI depersonalization. 2b depicts change in PDS as a function of treatment condition at 1 *SD* above the mean level of MDI depersonalization.**

## Those who depersonalize are good candidates for writing

When considering the results of those who scored high on the depersonalization subgroup of “high dissociators,” we can see that story writing has a profound effect on symptomatology. The results of this study suggest that the narrativization of trauma is beneficial for those who tend to dissociate, but even more so those who tend to depersonalize, to separate themselves from their own story. This introduces a population of patients who may find value in supplementing their therapy with expressive writing as a method of reintegrating their identity into their story.

However, it is important for more studies to support these specific findings, given these regression analyses extrapolated based on participants at two standard deviations above the mean.

Also, it’s interesting that these graphs demonstrate that WA (the writing alone condition), also improved PTSD symptoms without any of the extra therapy attached. Patients in every intervention got better, showing that writing does have an effect (though less pronounced) even as a stand-alone treatment.

Change in dissociation was the same for all treatment conditions (Table 3).

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| Variable | *n* | Pretreatment *M* (*SD*) | | Posttreatment *M* (*SD*) | | 6-month follow-up *M* (*SD*) | | $r^2$ Time | $\Delta dev$ ($df = 2$) Time |
|---|---|---|---|---|---|---|---|---|---|
| TSI dissociation | 150 | 63.93 | (24.49) | 49.25 | (19.07) | 47.05 | (20.69) | .25 | 69.79 |
| MDI total | 147 | 63.93 | (22.96) | 49.25 | (18.91) | 47.05 | (20.61) | .25 | 69.79 |
| MDI disengagement | 147 | 14.34 | (4.48) | 10.98 | (4.39) | 10.82 | (4.53) | .26 | 70.20 |
| MDI depersonalization | 147 | 9.14 | (4.64) | 6.90 | (3.38) | 6.80 | (4.24) | .16 | 41.74 |
| MDI derealization | 147 | 10.63 | (4.83) | 7.84 | (4.00) | 7.64 | (4.13) | .21 | 55.86 |
| MDI Emot. Constriction | 147 | 12.76 | (5.78) | 9.66 | (5.30) | 8.79 | (5.24) | .18 | 49.94 |
| MDI Mem. Disturbance | 147 | 9.92 | (4.55) | 7.94 | (3.71) | 7.44 | (3.49) | .14 | 37.43 |
| MDI multiplicity | 147 | 7.14 | (3.73) | 5.92 | (2.25) | 5.81 | (2.35) | .07 | 21.21 |

## A Study on Writing to Increase Resilience, Decrease Perceived Stress, Depressive Symptoms, and Rumination

An observational clinical trial by researcher Oliver Glass and his team (2019) conducted a six-week expressive writing intervention based on a program created by a close colleague of Dr. Pennebaker. The program is titled “Transform Your Life: Write to Heal.” It is unique in that it expands on the “Pennebaker Paradigm,” the framework of freestyle writing about feelings and emotions surrounding trauma used in Dr. Pennebaker’s experimental work. Dr. Glass’s team included that prompt but also incorporated five other styles of writing: transactional writing, poetry, affirmation writing, legacy writing, and mindful writing.

Transactional writing encouraged the participant to focus on the perspective and feelings of those around them, with the goal of cultivating compassion for oneself and loved ones. During the poetic writing session, participants were encouraged to use metaphors to express their thoughts about their experience. Affirmative writing focused on identifying personal strengths and aspirations. Legacy writing encourages reflecting on what values are important to them. Lastly, mindfulness writing “reinforces the concept of being aware and attentive, with therapeutic distance from what is observed that allows one to accept what is.”

Participants included 39 adults who identified as having experienced trauma within the past year. They were given several prompts one day per week to write out with paper and pen or computer. They were given 15 minutes per writing assignment and 5 minutes for a post-writing survey. The participants completed these assignments in person over a six-week course.

The primary outcome of resilience was assessed with the Connor-Davidson Resilience Scale (CD-RISC), a validated 25-item scale. The scale carries a five-point range of responses: “not true at all (0), rarely true (1), sometimes true (2), often true (3), and true nearly all of the time (4).” The scale is rated based on how the subject has felt over the past month. The total score ranges from 0 to 100, with higher scores reflecting greater resilience (Connor & Davidson, 2003). The scale was developed by studying the characteristics of resilient people and then

formulating them into statements that the user can rate from 0 to 5, corresponding to the above statements.

**TABLE 1**

| Reference |
|---|
| Kobasa, 19 |
| Kobasa, 19 |
| Kobasa, 19 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Rutter, 198 |
| Lyons, 199 |
| Lyons, 199 |
| Rutter, 198 |
| Current |
| Current |

**TABLE 2: Content of the Connor-Davidson Resilience Scale**

| Item no. | Description |
|---|---|
| 1 | Able to adapt to change |
| 2 | Close and secure relationships |
| 3 | Sometimes fate or God can help |
| 4 | Can deal with whatever comes |
| 5 | Past success gives confidence for new challenge |
| 6 | See the humorous side of things |
| 7 | Coping with stress strengthens |
| 8 | Tend to bounce back after illness or hardship |
| 9 | Things happen for a reason |
| 10 | Best effort no matter what |
| 11 | You can achieve your goals |
| 12 | When things look hopeless, I don't give up |
| 13 | Know where to turn for help |
| 14 | Under pressure, focus and think clearly |
| 15 | Prefer to take the lead in problem solving |
| 16 | Not easily discouraged by failure |
| 17 | Think of self as strong person |
| 18 | Make unpopular or difficult decisions |
| 19 | Can handle unpleasant feelings |
| 20 | Have to act on a hunch |
| 21 | Strong sense of purpose |
| 22 | In control of your life |
| 23 | I like challenges |
| 24 | You work to attain your goals |
| 25 | Pride in your achievements |

The current study found a mean increase in resilience scores of about 10.0 with a 95% CI of 5.6-14.4 and a large effect size substantiated by Cohen's d = 0.75.

For the first of their secondary outcomes, perceived stress was measured by the 10-item Perceived Stress Scale (PSS-10). Scoring is from 0-4 on a 5-point scale, with 0=never and 4=very often. The current study found a difference in perceived stress with an approximate mean decrease of -6.1 and a large effect size shown by Cohen's d = 0.76.

Depression symptoms were assessed using the 20-item Center for Epidemiological Studies Depression Scale - Revised (CESD-R), which has response values ranging from 0-4 (0=Not at all and 4=Nearly every day for 2 weeks) and assesses DSM-5 criteria symptoms. A CESD-R score of 16 or higher represents possible major depression. Glass's team found that depression scale scores decreased by a mean of approximately -6.0 ± 11.98 points, with a medium effect size shown by Cohen's d = 0.52.

Lastly, rumination, defined as "compulsively focused attention on the symptoms of one's distress," was measured using the 22-item Rumination Response Scale (RRS). The RRS indicates the frequency of each item on a 4-point scale ranging from 1=Almost never to 4=Almost always. Examples of items include: [how often do I…] "think about how alone you feel" and "think about a recent situation, wishing it had gone better." The study found that RRS

scores decreased from baseline, with a mean decrease of −8.6 ± 10.58 points and the largest effect size of Cohen's d = 0.82.

Participants also used a scale of 0-10 to answer the question: "To what degree was the writing meaningful and valuable for you?" The table below includes the average ratings. Affirmative writing was found to be the most meaningful by the writers, with an average rating of 8.78, while poetic writing had the lowest meaningfulness rating at 6.92. All types of writing were rated on average above 5, thus concluding that all writing styles were meaningful to the average participant.

**Acceptability Ratings: Meaningfulness and Value of the Writing Exercises.** Participants used a scale of 0–10 to answer, "To what degree was the writing meaningful and valuable for you?"

| Type of Writing | Expressive | Transactional | Poetic | Affirmative | Legacy | Mindful | Overall Average |
|---|---|---|---|---|---|---|---|
| Average Rating | 8.67 | 8.45 | 6.92 | 8.78 | 8.68 | 8.15 | 8.28 |
| N for that rating | 39 | 38 | 38 | 36 | 37 | 33 | 37 |

This study demonstrates that expressive writing is psychologically beneficial and improves various mental domains. There was a significant improvement in resiliency. Those who write expressively are better equipped to bounce back from traumatic events. Furthermore, breaking resiliency down to some components covered in the CD-RISC reveals that expressive writing helps encourage patience, tolerance of change, adaptability, a sense of humor, and more. These aspects are crucial for maintaining joy and balance in our constantly shifting and evolving lives, even during adverse times.

The secondary outcomes also had significant and large effects, which is useful for identifying which patients will benefit most from a writing intervention. Patients with depressive symptoms can expect modest improvement from this simple and low-cost intervention. Those experiencing persistently high stress, such as business owners, parents, and workers within a competitive field, may significantly lower their stress levels through expressive writing.

## A Study Suggesting Writing Decreases Rumination

The study findings suggest that expressive writing significantly lowers rumination with a large effect size. In a 2006 paper, Pennebaker theorized that increased rumination heightens depressive symptoms and that expressive writing mitigates these symptoms by decreasing rumination (Gortner, Rude, and Pennebaker, 2006).

Additionally, participants seemed to enjoy the activity and found it meaningful, as evidenced by the high ratings of acceptability. The paper included favorable participant comments such as, "This process was very new to me and it felt great to express thoughts that come out differently written than in my own head. I find it difficult to express myself verbally and am hopeful this

strategy will allow an outlet to my deeper feelings." This suggests that many people not only comply with but also enjoy this intervention.

However, it is important to note that the study participants signed up voluntarily and were not compensated, which could mean that these effects are most prominent in people who are already interested in writing. The study also lacked a control group, so confounding variables such as the passage of time and the establishment of routine cannot be ruled out as contributing factors to the psychological benefits observed.

## A Study on the Effects of Writing on Anxiety

As an undergraduate student, I collaborated with the psychology department chair to craft a randomized controlled trial (RCT) using Pennebaker's framework to test if an expressive writing condition could decrease anxiety in study participants. Our sample consisted of undergraduate students at Andrews University. We utilized the State-Trait Anxiety Inventory-S Anxiety (STAI-S), created by Spielberger in 1983 and reviewed in 2010 (Spielberger, 2010), to measure state anxiety. The STAI-S contains 20 items using a 4-point Likert Scale (1 = almost never, 2 = sometimes, 3 = often, 4 = almost always). Participants responded to statements indicating how they felt at that moment, such as, "I feel that difficulties are piling up so that I cannot overcome them" and "I feel nervous and restless."

Experimental participants wrote about a stressful life event, while the control group wrote about the activities of their day. Anxiety scales were collected pre-intervention, 30 minutes post-intervention, and 15 days post-intervention. We found a decrease in state anxiety over time for those assigned to the experimental group compared to the control group. Both groups' anxiety levels dropped below baseline measurements over time, but the decline in anxiety was steeper for the expressive writing condition than the control condition.

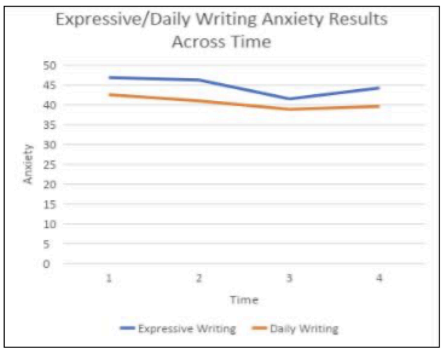


Figure. 1 Graph of Expressive/Daily Writing Anxiety Results Across Time

The effect size appeared to be very small for both groups, substantiated by $\eta^2$ values of 0.11 between the experimental and control groups, and $\eta^2$ values of 0.04 and 0.002 between the 30-minute and 15-day time intervals within the experimental group, respectively. The max score on the State-Trait Anxiety Inventory-S Anxiety inventory is 80. We found that participants in both groups had an average score that declined from 46 pre intervention to approx 40 by 30 mins post then increased to 41 by Day 15.

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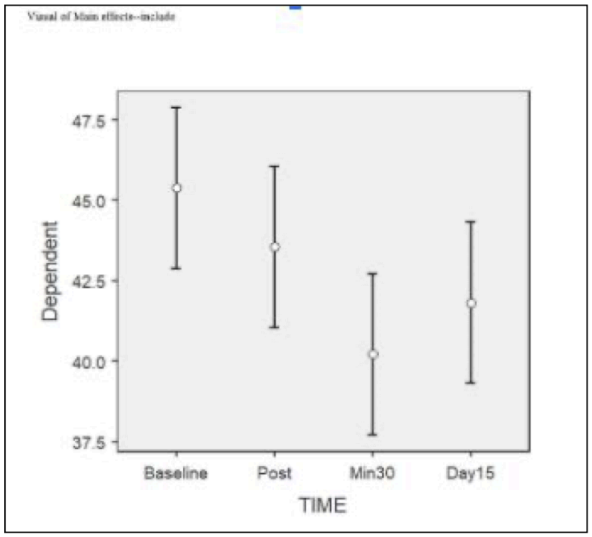


Figure 2. Table of Main effects across all time conditions

We can conclude from this study that expressive writing has a modest but statistically significant effect on anxiety over time. However, we did not measure clinical significance.

## Expressive writing decreased clinical symptoms for patients with asthma and rheumatoid arthritis after four months

A study completed by Joshua Smyth in 1999 examined the relationship between expressive writing and physical symptom improvement in patients with mild to moderately severe asthma (n=61) or rheumatoid arthritis (n=51).

Prior to the intervention and then 2 weeks, 2 months, and 4 months after the intervention, the asthma patients were evaluated with spirometry, and the rheumatoid arthritis patients were evaluated by a licensed rheumatologist. For both groups, a strong difference in outcomes was found at the 4-month follow-up (P = .016).

For the asthma group, the average percentage of expected forced expiratory volume in 1 second (FEV1) improved from 63.9% at pre-intervention to 76.3% at the 2-week follow-up (P < .001).

The rheumatoid group showed a global decrease in rheumatoid disease activity at the 4-month assessment (F1,46 = 11.48, P = .001).

The study also measured the clinical significance of the results. They found that for both the asthma and rheumatoid arthritis groups, “participants showed greater rates of improvement and

lesser rates of worsening than the control group across both diseases ($\chi^2 = 10.42$, P = .005; Fisher exact P = .0060)" (Smyth, 1999). This demonstrates that there is a clinically significant difference, as well.

The mechanism for why this occurred is still unknown. The study hypothesized that it might be due to psychophysiological improvements in immune function. Another theory suggested that creative writing improved health behaviors by providing an outlet for decreased stress, which might have mitigated the use of other unhealthy coping mechanisms such as smoking or alcohol use. The asthma group also showed statistically significant improvement earlier than the rheumatoid group, which may suggest that there are two completely different patterns of response to expressive writing. Further studies will hopefully dive into the internal processes stimulated by expressive writing that allow for clinical symptomatology improvement.

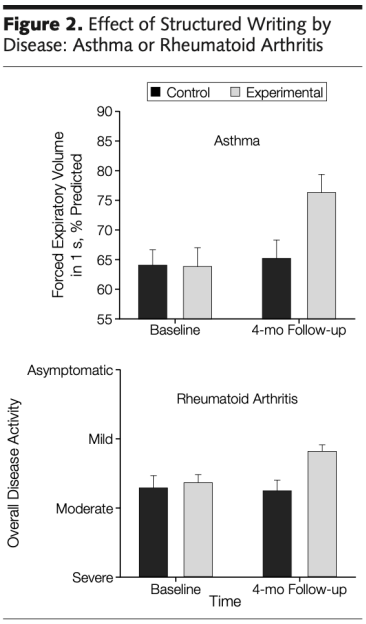


**Figure 2.** Effect of Structured Writing by Disease: Asthma or Rheumatoid Arthritis

## Decreased perceived emotional stress improves wound healing in post surgical patients.

Mitigation of stress may play an important role in how expressive writing positively affects mental and physical health. It is well known how stress and anxiety interact hormonally with several body systems. Dr. Edward Tagge discusses these psychobiological interactions in his 2013 paper, *Psychoneuroimmunology and the Pediatric Surgeon*. The paper discusses the bidirectional communication network between the brain and the immunological and endocrinological body axis. His paper found that stress mitigated by cognitive behavioral therapy (CBT), mindfulness meditation, and touch therapy improved wound healing and other post-surgical outcomes, likely through immunologic and inflammatory regulation by an "unstressed" brain.

This randomized control trial measured this by analyzing ePTFE tube for hydroxyproline deposition in surgical patients post-cholecystectomy. They used the above-mentioned therapy modalities as their intervention and measured participants' perceived stress. The study found that intervention group patients showed a reduction in perceived stress compared to the control group and had higher hydroxyproline deposition (p=0.03). This means that less-stressed post-surgical patients had significantly improved wound healing as a result of increased immunological and endocrinological function.

Although I was unable to find studies that directly compare the aforementioned treatment modalities with expressive writing, we know that expressive writing is effective for lowering perceived stress (Glass, Dreusicke et al. 2019) and improving mood (Smyth et. al. 2010). Therefore, we can expect that having patients engage in expressive writing therapy modulates the immune and inflammatory systems in a similar way to the therapies studied in the above RCT.

# Clinical Application

“In your writing, whatever you write about, just let go and explore your very deepest thoughts and feelings.” - James Pennebaker

Expressive writing has shown small but significant effects in mitigating mood states and physical symptoms. It is a low-cost and easy-to-implement therapy intervention. Of course, the next question is, how can clinicians incorporate expressive writing into clinical practice?

For several of Pennebaker's studies (Gortner, Rude, and Pennebaker, 2006; Baike, Wilhelm 2018), instructions for the experimental condition were as follows:

“For the next 3 days [for ~20 minutes], I would like you to write about your very deepest thoughts and feelings about any difficult or emotionally disturbing events you are experiencing in your life right now. You may also tie your topic in with any past stressful or traumatic experiences you’ve had. In your writing, I’d like you to really let go and explore your very deepest emotions and thoughts. You might link your topic to your relationships with others, including parents, lovers, friends, or relatives. You may also want to consider linking your experience to your past, your present, or your future, or to who you have been, who you would like to be, or who you are now. You may write about the same general issues or experiences on all days of writing, or on different experiences each day. Don’t worry about grammar or spelling—that is not important. All of your writing will be completely confidential.”

This is a template for how a therapeutically successful expressive writing intervention may be introduced to a patient. It is important that the focus is on one’s emotions and connections to memories and relationships rather than on timeliness or grammar.

Pennebaker encourages that the patient should assess themselves after each writing exercise: How am I feeling about what I wrote? Was that really what I should be writing about? How can I explore this topic from a different perspective?

Writing can be done using a computer or on physical paper. Pennebaker says in an interview with Nelda Sue Yaw that physical writing style can be experimental and change to whatever makes the writer most comfortable. That could mean writing with their dominant or

non-dominant hand, forgoing paper and writing with just their finger in the air. However one chooses to write, just get it out.

We also can surmise by integrating the studies reviewed earlier that using prompts that encourage variety in style and perspective of writing is also useful for enriching the total experience. Therapists can use the exact prompt above but may also be encouraged to have several writing sessions where affirmations, aspirations, other people's perspectives, or new insights are proposed as prospective writing topics. In addition, the 2018 Glass study had participants write in metaphor. Having your client try writing a poem, song, sonnet, or story to represent their trauma may be a creative way to have them explore the narrative of their experiences in a fresh, artistic manner.

Based on all that we have discussed, I believe patients who would receive maximum benefit include those who struggle to talk out loud with clinicians or friends and family about their feelings, emotions, and traumas and those with high levels of dissociation. In addition, patients who have a tendency to ruminate or compulsively revisit previous traumas may find expressive writing therapeutic. Other patients who would benefit from expressive writing as an ancillary therapy along with other certified treatment modalities would be patients who struggle with anxiety, chronic stress, chronic disease (e.g., asthma, rheumatoid arthritis), PTSD, or who are post-surgical.

The most important takeaway is that writing should be free and uncurated, as that allows for peak self-expression. Patients should be allowed to focus on current or past traumas and relate them to their past or future, contemplate how they or others are affected, etc. They can write about different traumas or repeat the same traumas. No set agenda, just 20 minutes of free-flowing ideas, allowing them to create a story out of their experiences, ordering the chaos of trauma into a narrative they can accept.

# Personal Anecdote

To end the episode, Dr. Puder challenged himself and me to try expressive writing for a couple of days using the same prompt and a 20-minute timer so that we could experience the intervention firsthand.

Here are my (Emerald Norman) thoughts after completing a couple of sessions:

I initially found it hard to begin and sit down to do the intervention. Every time I attempted to do so, something else grabbed my attention. (More research may be needed to see if this treatment is effective for people with untreated ADHD!) Once I was able to sit myself down for my first writing prompt, I found myself awash with boredom and unsure of what I even wanted to write about.

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I have experienced a couple of scenarios in my life that could be interpreted as traumatic. However, none currently affect me (or so I thought). Because I couldn't think of any current stresses, I began writing about a situation that happened to me many years ago in high school. I was surprised to find that as I began engaging in the story, the time melted away. While I had begun the intervention wrestling with boredom and inattention, within seconds, I was immersed in my writing and emotionally back in high school.

I recounted the story as much as I remembered it but then found myself focusing on how it still affects me today. I admitted to myself feelings that I had taken much conscious effort to suppress over the past years and months. In doing that, I saw how so many of those feelings stemmed from and found root in that past trauma. So much of my self-talk, even today as a medical student, was so obviously shaped by that experience and similar ones. I realized that my past stress was very much my current stress.

The timer went off as I was mid-sentence. I was so engrossed in typing that 20 minutes passed by in what felt like 20 seconds. Physiologically, I was much more aroused than at the start of the task. I was sweating lightly, my heart was pounding a bit, and my thoughts were racing. I took a few minutes to walk around the room before packing my things to head home that first day.

From what I have learned from the articles I read, it is normal to be immediately excited after writing expressively, and the calming, stress-reducing benefits tend to show up weeks and months later. Immediately, I can say that I appreciated being able to make those connections between my past and present feelings as a short-term benefit. Although, it definitely came at the cost of awakening emotions within me that were not positive. I guess the next thing to do is wait.

# Audience Activity

We encourage you to follow the prompt above for 3 days. Try writing in a different style every day, or continue in one style if that is most comfortable to you. See where your writing takes you!

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